The second economy and tax yield in Malawi

By

C. Chipeta
Southern African Institute for Economic Research
Zomba, Malawi

Table of contents

List of tables
Acknowledgements

List of tables

Acknowledgements

1. Introduction

Objectives of the study

This study has two main objectives. The first is to estimate the size of the underground or second economy in Malawi for the years 1965 to 1990. No attempt has previously been made to do this for the country's entire second economy, hence there is no indication of its size or growth.

Estimation of the size of the second economy is not an end in itself. The results of this exercise are then used to estimate the extent of tax evasion. The rationale for this is that tax evasion is usually associated with transactions and incomes that are not reported and which, therefore, are part of the second economy.

Following from the first objective, the second main objective is to examine whether, and if so, how, the second economy can be taxed to reduce revenue losses incurred through the existence of the second economy.

Background

In order to increase tax revenue, Malawi has instituted a number of tax measures since independence in 1964. The first major tax reform took place in the 1970s. A sales tax (known as surtax) was introduced in 1970/71 to broaden the tax base and increase tax revenue. The 1970s also witnessed increases in import duties, which had the effect of increasing the effective rate of protection of domestic manufacturing industries. Fairness (equity) and simplicity were stated as the criteria that would guide tax reform, but in practice no reform measures were taken in the 1970s to simplify the tax system or to improve equity. Although encouraging people to accumulate wealth through savings was also stated as an objective of tax policy (Malawi Government, 1969), little was done to reduce personal income tax liability to achieve this objective. So, apart from the introduction before the end of the 1960s of investment and depreciation allowances, not much was done by way of tax policy to promote economic development.

Since 1980 there have been two major tax reform programmes. The first, which started in 1983, attempted to simplify the income tax system and improve equity at the same time that it sought to improve tax yield. The two personal income tax schedules were merged into one. Moreover, several allowances such as single and marriage allowances, children's and educational allowances were abolished and the marginal tax rates were increased. The standard surtax rate on goods and services was increased to 25% of producer

prices for domestically produced goods and 30% of the c.i.f. prices plus duties for imports in 1984. New taxes were also introduced in the form of an accommodation and refreshment tax in 1982/83, an export levy in 1984/85, and withholding taxes on non-wage incomes in 1985/86. A temporary import levy was also introduced in 1982. In order to improve tax administration, employers were given the responsibility to verify pay as you earn (PAYE) tax assessments of their employees.

The second major tax reform programme began in 1990 (Malawi Government, 1990). Its basic philosophy was that high tax rates did not necessarily ensure high tax yield because they encouraged tax evasion. In addition, such rates did not ensure a high rate of economic development as they reduced incentives to produce and to supply factors of production. Accordingly, Malawi started on its medium-term programme of reducing indirect taxes on consumer and producer goods as well as lowering direct taxes. Over a period of three years the maximum marginal rate of personal income taxation was reduced from 50% to 35%. The company tax rate was similarly reduced to 35% from 50%. So too the graduated tax rate, which was cut and simplified by reducing the number of income brackets to which it applies. The minimum tax of K3.50 was abolished in the 1993/94 budget (Malawi Government, 1993).

An earlier phase of this study evaluated these tax reforms, paying particular attention to the reforms undertaken in the 1980s and early 1990s, which were far-reaching and more numerous than those undertaken in the 1970s (Chipeta, 1995). The motives for carrying out tax reforms included improving equity, simplifying the tax system and liberalizing trade. The earlier phase focused on tax reform as a means of increasing the yield of the tax system.

On the basis of the analysis of the data for the 1980s and 1990s, the null hypothesis that tax yield is not buoyant was accepted with regard to the tax system as a whole, as well as with regard to minimum tax, minimum tax remittances, graduated tax, assessed tax, fringe benefits tax, excise and import duties, licences, and taxes on property. But it was rejected with respect to withholding taxes and accommodation and refreshment tax. The hypothesis that tax yield is not income elastic was, using the 1980–1993 data, accepted with respect to the tax system as a whole and to surtax, import duties, company income tax and excise duties. But it was rejected with respect to PAYE.

The productivity of company income tax was reported to have been adversely affected by tax evasion and exemptions. That of excise and import duties was adversely affected by tax evasion, in part made possible by corruption in tax administration, by exemptions and by the existence of a second economy, which facilitates tax evasion. Tax incentives also adversely affected the buoyancy of both direct and indirect taxes. But none of these factors was investigated in detail.

The study concluded that despite the tax reforms, Malawi had found it difficult to improve the productivity of its tax system. Improving tax productivity in future would not be easy either. Direct and indirect tax rates had been pushed to the limit during the 1980s. Company and PAYE tax rates have since been reduced, while minimum tax, minimum tax remittances and graduated tax have all been abolished. This phase of the study of tax reform and tax yield in Malawi extends the work done in the earlier phase by investigating the extent to which tax evasion perpetrated through the existence of the second economy affects tax productivity.

