OCTOBER 1995

RESEARCH PAPER THIRTY-EIGHT

TAX REFORMS IN TANZANIA: MOTIVATIONS, DIRECTIONS AND IMPLICATIONS

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AFRICAN ECONOMIC RESEARCH CONSORTIUM

CONSORTIUM POUR LA RECHERCHE ECONOMIQUE EN AFRIQUE

Tax reforms in Tanzania: Motivations, directions and implications

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Tax reforms in Tanzania: Motivations, directions and implications

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AERC Research Paper 38
African Economic Research Consortium, Nairobi
October, 1995

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Published by The African Economic Research Consortium,
P.O. Box 62882,
Nairobi, Kenya.

Printed by the Regal Press Kenya Ltd.,
P.O. Box 46116,
Nairobi, Kenya.

ISBN 9966-900-41-1

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Abstract

This paper provides a theoretical discussion on the relationship between buoyancy/elasticity and the existence of the underground economy and postulates an inverse relationship between the two. Such relationship is argued because the growth of the underground economy erodes the tax base and consequently reduces receipts, which in turn affects revenue productivity. In addition, the paper estimates the size of the underground economy in Tanzania for the period 1967-1990 in order to determine the magnitude of tax evasion. The resulting estimates show that the size of the underground economy is significant and grew from about 10% of official GDP in 1967 to 31% in 1990. These estimates suggest that tax evasion in 1990 was equal to more than one-third of total tax receipts in that year. The paper also provides an explanatory link between measured revenue productivity (buoyancy/elasticity) and tax policies. In this connection, the empirical results suggest that measured productivity is influenced by tax policies in place during a specific period. The lower rates/higher buoyancies in the 1970s and the higher rates/lower buoyancies in the 1980s demonstrate the laffer curve effect. Finally, the paper discusses what type of reforms could penetrate the underground economy. The paper concludes with important policy implications for tax reform.

I. Introduction

During the last three decades, the tax system of Tanzania has undergone major reform (see Osoro, 1991). Invariably, tax reforms have constantly been used to raise the revenue productivity of the tax system. Nevertheless, Osoro (1991) demonstrated that the reforms have not achieved the objective of raising revenue productivity. This is evidenced by the low buoyancies and the elasticities that the tax system has exhibited over the last decade. Such a low revenue productivity of the tax system is argued to have been attributable to mainly generous tax exemptions, low compliance and tax evasion coming both from a weak tax administration and high tax rates (Osoro 1991).

One criterion of a good tax system is high revenue productivity. Since the tax system is not revenue productive, it is pertinent to link measured productivity with specific tax policies. This analysis is important because, for example, tax policies and reform in the 1970s differed from those of the 1980s (Osoro, 1991, pp. 9-13). Thus, it is likely that specific tax policies in a given period might have had different impacts on revenue productivity.

As already pointed out, tax evasion may be considered as one of the factors that is likely to have affected revenue productivity. Tax evasion stands out today as one of the major problems of the Tanzanian tax system and seems to have been a product of poor tax administration, corruption and high tax rates. High tax rates have acted as an incentive to evasion, resulting in a shift in production towards informal sector activities that are difficult to tax (Maliyamkono and Bagachwa, 1990). Thus, the existence of the underground economy may be considered as a result of high tax rates.

The objective of this study is fourfold. First, to provide a theoretical discussion on the relationship between buoyancy/elasticity and the existence of the underground economy. Second, to estimate tax buoyancies and elasticities using official GDP data and then using a tax base inclusive of the estimated income from the underground economy. Third, as far as possible, to provide an explanatory link between measured productivity and tax policies. Finally, to provide a discussion on what type of tax reforms could penetrate the underground economy. Section II provides a brief overview of tax reform in Tanzania. Section III presents the conceptual framework. Section IV discusses methodology, and is followed by a discussion of empirical findings in Section V. Section VI discusses the type of reforms that would penetrate the underground economy. Summary and concluding remarks are provided in Section VII.

II. Tax reforms

Tax reform in Tanzania dates back to the late 1960s. However, major tax reforms started in the 1970s. Motivations for tax reform in Tanzania have been due to apparent failure of the tax system to generate adequate revenue required to meet growing expenditure needs. Rapid growth of expenditure has been caused by socio-economic and political developments since the Arusha Declaration of 1967.

The major objective behind tax reform in the 1960s was revenue and equity. This objective was implemented by introduction of a new sales tax in 1969 (Sales Tax Act, 1969). Sales tax was introduced partly to offset decline in import duty revenue caused by growth in import substitution industries, and partly to reduce rural taxation (Osoro, 1993). But above all the basic objective was revenue.

The objectives of tax reform in the 1970s remained revenue and equity, but protection became increasingly an important objective. The major tax reform in this decade was the introduction of a progressive income tax in 1973 (see the Income Tax Act, 1973), the repealing of the 1969 Sales Tax Act, replacing it with a new Sales Tax Act of 1976, and raising import duty rates. and abolition of excise duty in the late 1970s. The objective of the first two reforms were to broaden the tax base with a view to raising revenue, and achieving equity. The abolition of excise tax resulted in substantial rise in sales tax rates to compensate for the resulting revenue loss, and complicated sales tax structure.

Tax reform in the 1980s was a result of economic crises of that decade. Prior to 1985, most tax changes were made on indirect taxation. The rates of import duty and sales tax were raised virtually annually, the result of which was an extremely high tax rates and a very complicated indirect tax system.

Following 1985, the country's policies assumed a new dimension. Trade liberalization was put in place. Negotiation with the IMF was concluded in 1986, paving way for inflow of foreign sources of finance. In 1985, all export taxes were abolished in order to reduce the tax burden on producers and at the same time giving them incentive to produce. Thus, the measure was expected to enable the country to sell exports at competitive prices (Osoro, 1993). In the same year, the Sales Tax Act, 1976 was amended to provide for a "ring" system of sales taxation. A road toll was also introduced. From 1985 import duty and sales tax rates were gradually reduced each year. Nevertheless, significant rate reductions occurred after 1987. Another tax reform was the introduction of previously abolished excise duty in 1989 to facilitate rationalization and simplification of sales tax structure and administration. Nevertheless, this tax had multiple and high rates which was self defeating.

In the area of income taxation, marginal tax rates were reduced from a range of 25 to 95% in 1986/87 to 10-50% in 1989. These rate reductions had dual objectives: to

reduce the tax burden on a wage earner and to enhance the take home pay of a worker. However, the achievement of the second objective was far fetched since the basic pay of a worker has been extremely low.

The tax reforms in the 1990s comprised further reduction of individual income tax rates from 10-50% to 7.5-35% in 1992. Further, in 1990 the Investment Promotion Act was passed by Parliament to establish the Investment Promotion Center (IPC). The Act provided for tax incentives with a view to attracting foreign investments. The tax incentives included among other things, a tax holiday, exemption of taxes on imported inputs. If anything, the act has eroded the tax base rather than achieving significant attraction of foreign investment. The final tax changes in the 1990s was the reduction of tax rates across the board in 1992. Also most tax exemptions were reduced to enhance compliance in the same year. Finally, import duty on imported inputs were removed. Due to weak tax administration and corruption, revenue performance was poor. Accordingly, exemptions and taxes on inputs which were formally removed were restored after six months. As the revenue performance further worsened in 1994 the government raised indirect tax rates.

In summary, the major objectives of tax reform in Tanzania have been revenue, equity, and protection. The revenue objective was to be achieved through raising tax rates, equity objective by progressive income taxation and high indirect tax rates on luxuries, and high import duty rates on imported goods. Nevertheless, apart from making efforts to simplify the tax system, the tax reform paid little or no attention to efficiency objective, and reform of tax administration. By and large, tax reform in Tanzania has been used as an instrument of raising revenue productivity of the tax system.