2. The conceptual framework

One common problem that tax administrators face is tax evasion. Tax evasion is failure to pay taxes that are legally due. In contrast, tax avoidance is changing one's behaviour in such a way as to reduce legal tax liability. In other words, tax avoidance is not illegal. For example, if a tax is levied on fish and in reaction to that the fishmonger fails to report sales of fish to tax authorities, it is tax evasion. If the fishmonger reacts by selling fewer fish, it would amount to tax avoidance.

Evasion of taxes on income and wealth takes place when taxpayers do not declare their income and wealth to tax authorities or do not declare the full amounts. Evasion of import duties, excise duties and sales taxes occurs when taxpayers do not declare imports or locally manufactured products or do not declare the full amounts, or when they under-value imports and locally manufactured products.

Tax evasion and the second economy

In a recent study that used Argentine, Brazilian and Chilean data, it was found that tax evasion increases when either the expected ratio of future to current income increases, when there is a negative shock over current income, or when the inflation tax increases (Fishlow and Friedman, 1994).

Tax evasion may also be encouraged by at least three other factors. The first is the level of tax rates. High tax rates may act as an incentive to evade taxes because the benefit of evasion is also high. High tax rates tend to encourage second economy activities at the expense of formal activities, thus favouring tax evasion. But they can also generate an income effect leading to less tax evasion. If, for example, taxpayers have decreasing absolute risk aversion, increasing tax rates lowers income, leading to less risk-taking and less evasion. Thus, the net effect is indeterminate. The second is the probability of detection. A low probability of detection encourages tax evasion, while a high probability of detection deters it. And the third is the penalty for tax evasion. A high penalty is a deterrent to tax evasion; a small penalty is not.

Since tax evasion is associated with transactions and income that are under-valued or not reported in national income statistics, the transactions and income concerned are not officially recorded. As such, they are part of the so-called second economy. Different writers have used different terms to describe this economy. The International Labour Organization (ILO), for example, used the term "informal sector" to describe all activities that operate largely outside the system of government benefit and regulation (ILO, 1972). Guttman (1977) referred to transactions that escape taxation as the "subterranean

economy". Feige chose "hidden economy" to explain activities that escape the purview of current societal measurement (Feige, 1979). In contrast, Tanzi used the term "underground economy" as gross national product that is not measured by official statistics because of unreporting or underreporting (Tanzi, 1983). And, Del Boca and Forte (1982) used the term "parallel economy" to refer to those activities that are characterized by a lack of formal transactions.

The many and diverse perceptions have given rise to two contrasting views about the second economy. One view regards the second economy as a dysfunctional phenomenon that is clandestine, denies the state its legitimate revenue, serves as a breeding ground for theft and fraud, and is inequitable and exploitative (Wiles, 1987). Accordingly, it is concluded that the second economy is irrational and that it represents an undesirable departure from acceptable economic norms.

The other view looks upon the second economy as a productive and creative adaptation to market forces working towards economic equilibrium. This economy is said to have developed in response to basic needs of consumers and the failure of the formal sector to provide in a timely way the required goods and services. Accordingly, it is concluded that the second economy is neither irrational nor pathological.

The view that the second economy is a dysfunctional or illegal sector fails to distinguish economically productive and socially acceptable activities that are a potential base for the development of an economy from those that are unproductive and harmful. This view is based on a narrow concept of the sector. It may be helpful to conceptualize the second economy in a broader context. While admitting that there is some overlap, the second economy in its broader context can be classified into:
• Parallel market activities, like dealing in foreign exchange outside the official market.
• Black market activities, like smuggling goods into or outside the country.
• The informal sector.

Parallel market activities are stimulated by government controls on prices of goods, services and currency and by restrictions on economic activities. Black market activities thrive where people want to avoid paying taxes by hiding their activities. Both parallel and black market activities are illegal.

The informal sector consists of employed workers and self-employed persons producing and distributing goods and services on a small scale. The sector is informal in the sense that the units involved are mostly unregistered, are not recorded in official statistics, and have little or no access to formal markets for goods and credit, to formal education and training, or to public services. Being often not recognized or supported by government, they may operate outside the legal framework.

What is the informal sector in the context of Malawi? In a recent paper (Manda, 1990), it is said that an approximate definition is one that Labat-Anderson adopted in a report submitted in 1989. There the informal sector is taken to mean all enterprises that are not classified as agricultural or as formal, where formal implies licensed, registered and taxpaying on a regular, verifiable basis (Labat-Anderson, 1989). This definition is indeed only approximate. Not being licensed or registered is accepted as a distinguishing feature of informal enterprises. Moreover, such enterprises are further not normally subject

to official regulation and control, an aspect that is missing completely from the Labat-Anderson definition. The exclusion from their definition of agricultural enterprises is unacceptable, as smallholder agricultural enterprises conform to the criteria for the informal sector.

The demarcation of the informal sector adopted in a recent World Bank study is also not entirely satisfactory. That study considers all small-scale enterprises, i.e., registered businesses, owned by Malawians and employing up to 20 persons, as being part of the informal sector. It then goes on to say that it includes large numbers of unregistered businesses and part-time marginal activities using very little capital, most being one-person operations (World Bank, 1990). The informal sector is not confined to Malawians or to enterprises employing only up to 20 persons. Nor can it be said to consist of registered business enterprises.

The second economy and tax yield

Whether the second economy hampers the yield of the tax system relative to total income depends on its size, which is not exactly known at present. If it is large, it can be expected to adversely affect tax yield because a lot of economic activity that should be in the tax base falls outside it. The revenue forgone, which has not been estimated, may be large for receipts from income tax on business enterprises (because income is not declared), import duties and surtax on imports (due to smuggling or under-declaration), export taxes (again due to smuggling or under-declaration), and excise duties and surtax on domestically produced goods (because the goods are under-declared or not declared to customs officials). But is likely to be minor for receipts from pay as you earn income tax, stamp duties and licences where the scope for evasion is less.

If these non-taxed second economy activities are a constant share of total income, the existence of the second economy does not affect buoyancy or elasticity, irrespective of its size. In this situation, the buoyancy or elasticity with respect to official income will be an unbiased estimate of the buoyancy or elasticity with respect to total income.

If, however, the second economy is changing over time relative to the official economy, the buoyancy or elasticity with respect to official income will be different from the buoyancy or elasticity with respect to total income. In this case, policy must attempt to bring the second economy into the tax base and/or attempt to contain its growth.

Possible policy measures will depend on the causes of changes in the relative size of the second economy. If the causes are exogenous, e.g., restrictions on entry into formal sector activity and economic hardship caused by a fall in real incomes, then policy must address the factors that make the second economy flourish. If, on the other hand, the causes are endogenous, e.g., too many taxes, then policy must address the structure of taxation.

Measurement of the second economy

S everal techniques for measuring the second economy are available. These techniques have been developed to serve particular goals or purposes. Hence, the majority are not suitable for our needs. Functionally, they can be grouped into direct and indirect techniques. We explain their relative merits in the sections that follow.

Direct techniques

Direct techniques are referred to as such because they attempt to measure the output of the second economy directly. Some of the best known direct techniques are fiscal and national accounts approaches.

Fiscal approaches attempt to arrive at independent estimates of incomes subject to tax. They compare estimated incomes with incomes actually assessed for tax purposes (typically lower amounts) and regard the difference a measure of tax-evaded income. Income information contained in national accounts usually provides the basis for the independent estimates of income. Therefore, the reliability of estimates of tax-evaded income critically depends on the reliability of estimates of national income themselves. If national accounts estimates are biased downwards by substantial margins because of misreporting or non-reporting or because of other measurement errors, estimates of tax-evaded income will be biased downwards as well. The other problem with fiscal approaches is that by convention estimates of income earned in illegal occupations are not included in national accounts estimates. For these reasons, these approaches have not been used in this study to estimate the size of the second economy in Malawi.

Using national accounts approaches, the income of the second economy can be estimated as the difference between aggregate income and expenditure. This is a straightforward method, which, unfortunately, cannot be applied to national income data in Malawi because income and expenditure are not estimated independently. As such, the income–expenditure discrepancy does not exist in national income data. Using the income–expenditure discrepancy method would therefore need micro level data generated through field surveys. The problem in Malawi is that past household income and expenditure surveys have not been comprehensive in terms of either territorial coverage or definitions of income and expenditure. In many cases, estimated income exceeded estimated expenditure. Using the data generated to estimate income in the second economy would thus yield unreliable estimates.

Estimates of income in the second economy can also be obtained by first estimating value added in each activity and then summing these estimates to arrive at the overall total. In practice, it can be difficult to identify and measure the value of each activity in the second economy, especially illegal black market and parallel activities. For this reason and because of the high expense involved, this study has not attempted such direct measurement of second economy GDP.

Indirect techniques

With indirect techniques, the income of the second economy is estimated indirectly from estimates of other variables, such as labour, physical inputs and demand for currency. The corresponding techniques have been referred to as labour market approaches, physical input approaches and monetary approaches (Acharya and Associates, 1986).

According to labour market approaches, the size of the second economy can be gauged from official labour force participation rates if these are inexplicably low compared with periods or countries where the second economy is insignificant. If official labour force participation rates are low while unofficial surveys come up with estimated participation rates much higher than the official ones, the implication is that many people are employed in activities that are not reported to the authorities. Using estimates of second economy labour force and estimates of value added per worker, the income of the second economy can be ascertained. The difficulty of distinguishing between official economy employment and second economy employment potentially limits the value of labour market approaches, as does the problem of determining the base level of employment in the official economy.

Physical input approaches are similar to monetary approaches in the sense that both seek some stable relationship between the use of physical inputs or monetary stocks and national output. First, one chooses an intermediate input that is widely used throughout the economy and for which output and consumption data are reliable. Electricity and water fit this description quite well. Next, one estimates a relationship between national or sectoral output and input use, allowing for changes in technology and output mix. Insofar as the whole consumption of the input cannot be explained by growth in officially measured gross domestic product (GDP) or other relevant variables, such as changes in technology and output mix, the residual use is attributed to the second economy and serves as a measure of its size.