Despite all the reforms described above, Tanzania is still experiencing massive revenue shortage leading to large fiscal deficits. Thus tax reforms have not yet succeeded in raising revenue productivity of the tax system. Several factors have accounted for the failure of tax reform to generate adequate revenue: 1). complicated tax structure that has prevailed since the 1970s; 2). the granting of generous tax exemptions: statutory and discretionary (by the Minister of Finance and through IPC); 3). high tax rates which encourage tax evasion and thereby reducing compliance; and 4). lack of or failure to undertake reform in tax administration.

III. Conceptual framework

Tax evasion

One of the most important problems that any tax administration faces is cheating or evasion. It is important to distinguish between tax avoidance and tax evasion. Tax avoidance is changing one's behaviour in such a way as to reduce legal tax liability, and as such, tax avoidance is not illegal. Tax evasion is failing to pay taxes which are legally due. If a tax on oranges is levied and you sell fewer oranges, it is a tax avoidance. If you fail to report your sales of oranges to the tax authorities, it is tax evasion.

Tax evasion is not a new problem. Even Plato observed, when there is an income tax, the just man will pay more and the unjust less on the same amount of income (Rosen, 1985, p. 322). In recent years the phenomenon of tax evasion has received a large amount of public attention. However, by its very nature it is difficult to measure.

The existence of the underground economy is today generally considered a bad thing and that policy should be designed to reduce it. While this proposition may be correct, it is worth careful scrutiny.

The crucial issue is whether we care about the welfare of tax evaders. Are the utilities of the participants in the underground economy to be included in the social welfare function? Assume at the moment that they are. Then, under certain conditions, the existence of an underground economy raises social welfare. For instance, if the supply of labour is more elastic to the underground economy than the regular economy, optimal tax theory suggests that the former be taxed at a relatively low rate, an application of inverse elasticity rule. Alternatively, suppose that the participants in the underground economy tend to be poorer than those in the regular economy. Then to the extent that the society has egalitarian income redistribution objectives, it might be desirable to leave the underground economy intact (Rosen, 1985, p. 327).

There is no evidence that either of these two assertions is correct. What is important to note is that analysis of the usual utilitarian welfare criteria leads to ambiguous results in respect of the desirability of an underground economy.

Consider now the policy implications when evaders are not given weight in the social welfare function, and the goal is simply to eliminate cheating at the lowest administrative cost possible. Further, consider that the expected marginal cost of cheating (MC) is the product of the penalty rate (PR) and the probability of detection (p). The probability of detection depends upon the amount of resources devoted to tax administration. If the Income Tax Department has a big budget, it can catch the cheats. However, even if the tax authorities have a small budget, so that the probability of detection

(p) is low, the marginal cost of cheating can still be made arbitrarily high if the penalty is large enough. If only one tax evader were caught each year, but she/he was publicly hung for his/her crime, the expected cost of tax evasion would deter many people. Contrary to the assumption of the utilitarian framework, society cares not only about the end result (i.e., getting rid of cheats), but also the rules by which the results are achieved (Rosen, 1985, p. 328)

The development of the underground economy raises several broader issues for society. Some have argued, for instance, that cheating is habit-forming, saying that once people become accustomed to evading taxation, they continue to do so, even if marginal tax rates are lowered in the future (Lindbeck, 1980). There are also fears that growth of the underground economy will force some people into cheating. Suppose, for example, the tax evasion becomes predominant in the sectors of the economy dominated by small businesses whose activities are particularly difficult to monitor. Then firms that avoid cheating will be at a competitive disadvantage because of higher costs. The only choice for these firms is to cheat or go out of business.

To date, there has not been a single study on tax evasion in Tanzania. Nevertheless, there are clear indications that tax evasion exists and is a big problem in the country's tax system. To appreciate the seriousness of the problem it is worth citing a few tax evasion cases. In November 1991, a Dar-es-Salaam based company was given seven months to pay Tsh 452.7 million as customs and sales tax it had been evading since the firm was set up in 1989. The firm, which is a clearing and forwarding company, obtained fake documents showing that they made 91 business trips to Zambia via Tunduma border post, between 1989 and June 1991 while in fact only six trips were made. Further investigations carried out in Zambia revealed that the firm was accustomed to shoddy deals as officials there proved that all the documents used to cross the border were fake. The Minister for Home Affairs, by then Mr. Augustine Mrema, remarked: "This company seems to have specifically been established to swindle the Government" (Daily News, 15 November, 1991). The minister further said the company was alleged to have made 70 trips to Burundi and Rwanda, but records showed no single truck of containers had crossed to the neighbouring countries. On the contrary, the firm had its documents illegally stamped at Mrusagambwa border post in Ngara District.

On 25 November, 1991 another Dar-es-Salaam based - private company was discovered to have evaded taxes amounting to Tshs.85 million over the last two years. The firm was also a clearing and forwarding company. Accordingly, Minister Mrema noted that "tax evasion was a virus that would wreck the national economy unless drastic measures were taken to patch existing loopholes" (Daily News, November 15, 1991).

Apart from these two tax evasion cases, many others were unearthed during 1991. However, most of the cases involved evasion of indirect taxes (sales tax and import duty). Very few cases have involved income tax. This is because direct taxes are easier to evade than indirect taxes.

Personal income tax rates in Tanzania have been generally progressive and relatively high, ranging from 20-95% during the 1973-74 to 1984-85 period. For example, in 1981, a person earning a monthly income of Tshs4,000 paid a quarter of his income as tax, while one earning Tshs25,000 paid three-quarters of his earnings as tax. Since 1986,

however, there have been gradual attempts by the government to reduce personal income tax rates. As a result, from June 1992, the marginal personal income tax rates have ranged from 5 to 35% (Budget Speech 1992-93).

Cheating may be habit-forming, that is, once people become accustomed to evading taxation, they will continue to do so even if the marginal tax rates are lowered. In the face of this, there is no guarantee that the now existing low rates will significantly discourage incentives to evade income tax. Since the probability of being detected is small and the penalty rate is still low, evasion of income tax is likely to continue.

Maliyamkono and Bagachwa (1990) contend that due to the existing inefficiency of many industries in Tanzania, the tax rate per product is higher than net profit rates per item. This acts, therefore, as an incentive to evade taxes to offset business losses and/or reap illegitimate profits. They further argue that, generally, high tax rates combined with deteriorating economic situations have tended to shift production towards those activities that are difficult to bring to the tax net (i.e., informal sector activities). In this connection, one can argue that the emergence of the underground economy has partly been a consequence of tax evasion.

It is noteworthy that tax evasion is not the only factor that has adversely affected tax collection in Tanzania. The government participation in economic activity in the economy, since the Arusha Declaration of 1967 is one of the major factors that have also contributed to low tax collections. Public participation in the economy in form of parastatal enterprises, most of which operated inefficiently, and hence fall in production resulted in low tax collection of commodity taxes (sales tax and excise duty) and company taxes. However, this paper concentrates on loss of revenue arising from tax evasion.

Buoyancy/elasticity and the existence of the underground economy

High tax rates are considered to be one of the major incentives to evade taxes. The underground economy has thus partly been used as a vehicle for evading tax. The immediate impact of tax evasion is the erosion of a country's tax base. Since income elasticity of a tax is a product of base-to-income elasticity and tax-to-base elasticity, reduction of the tax base is bound to reduce the overall income elasticity of a tax. Likewise, erosion of tax base may lead to reduced tax buoyancy. Thus, the relationship between tax buoyancy and the existence of a parallel economy is an indirect but important one.