These approaches have not been used in this study because they suffer from a number of weaknesses. The main ones are explicit and implicit assumptions: that there are fixed input-output coefficients in the economy as a whole; that all sectors use the particular input in question; that total production of the input equals total consumption; and that the entire production is consumed, with no losses or wastage.

In monetary approaches, the income of the second economy is calculated from estimates of demand for currency. Their basic assumption is that in order to avoid being noticed by government, activities in the second economy avoid the use of cheques drawn on demand deposits. Instead, they use currency to effect transactions. Changes in currency holdings are therefore seen as a reflection of changes in the level of activity in the second economy.

The main monetary approaches are the currency denomination method first deployed by Feige (1979); the fixed monetary ratio method introduced by Guttman (1977); and the currency demand equation, developed by Tanzi (1980, 1983) and Cagan (1985).

The currency denomination method assumes that activities in the second economy mainly use large numbers of bills of certain denominations. Hence, by considering changes in the composition of total currency holdings, an attempt can be made to measure the second economy. A possible weakness of this method is the implication that only activities

in the second economy mainly use large bills of certain denominations. As an economy grows or if the rate of inflation is high, people in the official economy would also tend to use large bills because they can transact more or because the cost of transactions, in nominal terms, has gone up.

The fixed monetary ratio method assumes that there is a monetary ratio that would have remained constant over time had there been no second economy, and that there was a golden age in the past when there was no second economy. Where C stands for currency in circulation, D for demand deposits, M is narrow money (currency plus demand deposits), V is transaction velocity of money, and GNP is the official gross national product, the fixed monetary ratio was specified as C/D by Guttman and MV/GNP by Feige. Through changes in these ratios over time, Guttman and Feige were able to estimate the size of the second economy.

The currency demand equation method estimates the demand for money as a function of a number of variables that influence the behaviour of people vis-a-vis demand for money. Included in the equation is a tax variable on the assumption that people participate in the second economy to evade taxation. Assuming, again, that currency is used primarily to effect transactions in the second economy, an estimate of the size of the second economy can be made, and on the basis of that estimate, an estimate of tax evasion can be computed.

The approach used by Bhattacharyya (1990) to estimate the "hidden economy" of the UK using quarterly data for the 1960–1984 period is essentially a monetary technique. The basic difference between the Tanzi approach and the Bhattacharyya approach is that the latter does not make use of a tax variable (Bhattacharyya, 1990). However, the procedure used is longer and far more complicated than the one used by Tanzi and the other researchers, despite the use of reliable data on money supply and interest rates.

Using monetary approaches, a number of studies have shown that income generated in the second economy is a significant proportion of official GNP, especially in African countries. In Australia income generated in the second economy was estimated at 10% of official GNP in 1978/79 (Tucker, 1982); in Canada at 14% in 1976 (Mirus and Smith, 1982); in the UK at 7.5% in 1979 (Dilnot and Morris, 1982); and in the USA at 14.3% in 1980 (Molefsy, 1982. In Uganda it was about two-thirds (Green, 1981) and in Ghana it was 32.4% in 1982 (May, 1985).

Two studies on Tanzania used the Guttman method to estimate the size of the second economy (Maliyamkono and Bagachwa, 1990; Osoro, 1992). Maliyamkono and Bagachwa estimated it at 31.4% of the official GNP in 1986, while Osoro estimated it at 28.3% of the official GDP in the same year. They also used this method to calculate the annual size of the second economy for the periods 1977–1986 and 1967–1990, respectively.

In both studies, the authors state that the results should be interpreted with caution because of a number of weaknesses of the approach used. To start with, the choice of the base period, where the currency–deposit ratio is assumed to be normal, is at best arbitrary. Then there are a number of assumptions that introduce a downward bias in the estimates. These are that transactions in the second economy are strictly paid for in currency alone; that there are no barter transactions; and that there are no transactions involving the use of foreign currency. Unhappy with the Guttman approach, Bagachwa and Naho (1994) have more recently preferred to use the currency demand equation method.

Available estimates of the size of the informal sector in Malawi use the number of people engaged in it as the standard of measurement. On this basis the informal sector provided work to an estimated 2,474,200 people in 1990, or 78.7% of the country's estimated labour force of 3,142,000 people. Smallholder agriculture accounted for 2,338,400, people or 74.4%, while the rest accounted for 135,800, or 4.3% (Economic Planning and Development, 1990).

Estimates of the size of the urban informal sector vary considerably because of differences among authors in definition, coverage and statistical data. For example, the 1977 Population Census recorded 84,341 people as self-employed. This estimate excluded workers engaged in agriculture and other natural resource occupations. But it also excluded all unpaid family workers, including those working in urban areas. In contrast, Ettema (1984) estimated that there were 182,000 small and medium-scale business enterprises in the country. Both estimates may have included enterprises that, strictly speaking, are formal. Ettema's estimate excluded enterprises with a capital investment of more than K25,000. Seasonal activities are believed to have been excluded as well (Manda, 1990). A third estimate, based on a 1984 income and employment survey, put the number of people in the urban informal sector at about 70,000. This too excluded paid employees.

3. Estimating Malawi's second economy

Owing to weaknesses and limitations of the various direct techniques explained above, this study did not use such methods to estimate the size of the second economy in Malawi. Instead, the study used monetary techniques. Two alternative monetary techniques of estimating the size of the second economy were used: the method developed by Guttman (Guttman, 1977) and the method developed by Tanzi (Tanzi, 1980).

The Guttman approach

As indicated above, Guttman's method makes use of the ratio of currency to demand deposits (currency ratio). The assumptions of the currency ratio technique were also described above. By tracing movements in the ratio of currency in circulation to demand deposits, Guttman's approach can be used to generate estimates of the overall size of the second economy.

With reference to Malawi, it is assumed that 1977, the year with the lowest currency–demand deposit ratio (0.54), was characterized by a "normal" ratio of currency to demand deposits. Correspondingly, activities in the second economy in that year were, by assumption, insignificant. As was the case in Tanzania, in the study of whose economy 1977 was also used as the base year (Osoro, 1992), there was a marked improvement in the economy. Prices of both estate and smallholder crops soared, with gross domestic product at constant factor cost increasing by 6.1%. In per capita terms GDP was at its peak, while inflation, as measured by the consumer price index, declined from 4.4% in 1976 to 4.2% in 1977.

Furthermore, it is assumed that the cash–deposit ratio of 0.54 associated with 1977 would have prevailed had it not been for the growth of the second economy. This ratio increased after 1977 (but was also higher before that year), as shown in Table 1. The actual Guttman formula used to estimate the size of the second economy is:

$$SECON = \frac{OFECON}{DD.(1 + C/DD_{77})}.[M1 - DD.(1 + C/DD_{77})] \tag{1}$$

where *SECON* is second economy nominal GDP, *OFECON* is official economy nominal GDP, *C* is currency in circulation, *DD* is demand deposits, *C/DD* is ratio of currency in circulation to demand deposits, and *M1* is narrow money (currency in circulation plus

Table 1: Guttman method: Monetary data, official economy GDP and second economy GDP (K million)

Year	Currency	Demand deposits	Currency–demand deposit ratio	M1	Official economy nominal GDP	Second economy nominal GDP	Second economy GDP as percentage of official economy GDP
1965	8.88	9.27	0.96	18.15	181.00	48.91	27.02
1966	10.57	10.35	1.02	20.92	187.30	58.27	31.11
1967	11.82	11.73	1.01	23.55	215.49	65.31	30.01
1968	11.57	12.15	0.95	23.72	214.30	57.18	26.68
1969	12.54	13.84	0.91	26.09	244.40	54.55	22.32
1970	13.27	15.81	0.84	29.09	258.40	50.03	19.36
1971	14.80	18.50	0.80	33.30	335.00	56.32	16.76
1972	17.30	19.51	0.89	36.81	373.60	83.87	22.45
1973	21.31	27.78	0.77	49.09	401.60	58.93	14.67
1974	28.31	35.26	0.80	63.57	487.10	82.75	16.99
1975	27.84	34.87	0.80	62.71	571.00	95.32	16.87
1976	23.07	35.38	0.65	58.45	659.80	47.47	7.19
1977	24.58	45.42	0.54	69.99	750.60	0.00	0.00
1978	29.80	45.14	0.86	74.95	887.90	68.65	7.73
1979	32.29	45.32	0.71	77.61	873.10	97.16	11.13
1980	35.35	57.34	0.61	92.68	937.50	81.38	8.68
1981	39.36	61.64	0.64	101.00	1,103.80	69.79	9 6.32
1982	49.47	68.51	0.72	117.98	1,242.40	145.87	11.74
1983	50.03	60.51	0.83	110.53	1,434.90	266.02	18.54
1984	56.85	75.64	0.75	132.49	1,707.40	233.28	13.66
1985	65.99	87.54	0.75	153.53	1,944.90	268.52	13.81
1986	79.30	107.66	0.74	186.96	2,197.60	278.85	12.69
1987	107.62	137.17	0.78	244.79	2,614.00	413.06	15.80
1988	134.62	208.37	0.65	342.99	3,417.90	232.79	6.81
1989	156.53	205.17	0.76	361.69	4,388.20	631.60	14.39
1990	159.38	244.02	0.65	403.41	5,069.90	368.67	7.27
1991	222.69	295.60	0.75	518.30	6,114.30	840.88	13.75
1992	289.78	385.88	0.75	675.66	7,200.58	911.60	12.66
1993	414.21	505.94	0.82	920.15	9,275.20	1,610.76	17.37
1994	624.74	789.28	0.79	1,414.01	11,200.30	1,821.54	16.26
1995	987.52	1,085.74	0.91	2,073.27	16,109.70	3,852.52	23.91

Sources: Reserve Bank of Malawi, *Economic and Financial Review* (various), Malawi Government, *Economic Report* (various).

demand deposits). Measurements of all these variables are shown in Table 1. The data on currency and demand deposits have been taken from the quarterly *Financial and Economic Review* published by the Reserve Bank of Malawi; data on official economy nominal GDP were extracted from various *Economic Reports* published by the Malawi government.