Accordingly, it is pertinent to postulate that there is an inverse relationship between buoyancy/elasticity and the existence of an underground economy. That is, as the size of the parallel economy rises, the tax buoyancy/elasticity are expected to fall, and vice versa. This is because when the size of the underground economy is large, unreported economic activities will escape taxation (through tax evasion) consequently eroding the tax base. The final impact of the reduced base is a low base-to-income elasticity, one of the two components of the income elasticity of a tax. Buoyancy and elasticity are often measured with respect to official GDP. This is fine as long as the size of the

underground economy is insignificant. However, in a situation where the size of the underground economy is large, buoyancy and elasticity estimates based on official GDP data may be overstated.

Thus, it is interesting to estimate tax elasticity using official data and then using a tax base inclusive of the estimated income from the underground economy. It is expected that the estimates based on the latter will tend to be lower than those based on official data. Consequently, the measurement of the underground economy is warranted.

Measurement of the underground economy

Consensus has not yet been reached regarding the measurement of the underground economy, although some progress has been made. Researchers have developed several alternative techniques to its measurements. Some have attempted a direct measurement of various activities that constitute the phenomenon (Simon and Witte, 1980). Some have carried out field surveys to elicit answers from persons interviewed as to whether they have participated in these activities either as buyers or sellers (Isachsen, Kloveland, and Strom, 1982; Hanson, 1982); Some have utilized labour statistics to estimate the number of those who were actually working 'underground' (Petteneti, 1979; Contini, 1982). Others have estimated the underground economy from differences between the consumption and income outside the national accounts (Macafee, 1980). Others have used the information on income and consumption contained in household budget studies (Dilnot and Morris, 1982). Yet others have used the monetary approach (Guttman, 1977; Feige, 1979, 1986; Tanzi, 1983; and Bhattacharyya 1990). Of great interest to this study is the monetary approach.

The monetary approach

This approach, which was suggested by Guttman (1977) and Feige (1979) is based on a modified version of Cagan (1953). Tanzi (1983) is a sophisticated variant of the monetary approach. The monetary approach argues that in order to avoid government detection, all underground economic activities avoid the use of cheques or credit cards and rely on currency for transactions. To this effect, relative changes in currency holdings are construed as reflecting volume movements in the underground economy activities. Tanzi (1983) distinguishes three variants of this approach:

1. the currency-equation variant;
2. the currency-denomination variant; and
3. the fixed-ratio variant.

The currency-denomination variant rests on the premise that the underground activities are characterized by the use of large bills of certain denominations. Thus, by analyzing the change in the composition of total currency holdings in circulation, some analysts

have attempted to measure the underground economy (Henry, 1975).

The currency-denomination approach is subject to criticism. With real growth and relatively high growth rates of inflation, it would be expected that the composition of currency holdings would change over the years.

The fixed-ratio variant rests on two key assumptions. First, it assumes that there is a monetary ratio that, except for the effect of the underground economy, would have remained constant over time. Second, it assumes that there was a golden period in the past when no underground economy existed. This monetary ratio is C/D for Gutmann (1977) and MV/GNP for Feige (1979), where C is currency in circulation, D is demand deposits, M is money supply (currency plus demand deposits), V is transactions (not income) velocity of money, and GNP is the official estimated gross national product. Through the changes over time in these ratios, Guttman and Feige estimate the size of the underground economy. Guttman's method is an indirect one since he first calculates 'excessive' currency in circulation (induced by the existence of underground economy). In contrast, Feige's method is direct, as the change in MV/GNP ratio over time allows a direct estimation of underground economy. The golden period, when the underground economy was zero is the late 1930s for Guttman and either the late 1930s or mid-1960s for Feige.

Maliyamkono and Bagachwa (1990) applied Guttman's approach to estimate the size of the underground economy in Tanzania. They estimated it at 31.4% of the officially estimated GNP in 1986. They also used this method to estimate the annual size of the underground economy for the 1977-86 period. Maliyamkono and Bagachwa further assert that, between 1978 and 1986, the second economy has been growing rapidly at an annual rate of 30.1% compared to 19.4% annual growth in official GNP statistics. Thus, they conclude that, it seems, therefore, that during the slowdown in economic activity of the late 1970s and early 1980s, the second economy has picked up rather rapidly (Maliyamkono and Bagachwa, 1990 p. 45).

Maliyamkono and Bagachwa warn that these results should be interpreted with care. First, the assumption that transactions in the second economy are strictly paid for by currency alone introduces a downward bias in the estimates. Second, the monetary approach to the measurement of the underground economy does not calculate values for transactions involving barter exchange and where goods are exchanged for foreign money. Third, the choice of an appropriate bench-mark period, where the ratio of currency to demand deposits is assumed to be 'normal', entails an element of arbitrariness. Finally, an increase in the C/D cannot be attributed solely to a rise in currency. It can also result from a decline in the demand deposits.

The currency-equation variant estimates the effect of a change in the variable that influences the informal behaviour of economic agents on the demand for currency. From the currency equation, the size of the underground economy can be estimated, within the assumption that currency is used primarily in underground economy transactions.

Tanzi (1983) used the currency-equation variant to derive annual estimates of the underground economy in the United States for the 1930-80 period. He used these estimates in turn to compute the magnitude of tax evasion.

Tanzi's article has not been ignored by economists interested in measuring the underground economy. His article has been criticized by Acharya (1984), Feige (1986), Thomas (1986), and Zilberfarb (1986). The criticisms they leveled against Tanzi are on methodological issues and empirical results. In response, Tanzi discredits virtually all the comments on his article and considers the issues raised unfounded. The only comment that Tanzi appreciates is that by Zilberfarb on the application of an upper-bound limit to Tanzi's estimates. Zilberfarb applies this approach to re-estimate Tanzi's results using the marginal tax rate as opposed to the average tax rate that Tanzi used.

Bhattacharyya (1990) estimated the 'hidden economy' in the United Kingdom using quarterly data for the 1960-84 period. He applied econometric method to these data. Bhattacharyya estimated the omitted part of the GDP (or GNP) that is reflected by the currency in circulation to public. The approach that he used is similar to some of the earlier studies on the estimation of 'tax-evaded income' through currency-demand equation. However, the detailed treatment and modeling strategy is different. The salient feature of this approach is that it deviates from the existing literature since it uses observed variables for extracting information. Unlike Tanzi (1983) or Kloveland (1984), Bhattacharyya does not estimate the 'hidden economy' using tax variables. Thus he argues that the estimates obtained using his method have the advantage of testing theories of tax evasion without being conditioned by the variable under test.

Invariably, Bhattacharyya's method seems to be superior to the method used by Tanzi (1983). Nonetheless, it is noteworthy that the econometric model that he uses in estimating the hidden economy requires time series data of at least 50 observations, to obtain meaningful results. In many developing countries, lack of long time series data is a common problem and Tanzania is no exception. In the face of this, although attractive, the method could not be applied to Tanzanian data to obtain meaningful econometric results.

IV. Methodology

Measurement of the underground economy

Two methods are used to estimate the underground economy in this study, namely, Tanzi's currency-demand equation approach, and Guttman's currency-ratio approach. Both methods have been discussed in Section II.

The Tanzi approach

The Tanzi approach has one advantage in that monetary data in most developing countries, including Tanzania, is the most reliable within official statistics. By and large, most informal economy activities, legal and illegal (but particularly the illegal ones), use currency to conceal records of the transactions. Likewise, where illegality is explicit (or even implied transactions are effected with intention of avoiding tax collectors) transactions are done predominantly in cash.

The approach specifies a demand for currency equation to be able to infer the effect of change in the tax level on that demand. The key assumptions are: 1). that underground economic activities are the direct consequence of high taxes[1]; thus estimates will not capture these activities. Computation, however, excludes the income generated from illegal activities from national accounts; it is likely that this income would vanish if it would be discovered and taxed. It should also be noted that the opportunity cost of the resources used for these activities is likely to be very low; and 2). that currency is used mainly for carrying out such transactions or for storing wealth. In the equation, the ratio of currency holdings (C) to money (defined as M2) is the dependent variable. The independent variables are real per capita income (Y), the rate of interest paid on time deposits (R), the ratio of wages and salaries to national income (WS/NI), and an income tax variable (T). Thus:

$$\ln(C/M_2) = a_0 + a_1 \ln T + a_2 \ln(WS/NI) + a_3 \ln R + a_4 \ln Y + e \qquad (1)$$

where e is an error term.

The direct application of Tanzi's currency-demand equation variant to Tanzanian data to estimate the underground economy may be inappropriate. Thus the necessity to modify the model is warranted. Accordingly, a slight modification was made on Equation (1). Since the rate of interest has been virtually constant from 1967 to 1980, the interest

variable was removed from the equation and replaced by an inflation variable. With this modification, the currency-demand equation becomes:

$$\ln(C/M_2) = ß_0 + ß_1 \ln T + ß_2 1n(WS/NI) + ß_3 \ln Y + ß_4 \ln \rho + e \qquad (2)$$

where e is an error term and (ρ) is the annual rate of inflation.

Once Equation (2) has been estimated for the period 1967-89, it can be utilized to estimate currency holdings by making the assumption that the tax variable assumes a zero value. Once currency holdings at zero taxes are estimated, they can be used to determine the extent of the underground economy by multiplying excessive currency by the income velocity of money.[2]

The Guttman approach

The Guttman approach, typically a variant of the general 'monetary approach' as discussed earlier, is based on the currency-demand deposit ratios (as opposed to the regression approach using the currency-total money ratio). The details of the approach will go hand in hand with computations. Thus this is left to the empirical findings section (see Section IV).

Measured productivity and tax policies

The common measures of revenue productivity of a tax are buoyancy and elasticity. Tax elasticity is a measure of the responsiveness of tax receipts to economic growth. If a tax is elastic, a 1% increase in national income or output results in a greater than 1% increase in revenue from the tax. It is necessary when estimating tax elasticity to control for exogenous influences such as discretionary changes in tax policies, because tax receipts may increase due to seasons other than economic growth. In contrast, tax buoyancy is a measure of the responsiveness of tax receipts to economic growth plus tax structure. In other words, tax buoyancy is a measure of the responsiveness of tax receipts to economic growth without controlling for discretionary changes in tax policy.[3]

In determining whether measured productivity is linked to specific tax policies, estimates of buoyancies and elasticities of the tax system are undertaken for two separate periods: 1969-70 to 1979-80 and 1980-81 to 1989-90. This is done as tax policies in the 1970s differed from those of the 1980s (Osoro, 1991, pp. 10-16). The higher values of buoyancies and elasticities imply that the policies in a specific period were effective in raising revenue productivity. Since there have been many tax policy reforms during the two decades, there is a need to estimate intertemporal tax elasticities.

Most studies of tax elasticities in developing countries implicitly assume constant tax elasticities over time by their assumption of double-log-tax functions of the form:

$$\ln T = a_o + a_1 \ln Y + e \tag{3}$$

where a_1 is the constant elasticity, T is the tax revenue, and Y is income.

Other functional forms for the tax function would admit increasing or declining intertemporal tax elasticities.

In order to allow for the possibility of changing tax elasticities over time, a model suggestion by Box and Cox (1964) is often used.[4] If T_{it} is revenue from the *ith* tax in period t and Y_t is gross domestic production in time t, then the model is:

$$T_{it}^{\lambda} = a_0 + a_1 Y_{it}^{\lambda} + e_{it} \tag{4}$$

where e_{it} is a random disturbance and:

$$T_{it}^{\lambda} = \begin{cases} \left(T_{it}^{\lambda} - 1\right)/1 & for\ \ i = 0 \\ Iny_{it} & for\ \ i = 0 \end{cases}$$

and:

$$Y_{it}^{\lambda} = \begin{cases} \left(Y_{it}^{\lambda} - 1\right)/1 & for\ \ i = 0 \\ Iny_{it} & for\ \ i = 0 \end{cases}$$

If the transformation parameter, λ, equals one, the model takes the linear form:

$$T_{it} = a_o + a_1 Y_{it} + e_{it.} \tag{5}$$

While if λ equals zero, the model takes on the traditional double log form:

$$\ln T_{it} = a_0 + a_1 \ln Y_{it} + e_{it} \tag{6}$$

Other values of λ lead to alternative nonlinear tax equations. The tax elasticities depend on the values of the coefficient of the income variable, a, and on the transformation parameter, l. For the ith tax the elasticity is given by:

$$E_i = a_1 \left(Y_{it} / T_{it}\right) \lambda \tag{7}$$

In the special case when the transformation parameter equals zero and the tax function takes on the double-log form, the elasticity reduces to a1 and is constant over time.

When l is different from zero, the elasticity depends on the ratio Y_{it}/T_{it} which may vary over time causing intertemporal variations in the elasticity. Once the intertemporal elasticities have been estimated they are related to the corresponding tax policies in specific years. This facilitates the analysis of the explanatory link between measured productivity and specific tax policies.

V. The results

Regression results of currency-equation approach

It is pertinent to point out at the outset that this paper does not assume that underground activity is a function of just tax evasion. Underground activity is also a function of income transfers, regulation, licensing barriers and controls. However, the paper has focused mainly on tax evasion as one of the main factors influencing underground activity.

Utilizing the data in Table 1, Equation (2) was estimated. A logarithmic specification has been used; given that specification, to solve the equation, variable (T) has been replaced in each case by the yearly figures shown in the table plus one. In other words, T has been replaced for each year by (1 + T). The fitting of Tanzi's Equation (2) did not provide a good fit and therefore no attempt was made to estimate the size of the underground economy using it. Accordingly, the Guttman approach was used to estimate the size of the underground economy.

Results obtained from Guttman's approach

Guttman's approach can be used to generate rough estimates of the overall size of the underground economy activities by tracing movements in the ratio of currency in circulation to demand deposits, as outlined earlier. Thus, it is assumed that 1977 was the year characterized by a 'normal' ratio of currency to demand deposits. That is, underground economy activities were insignificant in that year. In addition, this was also a year which exhibited the lowest currency-demand deposits ratio. Also, it was a boom year.[5] It is initially assumed that the cash-demand deposits ratio (C/D) of 59% associated with the year 1977 would have prevailed were it not for the growth of the underground economy. The ratio has increased slowly but steadily since then (see Table 2).

The following formula was used to estimate the size of underground economy:

$$UECON = \frac{EFECON}{DD.(1 + C / DD_{1977})}.\left[M_1 - DD.(1 + C / DD)_{1977}\right] \qquad (8)$$