Table 1 also shows the absolute size of the second economy GDP and as a proportion of the official economy GDP. Second economy GDP figures shown in Table 1 underestimate the actual size of the second economy for the following reasons. First, the technique used assumes that transactions in the second economy are strictly paid for by domestic currency alone. This introduces a downward bias if some of the transactions are paid for by foreign currency or by domestic money other than currency. Second, the currency–demand deposit approach to the measurement of the second economy excludes values of transactions involving barter exchange and exchange of goods for foreign currency. Third, an increase in the C–D ratio can be due to a lower rate of growth in demand deposits rather than a higher rate of growth in demand for currency.

The Tanzi approach

The Tanzi approach involves specifying a currency demand equation. After estimating this equation, the effect of a change in the tax level on that demand can then be inferred. Like the Guttman approach, this approach is based on rather sweeping assumptions. These are that activities in the second economy are the direct result of high taxes and that currency is mainly used for carrying out such transactions or for storing wealth.

In natural logarithmic form, the equation itself has been specified as:

$$\ln(C/M2) = a_0 + a_1 lNCT + a_2 \ln EXT + a_3 \ln SIMT\ a_4$$
$$\ln(WS/NI) + a_5 \ln R + a_6 \ln Y + e \tag{2}$$

where the ratio of currency holdings (C) to broad money ($M2$) is the dependent variable; where the explanatory variables are the average (personal and corporate) income tax rate ($lNCT$), the average excise tax rate (EXT), the average surtax rate on imports ($SIMT$), the ratio of wages and salaries to national income (WS/NI), the rate of interest on savings deposits (R), and the per capita income (Y); and where e is an error term, assumed well distributed with zero mean and constant variance. All the variables are expressed in nominal terms.

The expected sign for the coefficient of the average income tax rate is indeterminate, as is that of the coefficient for the average excise tax rate and for the average surtax rate on imports, but that for the coefficient of the ratio of wages and salaries to national income is expected to be positive. The signs of the coefficients for the savings deposit rate and per capita income are expected to be negative. As the level of taxation rises, taxpayers may be encouraged to engage in tax evading activities. Assuming that only currency is used in these activities, the use of currency rises. Since wages are paid in

currency, an increase in the ratio of wages and salaries to national income should also require more currency. In contrast, an increase in interest rates on savings deposits will induce a substitution of deposits for currency. An increase in per capita income will also lead to a replacement of currency, not with deposits but with cheques.

Equation 2 was estimated by using the data shown in Annex Table A1. The data on broad money and the savings interest rate were extracted from the quarterly *Financial and Economic Review* published by the Reserve Bank of Malawi. Data on nominal per capita GDP, wages and salaries, personal and corporate income, income tax revenue, excise tax revenue, and import surtax revenue were obtained from the various *Economic Reports* published by the Malawi government. The tax rates calculated from these data are effective, not marginal, tax rates. In the estimation exercise, tax variables were replaced in each year by the figures shown in the table plus one. The estimated equation is:

$$\ln C/M2 = 3.941 \ * \ + \ 0.640 \ \ln (1 + INCT) + 2.372^{**} \ln (1 +$$

$$(3.708) \qquad (0.586) \qquad\qquad\qquad (2.715)$$

$$EXT) + 2.657^{**} (1 + SIMT) + 0.305 \ \ln (WS/NI)$$
$$(2.456) \qquad\qquad\qquad (1.463)$$

$$- 0.768^* \ln R \qquad - \qquad 0.155 \ln Y$$
$$(-5.038) \qquad\qquad (-0.793) \qquad\qquad\qquad\qquad (3)$$

$$\overline{R}^2 = 0.858 \quad D.W. = 2.079 \ \ F\text{-statistic} = 19.098$$

where the figures in brackets are t-values.

The estimated Equation 3 is a good fit. The high adjusted R^2 implies that most of the variance in C/M2 is explained by the estimated equation. The three tax regression coefficients are positive. All the remaining regression coefficients have the expected signs. The constant and the interest rate coefficient are significant at less than 1% level of significance. The excise tax rate coefficient is significant at less than 2% and the surtax rate on imports coefficient at 3% level of significance. The average income tax rate coefficient, the per capita income coefficient and the ratio of wages to income coefficient are all not significant at acceptable levels of significance. Using the LM test, no autocorrelation of any order was detected. In other words, the results are sound enough as a basis for analysis of the effect of the second economy on currency holdings.

Using Equation 3, estimates of the second economy were arrived at in the following way. First, for each year, the predicted level of C/M2 was calculated. Then, given the actual value of M2 for each year, the predicted level of currency holding ($\hat{C}$) was calculated. Next, the equation was solved in the same way, but assuming that coefficients of the tax variables equal zero while the coefficients of the other variables remain unchanged. The value of the currency so estimated was denoted by $\overline{C}$. The difference between $\hat{C}$ and $\overline{C}$ indicates how much currency holding is tax induced and is an estimate

of "illegal" money. The difference between M1 and the estimated illegal money yields "legal" money used for transaction purposes. Dividing GDP by legal money gives an estimate of income velocity of legal money. On the assumption that the velocity of illegal money is the same as that of legal money, an estimate of the second economy was obtained by multiplying illegal money by the income velocity of money as shown in Table 2.