where UECON is underground economy, EFECON is official (GDP) economy, C

Table 1: Tanzania: Basic data, 1967-89

Year	Currency	M2	1976 shillings per capital (Y)	Wages and salary national income	Savings,deposits Interest rates	Time deposits interest rates	Average rate of income tax
	Shillings Million			%			
1967	511.70	1539.70	15145.00	18.54	4.25	4.25	3.67
1968	528.60	1813.80	15939.00	18.32	3.50	4.25	4.50
1969	605.00	2193.90	16301.00	18.56	3.50	4.25	4.41
1970	818.40	2336.20	16945.00	18.28	3.50	4.25	4.93
1971	986.40	2732.00	17542.00	17.95	3.50	4.25	5.47
1972	1201.10	3178.40	18664.00	16.84	3.50	4.25	5.37
1973	1198.60	3702.30	19167.00	18.76	4.00	4.25	5.97
1974	1517.30	4519.10	19411.00	22.94	4.00	4.25	8.13
1975	1755.80	5616.50	20407.00	18.99	4.00	4.25	7.28
1976	2071.30	6946.80	21652.00	15.16	4.00	4.25	7.36
1977	2379.70	8346.70	21739.00	14.26	4.00	5.25	7.41
1978	2915.20	9396.30	22202.00	14.17	5.00	5.50	7.51
1979	4055.40	13806.60	22849.00	15.55	5.00	5.50	8.48
1980	5245.40	17519.90	23419.00	14.84	5.00	5.50	8.29
1981	6616.00	20694.70	23301.00	13.65	6.00	6.25	8.34
1982	7988.00	24728.60	23439.00	14.05	7.50	7.13	8.18
1983	8194.20	29127.40	22882.00	12.43	7.50	7.50	7.50
1984	10472.40	30218.10	23656.00	9.91	7.50	7.50	7.17
1985	12719.00	38971.00	24278.00	7.50	10.00	10.00	7.09
1986	18309.70	50353.40	25070.00	6.86	10.00	10.00	6.22
1987	24550.80	66442.90	26345.00	5.26	21.50	21.25	6.89
1988	31702.30	89809.10	27460.00	4.01	21.59	21.25	7.27
1989	41094.80	116295.20	28376.00	3.54	26.00	23.00	7.72

Source:Bank of Tanzania, Economic and Operations Report (various years), URT, Economic Survey (various years), URT, Financial Statement and Revenue Estimates (various years). Figures in columns 5 and 8 computed by author.

about 10% in 1967, possibly owing to the pronouncement of the Arusha Declaration which gave rise to different expectations regarding the future economy (Table 2). Thereafter, the proportion declined rapidly until 1969. From 1970 the underground economy grew rapidly, reaching the highest level of about one-quarter of the official economy in 1972. This was possibly attributable to the nationalization policy of 1972. Since the policy discouraged private investment in the manufacturing sector and construction, those people who were capable of investing had to resort to holding cash in their homes.

The years 1973 and 1974 registered the size of the underground economy at about 9 to 10%, respectively. However, the 1974-77 period saw a rapid decline in the size of the underground economy. In general, the second half of the 1970s was relatively a good period. The country was already recovering from the first oil price shock of 1973-74, and the underground economy declined until the Uganda War in 1978. After the Uganda War the size of the underground economy dropped to 2.6% in 1980. Thereafter it grew rapidly, reaching 11% in 1982. By 1982, economic conditions had worsened. This led to a crackdown on economic saboteurs by the government on 25 March, 1983. The key person in implementing the crackdown was the late Prime Minister Moringe Sokoine, who died on 12 April, 1983. After his death the size of the underground economy escalated, to 27% in that same year. The underground economy then grew gradually, reaching about 31% in 1987. The Economic Recovery Programme period has seen a slightly declining trend in the growth of the underground economy, although the annual levels still remain high.

From the foregoing, it is apparent that despite the improvement in the economy that resulted from changes in policy, the size of the underground economy has not declined. Instead it has grown, for which there are a couple of explanations.

The underground economy may be said to consist of three activities:

1. The parallel market which comprises mainly rent seeking activities;
2. The black market comprising smuggled goods and currency; and
3. The informal sector.

Due to government intervention (i.e., through price controls, etc.) parallel market activities have substantially declined. For example, the difference between the price of grains in the official market and the parallel market is now very small. The black market, unlike the parallel market, is still thriving and is possibly growing. This is evidenced by the fact that the volume of own-funded imports has been growing. Finally, informal sector activities have been growing rapidly. The streets of Dar-es-Salaam city centre are occupied by informal traders whose number grows daily. In the face of growing black market and informal sector activities, the size of the underground economy would not be expected to decline.

Table 2: Tanzania: Monetary data, underground economy and tax evasion, 1967-90

Year	Currency	Demand deposits	Nominal GDP	M1	Underground economy	Tax evasion	Currency-deposits	Average tax rate	Underground economy as % of GDP
			Shillings million					%	
1967	511.70	680.40	6735.00	1192.10	665.67	17.79	75.21	2.67	9.88
1968	528.60	768.80	7182.00	1297.00	417.01	58.03	68.76	13.92	5.81
1969	605.00	931.80	7460.00	1536.80	256.47	40.54	64.93	15.81	3.44
1970	818.40	977.10	8215.00	1795.50	1252.59	208.01	83.76	16.61	15.25
1971	986.40	1179.60	8857.00	2166.00	1342.89	296.72	83.62	22.10	15.16
1972	1201.10	1214.40	10032.00	2415.00	2482.63	476.83	98.90	19.21	24.75
1973	1198.60	1625.40	11490.00	2824.00	1030.16	233.86	73.74	22.70	8.97
1974	1517.30	1996.10	14010.00	3513.40	1455.67	350.48	76.01	24.08	10.39
1975	1755.80	2591.80	16988.00	4347.60	884.10	178.04	67.74	20.14	5.20
1976	2071.30	3260.50	21652.00	5313.80	554.13	121.50	63.53	21.93	2.56
1977	2379.70	4003.10	25698.00	6382.80	0.00	0.00	59.45	21.25	0.00
1978	2915.20	3911.70	28582.00	6825.90	2702.98	560.31	74.53	20.73	9.46
1979	4055.40	6380.00	32317.00	10435.10	834.62	176.01	63.56	21.09	2.58
1980	5245.40	8100.00	37454.00	13345.90	1249.15	271.44	64.76	21.73	3.34
1981	6616.00	8785.20	43906.00	15401.20	4367.86	917.15	75.31	21.00	9.95
1982	7988.00	10334.50	52546.00	18323.10	5884.12	1248.32	77.29	21.22	11.20
1983	8194.20	12370.10	62608.00	20564.20	2668.03	581.91	66.24	21.81	4.26
1984	10472.40	10064.70	78143.00	20537.10	21860.14	4854.17	104.05	22.21	27.97
1985	12719.00	12551.70	108083.00	25270.70	28393.34	5263.45	101.33	18.54	26.27
1986	18309.70	17499.80	140866.00	35808.50	39916.59	8368.33	104.63	20.96	28.34
1987	24550.80	22550.80	200377.00	47101.60	62109.43	13347.25	108.87	21.49	31.00
1988	31702.30	33698.00	285152.00	65000.30	59811.34	14588.81	94.08	24.39	20.98
1989	41094.80	41323.90	335505.00	82418.70	84165.81	21029.07	99.45	24.99	25.09
1990	57919.10	53165.80	401583.00	111084.90	124656.28	36708.42	108.94	29.45	31.04

Source: Bank of Tanzania, Economic and Operations Report (various years), Bureau of Statistics (1991), Tanzania Selected Statistical Series; 1951-88, UTR, Financial Statement and Revenue Estimates (various years.)
Note: Columns 8-10 computed using basic data in columns 2-5.

Yet another explanation for the continued growth of the underground economy relates to high tax rates and depreciation of the shilling. While the government has made efforts to reduce tax rates since 1985, these efforts have been offset by the depreciation of the shilling, leading to a high tax bill paid on imported commodities. In such a situation, one would not expect the underground economy to decline. Also, to engage in underground economic activities is a habit-forming; like tax evasion, once people become accustomed to it, they continue even if conditions improve.

Tax evasion

Estimating tax evasion requires knowledge of the size of the underground economy which has already been computed. The underground economy grew from Tshs2.7 billion in 1978 to about Tshs12.5 billion in 1989 (Table 2). As a proportion of GDP, the underground economy was around one-quarter of official GDP in 1989, compared to 9.5% and 9.0% in 1978 and 1967, respectively. For the period under consideration, 1967-90, the underground economy averaged around 14% of official GDP.

Tax evasion is estimated at Tshs.37 billion in 1989 compared to Tshs0.56 billion in 1978 and Tshs0.01 billion in 1967 (see Table 2, column 9). These figures assume that incomes, goods and services in the underground economy would have been taxed at the same average rate as incomes in the regular economy. This is obviously a strong assumption. If incomes in the underground economy had been marginal incomes, and thus would have been taxed at marginal tax rates, the estimates of tax evasion would have been much higher. This is definitely true for the providers of underground services. They may hold regular jobs or participate in regular activities on which they pay normal taxes, and may provide underground services during weekends or evenings. Thus, if they had declared these additional incomes or tax base, they would have paid higher taxes than they actually paid on their reported incomes or tax liability. Many of the participants in the underground economy may not declare any income or tax liability at all. Furthermore, some of these activities might not take place at all if they could be controlled and taxed.

To conclude, without ascertaining each activity and consequently determining whether the activity would exist if it had to move above ground, it is extremely difficult to establish what the exact loss in tax revenue from the underground activities would be. Thus the assumption that has been made probably yields the most reasonable estimates that can be made in view of the information available.[6]

Buoyancies and elasticity estimates

Tax buoyancies and elasticities are estimated using official GDP statistics and then using the tax base figures inclusive of the estimated income from the underground economy. Historical tax revenue series were refined using the Prest (1962) method to obtain adjusted series which were subsequently used in estimating tax elasticities.

Buoyancy estimates

Table 3 compares buoyancy estimates based on official GDP with those based on tax inclusive of the estimated income from the underground economy. When official GDP is used to estimate buoyancies, total taxes, sales tax and import duty exhibited buoyancies greater than one (Table 3). However, when the estimated underground income is included in the tax base, the buoyancy estimates decline. In other words, the use of official data tends to overestimate the buoyancies. On the average the overestimation is around 9%.

Elasticity estimates

Table 4 compares elasticity estimates based on the official GDP with those based on the tax base inclusive of the estimated income from the underground economy. As in the case of buoyancy estimates, the use of official GDP to estimate elasticities tends towards overestimation.

Measured productivity and tax policies

In Section I it was argued that there is a possible link between tax revenue productivity and specific tax policies. As pointed out, tax policies in the 1970s differed somewhat from those in the 1980s. The 1970s saw the introduction of the Income Tax Act, 1973 and the introduction of tax by the Sales Tax Act, 1976. The objectives of tax policy in the 1970s were revenue and equity. However, tax rates in this decade had not been raised to the extent of discouraging compliance. In addition, corruption and the existence of the underground economy had not yet become significant. Combined, these led to good tax compliance, which possibly enhanced high tax buoyancies and elasticities.

The 1980s was a decade of economic crises. The crises intensified when the government attempts to negotiate with the IMF failed. Thus, the government had no option but to rely on domestic sources of finance. To redress balance of payments deficits, trade restrictions and exchange control were strongly enforced by the government to limit the importation of foreign goods. Hence, tax reform before 1985 involved raising the rates of import duty and sales tax with a view to increasing revenue to reduce the fiscal deficits. For example, import duty rates on some products were as high as 1000%!

The scope of tax exemptions widened during the 1980s. Serious rationalization of sales tax and import duty rates started in the fiscal year 1988-89. The tax policies in the decade were characterized by high tax rates and generous exemptions. The former possibly resulted in low compliance and hence tax evasion, which was carried out through underground activities. Above all, high tax rates and generous exemptions must have eroded the tax base, thereby reducing buoyancies and elasticities. Table 5 compares elasticities of taxes in the 1970s with those in the 1980s. The total tax system, including

Table 3: Buoyancy estimates, 1978-89

	A	B	Difference in percentage points
Total taxes	1.0632	0.9739	8.3992
Income tax	0.9468	0.8547	9.7275
Company tax	0.9999	0.9017	9.8210
PAYE	0.7280	0.6618	9.0934
Sales tax	1.0148	0.9213	9.2136
Import duty	1.2673	1.1440	9.7293

Notes: A = based on official GDP; B = based on tax base inclusive of estimated income from the underground economy.

Table 4: Elasticity estimates, 1978-89

	A	B	Difference in percentage points
Total taxes	0.8171	0.7387	9.5949
Income tax	1.0394	0.9397	9.5992
Company tax	0.9999	0.9017	9.8210
PAYE	0.7280	0.6618	9.0934
Sales tax	0.7278	0.6602	9.2988
Import duty	0.7667	0.6837	10.8256

Notes: A = based on official GDP; B = based on tax base inclusive of estimated income from the underground economy.

income tax and sales tax, was buoyant in the 1970s, with the exception of import duty.

The low buoyancy of import duty can partly be explained by the import restriction measures instituted in the early 1970s. Import duty which was not buoyant in the 1970s became buoyant in the 1980s. However, this growth in elasticity was offset by a dramatic decline in buoyancy in respect to income tax (-35%) and sales tax (-45%) in the 1980s. The lower rates and higher buoyancy in the 1970s and higher rates and lower buoyancy of the 1980s demonstrate the Laffer Curve effect. The tax rate-tax revenue relationship is known as the Laffer Curve. If a tax is gradually increased from zero up to a point where it becomes prohibitive, its yield is at first nil, then increases by small stages until it reaches a maximum, after which it gradually declines until it becomes zero again. However, there is popular debate surrounding the Laffer Curve, which is yet to clarify certain elements of it. Table 6 compares elasticities of taxes in the 1970s with the 1980s. The elasticity of the tax system has declined from 0.85 in the 1970s to 0.782 in the 1980s – a decline of around 8 percent. Further, income tax and sales tax which were

Table 5: Comparison of buoyancy estimates, 1970s-1980s

	1970s	1980s	Difference in percentage points
Total taxes	1.1063	1.0430	-5.7218
Income tax	1.4147	0.9175	-35.1453
Sales tax	1.6349	0.9019	-44.8345
Import duty	0.5431	0.3734	154.8816

Table 6: Comparison of elasticity estimates, 1970s-1980s

	1970s	1980s	Percentage change
Total taxes	0.8838	0.7820	-8.4095
Income tax	1.4406	0.6306	-56.2266
Sales tax	1.3129	0.6721	-48.8080
Import duty	0.2812	1.1827	+320.5903

elastic in the 1970s became inelastic in the 1980s. Finally, import duty, which was considerably inelastic in the 1970s, became elastic in the 1980s.

What was the reason for large changes in the buoyancy and elasticity of import duty in the 1980s? The changes were a result of a reduction of import duty rates and rates categories, change from specific to ad valorem rates combined with a rise in imports (following the liberalization of 1984) and most importantly, rapid changes in the valuation base resulting from steep exchange rate depreciation which started from June 1986.

The ongoing analysis demonstrates that the general low buoyancies and elasticities of the total tax, income tax and sales tax reflect tax policies which were in place in the 1980s.