As a percentage of official economy GDP, the second economy GDP was fairly static in the 1970s, rising from slightly above 7 percentage points in 1972 to slightly under 11 percentage points in 1980. As a percentage of official economy GDP, the second economy GDP increased more rapidly in the 1980s, rising from 14 percentage points in 1981 to 39 percentage points in 1990. The average annual rate of growth of the second economy in the 1980s was 33% against 22% in the 1970s. Official economy GDP grew at lower rates of 16% and 13%, respectively.

Among possible explanations for the larger rate of growth of second economy GDP in the 1980s compared with the 1970s are a decline and stagnation in real per capita income, a steep decline in the real wage rate, and an increase in the rate of inflation (Table 3). The Tanzi method assumes that the second economy is the direct result of high tax rates. Rates were indeed raised on a broad spectrum of taxes in Malawi in the 1980s, as stated at the beginning of this paper. But there were certainly other causes at work. The data in Table 3 indicate that macroeconomic conditions were more difficult in Malawi in the 1980s than in the 1970s. In addition, the rate of growth of employment averaged 2.0% between 1980 and 1989, as against 2.5% between 1970 and 1979.

Like the estimates based on the Guttman method, estimates based on the Tanzi method also underestimate second economy GDP. Apart from the sweeping assumption that activities in the second economy are the direct result of high tax rates, the other problem is the assumption that to carry out such transactions or to store wealth, use is made mainly of domestic currency. With liberalization of the economy, there is increasing use of foreign currency in the country. Other means of payment used are cooked and uncooked foodstuffs, local drinks, and livestock. Then there is bartering of goods and cooperative exchange of services. In addition, by reducing the value of money, high rates of inflation discourage people from storing their wealth in the form of currency.

Comparison of second economy estimates

Estimates of second economy GDP based on the Guttman and Tanzi methods are compared in Table 4. These comparisons are made for the period 1972 to 1990. Second economy GDP estimates based on the Guttman method are non-monotonic because they are anchored on 1977 when the cash–deposit ratio was the lowest, and hence assume that activities in the second economy in that year were insignificant relative to the preceding and succeeding years. Estimates of second economy GDP based on the Tanzi method give an upward trend because they are not anchored on a particular year and hence make no assumption about the level of activity in the second economy for any particular year.

The other difference is that estimates based on the Tanzi method generally tend to be

Table 2: Tanzi method : Money, income velocity of circulation and the second economy GDP (K million)

Year	Illegal money $(\hat{C} - \bar{C})$	Narrow money (M1) minus illegal Money	Official economy nominal GDP	GDP/legal GDP/legal money	Second economy GDP=illegal money x income velocity	Second economy GDP as % of official economy GDP
1972	2.48	34.33	373.6	10.88	27.00	7.23
1973	3.25	45.84	401.6	8.76	28.47	7.09
1974	4.14	59.43	487.1	8.20	33.96	6.97
1975	4.84	57.86	571.0	9.87	47.78	8.37
1976	3.64	54.81	659.8	12.04	43.81	6.64
1977	5.57	64.42	759.6	11.79	65.67	8.65
1978	7.15	67.80	887.9	13.10	93.59	10.54
1979	7.38	70.24	873.1	12.43	91.69	10.50
1980	9.12	83.57	937.5	11.22	102.30	10.91
1981	12.59	88.41	1,103.8	12.4	159.18	14.24
1982	18.71	99.27	1,242.4	12.52	234.22	18.85
1983	18.68	91.85	1,434.9	15.62	291.87	20.34
1984	27.74	104.75	1,707.4	16.30	452.15	26.48
1985	33.81	119.73	1,944.9	16.25	549.16	28.24
1986	39.60	147.36	2,197.6	14.91	590.62	26.88
1987	50.49	194.30	2,614.0	13.45	679.31	25.99
1988	71.02	271.98	3,417.9	12.57	892.45	26.11
1989	86.04	275.65	4,388.2	15.92	1,369.75	31.21
1990	113.31	290.10	5,069.9	17.48	1,980.29	39.06

Note: Estimates for the periods before 1972 and after 1990 have not been made because including the data for these years resulted in negative tax coefficients. Also, per capita income, excise tax rate and surtax rate data were not complete

Table 3: Malawi : Basic economic indicators

Year	Real per capita GDP (in K)	Average monthly real wage rate	Rate of inflation (in K) (%)
1972	75.01	63.15	3.4
1973	78.62	55.93	5.3
1974	89.53	52.63	15.4
1975	102.69	46.65	15.5
1976	117.15	45.01	4.4
1977	131.40	42.86	4.2
1978	128.17	45.38	8.6
1979	130.92	43.76	11.0
1980	125.79	43.66	19.1
1981	115.86	44.67	10.4
1982	115.96	45.98	8.8
1983	116.31	38.83	13.4
1984	116.32	36.14	11.0
1985	115.89	35.82	15.0
1986	117.09	34.09	14.9
1987	115.96	31.90	26.7
1988	115.91	26.26	31.5
1989	116.56	26.06	15.7
1990	118.14	25.17	11.6

Sources: Malawi Government, *Economic Report* (various issues).

larger. Whereas Guttman method estimates exceed Tanzi method estimates in 6 out of 19 years, the latter exceed the former in the other 13 years (Table 4). Both Guttman and Tanzi assume that (a) the second economy uses only currency and (b) the velocity of this currency is the same as the velocity of money in the official economy, so that second economy GDP is the product of income velocity of money and currency being used in the second economy. But the two methods differ in how they measure income velocity and currency used in the second economy.