Tax policies and intertemporal elasticity

Table 7 provides the estimates of intertemporal elasticity for the 1969-1990 period. The estimates were derived from estimating a Box-Cox Model.[7] In respect to the total tax system, the general trend of intertemporal elasticities has been a rising one, though the rise is quite small. With income tax, intertemporal elasticities have been constant and unitary during the years before 1973, the year the Income Tax Act was legislated. From 1973 the elasticities were less than unity and declined gradually to 0.91% in 1979. From 1986 the government gradually reduced the income tax rates. This seems to have slightly improved the elasticities in the subsequent years. The intertemporal elasticities of sale

Table 7: Box-Cox intertemporal elasticities

Year	Total tax	Income tax	Sales tax	Import duty
1969	0.727	1.051	0.835	0.288
1970	0.725	1.036	0.836	0.305
1971	0.696	1.004	0.833	0.323
1972	0.719	1.008	0.842	0.329
1973	0.712	0.986	0.841	0.302
1974	0.708	0.924	0.854	0.335
1975	0.738	0.946	0.846	0.486
1976	0.741	0.960	0.835	0.625
1977	0.741	0.951	0.831	0.388
1978	0.740	0.916	0.837	0.406
1979	0.763	0.911	0.837	0.638
1980	0.760	0.914	0.830	0.393
1981	0.769	0.913	0.837	1.185
1982	0.762	0.916	0.838	0.855
1983	0.778	0.974	0.838	1.359
1984	0.779	0.962	0.833	0.917
1985	0.802	0.974	0.821	1.093
1986	0.802	0.994	0.818	0.800
1987	0.795	0.974	0.822	0.796
1988	0.801	1.035	0.819	0.877
1989	0.800	1.007	0.807	0.743
1990	0.778	0.957	0.812	0.669

Source: Osoro, N.E. and Jane H. Leuthold, "Changing Tax Elasticities: The Case of Tanzania", mimeo.

tax, introduced in 1969, were somewhat constant during the 1969-1984 period. This was the period in which the sales tax rates were constantly being raised to collect more revenue. From 1984, the government started to reduce sales tax rates and serious rationalization of sales tax started in 1988. However, this does not seem to have improved the elasticities. The failure might have probably been due to tax evasion.

Unlike total tax, income tax and sales tax, the intertemporal elasticities of import duty have varied during 1969-74. The elasticity has been considerably low and constant at around 0.3%. In the year of the coffee boom (1976) elasticity rose to 0.6%. Since then the intertemporal elasticities have fluctuated significantly. Since 1985, that is after import/trade liberalization, the intertemporal elasticities have been relatively high, although the trend is to decline. Such a declining trend seems to have been attributable to the apparent tax evasion.

It is apparent from the foregoing that government policies have not effectively improved intertemporal elasticities, particularly in the recent years. The effectiveness of these policies in raising elasticities seems to have been offset by tax evasion.

VI. Suggested tax reforms

During the last two decades the tax system of Tanzania has undergone many reforms. Unfortunately, the reforms aimed largely at raising revenue have virtually failed to raise the revenue productivity of the tax system. However, the 1992 tax reform seems to have been a major one. The reform has reduced the rates of income tax, sales tax, import duty and excise duty. More important has been the removal of sales tax and import duty on capital goods and raw materials, and a substantial reduction of exemptions. It is still too early to measure the impact of the reform on compliance, etc.

It has been demonstrated in this paper that the size of the underground economy is quite significant, which tends to erode the existing tax base. It is also evident that the measuring of revenue productivity using official GDP statistics tends to overestimate buoyancies and elasticities when the size of the underground economy is large. Consequently, it is important to discuss the type of reforms that would penetrate the underground economy.

The reforms suggested here are those which may improve the revenue productivity. As mentioned earlier, the underground economy may be divided into three main categories: the parallel market; the informal sector; and the black market. The participants in these three are the most difficult to tax. The objective therefore should be to bring all the participants into the tax net.

The major probable causes of tax evasion in Tanzania have been high tax rates that led to high tax bills or tax burdens. To avoid the heavy tax burden some potential and actual taxpayers have decided to go underground.

The other possible cause of tax evasion is poor and inefficient tax administration. This has been attributable to lack of working facilities, inadequate office space and the low pay of employees of the tax departments. Low pay may possibly result in the tax collectors colluding with the tax payers to evade paying taxes.

Thus the reforms that would penetrate the underground economy should obviously be the ones which will attempt to address the causes of tax evasion. First, despite the significant reduction of the rates of sales tax, import duty and excise duty, and the removal of taxes on inputs, there is no guarantee that most activities in the underground economy will be brought into the tax net. A taxpayer is mainly interested in the total tax bill that he/she pays rather than in the tax rates. Although the tax rates have been reduced, the tax bill is still very high for most imported commodities due to the rapid depreciation of the shilling against foreign currencies. Thus, there is still a need to further reduce taxes on commodities to make the tax bill manageable. Participants in the underground economy will only come into the open when they consider the tax bill to be low enough to pay.

Second, a reduction of the tax rates alone is not adequate. An efficient tax administration is necessary to enable the optimum collection of taxes. Most tax reforms in

developing countries (including Tanzania) have been reforms of the tax structure. Very few countries have had reforms of tax administration. Whatever a reform of tax structure is designed, if it is not accompanied by competent tax administration or administrative reform, such a tax reform is bound to be useless. Accordingly, reform of tax administration can improve the efficiency of the administration and enable it to penetrate the underground economy.

Third, to facilitate reform of tax administration, the staff in the tax departments should be equipped with working facilities, provided with reasonable office space and paid a living wage. The government should be willing to spend some money to enable it to collect more tax revenue since this can pay off. There is a certain level of expenditure on tax collection that can optimize revenue collection. The government need not behave as a profit maximizing or cost minimizing firm. Cost minimization by the government by way of paying tax collectors low pay, not providing them with adequate working facilities may be sub-optimal. Currently, the government spends less than 2% on collecting total tax revenue. One would consider the tax system to be efficient since the collection cost is low. However, the cost is low because the taxes are collected under difficult working conditions.

Fourth, one of the reasons why not enough tax revenue is collected is because the tax authorities look at faces in collecting taxes. To enhance tax collection this should be done away with. Those who are supposed to pay taxes should do so irrespective of their status in the society or their position in the ruling party or government. This type of reform requires serious government commitment.

This points to the main problem of political acceptability of reforms. Politicians often seek to maximize votes in order to stay in politics. Vote maximization behaviour of politicians can lead to the problem of acceptability of reforms. Suppose policy-makers have designed a tax reform which if passed in the parliament and consequently implemented, would enhance revenue collection. However, if politicians anticipate that proposed reform is likely to be unpopular among the taxpayers (voters), then politicians may not have an incentive to support the proposed reform as this may cost them their votes. But even if such a reform is supported by politicians, it may still not be implemented due to the pressures exerted by various pressure groups in the country on the government. For example, in 1992 a major tax reform was passed in the Parliament. The reform package included massive reduction of tax exemptions and removal of import duties on imported inputs, among others. Nevertheless, these measures were short-lived. After six months the government restored virtually all exemptions that it abolished six months before due to pressure from parastatal enterprises, religious and charitable organizations, the ruling party, some donor agencies, and of course, the bureaucrats. This is a clear indication that success of any tax reform requires strong government commitment to reform.

Finally, in the coming years, tax reforms should be directed towards real estate. Real estate stands out today as a potentially important tax base. Most of the demand for reform can be met if real estate is sufficiently taxed. But taxation of property in Tanzania is very difficult and will remain so for sometime. Success in this area will also require serious government commitment.

VII. Conclusion

The objectives of this paper were: 1). to provide a theoretical discussion on the relationship between buoyancy/elasticity and the existence of the underground economy; 2). to estimate buoyancies and elasticities using official GDP data and using a tax base inclusive of the estimated income from the underground economy; 3). to provide an explanatory link between measured productivity and tax policies; and 4). to provide a brief discussion on what type of tax reforms could penetrate the underground economy.

It is postulated in this study that there is an inverse relationship between buoyancy/elasticity and the existence of the underground economy. That is, as the size of underground economy grows, tax buoyancy/elasticity is expected to fall, and vice versa. This is because its growth erodes the tax base.

Several conclusions can be drawn from the empirical results. First, measuring buoyancy and elasticity based on official GDP data in an economy in which the size of the underground economy is significant tends to overestimate these measures of revenue productivity. Second, the size of these measures is influenced by tax policies in specific periods. There were lower rates/higher buoyancies in the 1970s and higher rates/lower buoyancies in the 1980s, a demonstration of a Laffer Curve. Finally, tax policies do affect intertemporal elasticities.

These conclusions, however, must be qualified. The methods used to measure the underground economy in this study suffer from several drawbacks, which have already been pointed out. Yet in the absence of a perfect method of measurement the use of the Guttman method may be justified.

Despite this qualification, these conclusions have important policy implications for tax reforms in a developing economy. First, policies aimed at enhancing revenue should focus on checking the growth of the underground economy, which erodes the tax base through tax evasion. Second, tax reform should concentrate on rationalizing rate reduction, broadening the base and improving tax administration. Finally, above all, the success of the reform calls for serious government commitment.

Notes

1. However, the 1992 tax reforms reduced income tax, sales tax, import duty and excise duty rates. For details see the Budget Speech for the 1992/93 fiscal year.
2. Certainly, some underground activities do not originate from taxes, thus estimates will not capture these activities. Computation, however, excluded the income generated from illegal activities from national accounts; it is likely that this income would vanish if it was discovered and taxed. It should also be realized that the opportunity cost of the resources used for these activities is likely to be very low.
3. See Osoro (1992) for a detail discussion of elasticities and buoyancies.
4. See Judge, et al. (1980: p. 308-311) for a description of the Box-Cox model and its properties.
5. Between 1975-77 coffee prices quadrupled, real GDP grew by 8.8%, and terms of trade improved by about one-third.
6. The estimates of tax evasion relate only to that which is associated with currency use and underground activities. However, obviously, many forms of tax evasion (claiming nonexistent exemptions, exaggerating, deductions, non-reporting of interest income received, etc.) have nothing to do with currency usage or underground economic activities. Thus, these estimates do not measure total tax evasion.
7. For details of the description and estimation results of the model see Osoro and Leuthold (1992).

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OCTOBER 1995
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TAX REFORMS IN TANZANIA: MOTIVATIONS, DIRECTIONS AND IMPLICATIONS

Nehemiah E. Osoro

EXECUTIVE SUMMARY

Context

During the 1970s and 1980s the Government of Tanzania implemented a number of major reforms to its tax system. The objectives of tax policy in the 1970s were to generate revenue and support social equity. Tax rates in this decade were fairly high, but not so high as to discourage compliance. Tax policies in the early 1980s were characterized by higher tax rates that were intended to generate more revenue, but generous exemptions, coupled with tax avoidance and tax evasion, eroded the tax base and actually tended to reduce income from taxes.

High tax bills have in turn propelled many potential taxpayers out of the tax net. Some of these tax evaders do engage in deliberate efforts to defraud the government, but likely the larger number have entered the underground or informal economy, which is much more difficult to tax, in an effort to assure their survival in tough economic times.

Since 1985 the government has made efforts to increase its revenues by reducing tax rates, which effectively widens the tax base. Despite these efforts, however, tax revenues have not improved to the extent anticipated. Some of the reasons given for this include too many remaining tax exemptions, extensive tax avoidance and tax evasion, and, above all, weak tax administration.

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What is the problem?

Despite the government's concerted efforts in recent years, tax revenues in Tanzania have continued to disappoint. The problems noted above, especially tax evasion and a weak administrative structure, are not sufficient to explain the magnitude of the problem. *The missing factor in both tax projections and tax receipts may very well be the size of the underground economy.* The author maintains that there is an inverse relationship between the productivity of the tax system and the existence of the underground economy. That is, the larger the underground economy, the smaller the tax base and thus the tax revenues of the formal economy.

Tax evasion

People (everywhere, not just in Tanzania) cheat on their taxes, for a variety of reasons. Regardless of the motives, the effect is the same, a reduced tax base and lower tax revenues. In Tanzania, manufacturing inefficiencies often mean that the tax rate per product is higher than the net profit rate. The business evades taxes to offset business losses and/or reap illegitimate profits. Further, the deteriorating economic situation has tended to cause a shift in production/services to those activities that are most difficult to bring into the tax net, i.e., those in the informal sector.

To date, there have been no in-depth studies of tax evasion in Tanzania, but indications are that it not only exists, it is a large and growing problem. Osoro estimates tax evasion in the country at Tsh37 billion in 1989, compared with Tsh0.56 billion in 1978 and Tsh0.01 billion in 1967. These figures were based on the assumption that income, goods, and services in the underground economy would have been taxed at the same average rate as those in the regular economy. In fact this likely results in an understatement. If underground activities had been taxed at marginal tax rates, the estimates of tax evasion would be higher, particularly for providers of services. Service providers may hold regular jobs or participate in formal sector activities, on which they pay normal taxes, and provide underground services during evenings and weekends. If this additional income had been part of their tax base, they would have paid higher taxes.

Studies from other countries indicate that cheating on taxes is habit forming; *once people become accustomed to evading taxation, they continue to do so even if tax rates are lowered.* This is especially true in a situation where there is little likelihood of being detected in the first place due to inefficient tax administration, and where the penalty for those who do get caught is slight. Breaking the cheating habit requires 1) the assurance that tax evaders will be detected, and 2) the imposition of severe penalties for violations. An effective tax administration, with sufficient well-paid staff to get the job done well and without corrupting influence, is essential.

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The underground economy

The underground economy may be said to comprise three main elements: the parallel market, consisting mainly of rent-seeking activities; the black market, involving smuggled goods and currencies; and the informal sector, including small-scale producers and service providers.

Underground/informal activities are by their very nature difficult to assess in terms of their extent and their productivity. Measurements undertaken by Osoro indicate that the underground/informal sector in Tanzania is both far larger and far more productive than policy makers seemed to be aware of. The implications of the size of the sector on the productivity of the tax system are profound.

As a portion of the total economy, the underground economy has grown dramatically, from about 10 percent in the late 1960s to more than 30 percent in 1990. Some of this growth, especially in the early 1980s, can be attributed to worsening economic conditions. People are more apt to move into the informal sector when the formal sector cannot offer opportunities for making a living, or when elements of the formal sector, such as prohibitive tax rates, reduce their livelihood.

Yet despite the improvement in the economy since 1985, the relative size of the underground economy has not declined. There are two likely explanations for this. First, while the parallel market element has substantially declined, the black market is still thriving and the informal sector is growing rapidly. Second, although the tax rates were reduced in the late 1980s, individual tax bills did not decline due to the rapid depreciation of the shilling that started in 1986. Thus people who entered the informal sector to avoid taxes remained there.

Policy implications - a different kind of tax reform

The size of the underground economy relative to the formal economy has important implications for tax policies. The major causes of tax evasion in Tanzania, identified as high tax rates and poor tax administration, have been compounded by the existence of a large underground economy. The high tax rates propel people into underground/informal sector activities, and the inefficient tax administration assures that they will almost certainly escape the reach of the tax net. Tax reforms must address these problems. First, there is need to *reduce tax rates* in order to reduce the individual tax bill and thus the incentive to cheat. Participants in the underground economy will only come into the open when they consider their tax bill low enough to pay.

Second, *reduction of tax rates is not enough*. Most tax reforms in developing countries, Tanzania included, have focused on tax structure rather than on tax administration. As cheating on taxes is habit forming, an efficient tax administration is necessary to assure that all possible taxes are collected. This means that *sufficient resources must be allocated to tax administration* to enable it to function effectively as well as efficiently and that deterrent penalties must be put in place. Third, tax administration, like

justice, should be "blind"—*those who are supposed to pay taxes should do so irrespective of their status* in the society or their position in the government or ruling party. This type of reform will require the most serious government commitment.

Finally, to further increase tax revenues, in the coming years *tax reforms should encompass real estate*. Real estate stands out today as potentially a very important tax base, but taxation of property in Tanzania is very difficult and will remain so for some time. Success in this area will also require serious government study and commitment.

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