Guttman uses the first term $(OFECON/DD.(1+C/DD_{77}))$ on the right-hand side of the first equation to estimate income velocity, whereas Tanzi divides legal money into official economy GDP to arrive at income velocity. For estimating currency used in the second economy, Guttman uses the second term $(([M1-DD.(1+C/DD_{77}]))$ on the right-hand side of the first equation, while Tanzi takes the difference between the predicted level of currency holding (C) using the third equation and the level of currency predicted after setting the coefficients of all tax variables equal to zero while the coefficients of the other variables remain unchanged in the same third equation. In other words, Tanzi generates his excess currency measure after controlling for official Y1, R and WS/NI by setting tax rates equal to zero. He is therefore only capturing excess currency attributable to tax evasion, rather than to other factors that might have spurred the second economy. Since Tanzi controls for official Y and Guttman does not, the fact that growth tends to reduce C/D means that as official Y rises, Guttman will increasingly understimate the second economy by underestimating excess currency holdings as well as income velocity of money (Table 5).

Table 4: Comparison of second economy GDP estimates

Year	(1) Guttman method second economy GDP (K million)	(2) Tanzi method second economy GDP (K million)	(3) (2) - (1) K million	(4) (1) as percentage of (2)
1972	83.87	27.00	-56.87	310.62
1973	58.93	28.47	-30.46	207.00
1974	82.75	33.96	-48.79	243.67
1975	95.32	47.78	-47.54	199.50
1976	47.47	43.81	-3.66	108.35
1977	0.00	65.67	65.67	0.00
1978	68.65	93.59	24.94	73.35
1979	97.16	91.69	-5.47	105.97
1980	81.38	102.30	20.92	79.55
1981	69.79	159.18	89.39	43.84
1982	145.87	234.22	88.35	62.28
1983	266.02	291.87	25.85	91.14
1984	233.28	452.15	218.87	51.59
1985	268.52	549.16	280.64	48.90
1986	278.85	590.62	311.77	47.21
1987	413.06	679.31	266.25	60.81
1988	232.79	892.45	659.66	26.08
1989	631.60	1,369.75	738.15	46.11
1990	368.67	1,980.29	1,611.62	18.62

Source: Author's calculations.

Table 5: Comparisons of income velocity and illegal money

Year	Income velocity		Illegal money (K million)	
	Guttman method	Tanzi method	Guttman method	Tanzi method
1972	12.43	10.88	6.75	2.48
1973	9.38	8.76	6.28	3.25
1974	8.96	8.20	9.23	4.14
1975	10.63	9.87	8.97	4.84
1976	12.10	12.04	3.92	3.64
1977	10.85	11.79	-0.00	5.57
1978	12.76	13.10	5.38	7.15
1979	12.50	12.43	7.77	7.38
1980	10.99	11.22	7.40	9.12
1981	11.62	12.49	6.01	12.59
1982	11.77	12.52	12.40	18.71
1983	15.39	15.62	17.29	18.68
1984	14.65	16.30	15.93	27.74
1985	14.42	16.25	18.63	33.81
1986	13.25	14.91	21.05	39.60
1987	12.37	13.45	33.40	50.49
1988	10.64	12.57	21.87	71.02
1989	13.88	15.92	45.51	86.04
1990	13.48	17.48	27.35	113.31

Source: Author's calculations.

4. Estimates of tax evasion

Estimates of tax evasion are shown in Table 6 in absolute terms and as a percentage of potential tax revenue. These estimates have been calculated as the product of the second economy GDP (shown in Table 2) and the average income tax rate in the official economy. Potential tax revenue is the sum of actual tax revenue and tax evasion.

Table 6: Estimates of tax evasion (K million)

Year	Actual total tax revenue	Tax evasion	Potential tax revenue	Tax evasion as % of actual total tax revenue	Tax evasion as % of potential tax revenue
1972	39.3	3.75	43.05	9.54	8.71
1973	43.5	3.90	47.40	8.97	8.23
1974	53.8	4.20	58.00	7.81	7.24
1975	66.6	7.80	74.40	11.71	10.48
1976	73.2	7.23	80.43	9.88	8.99
1977	90.0	11.62	101.62	12.91	11.44
1978	122.0	20.54	142.54	16.84	14.41
1979	143.8	19.83	163.63	13.79	12.12
1980	166.9	19.42	186.32	11.64	10.42
1981	179.1	27.36	206.46	15.28	13.25
1982	207.7	44.78	252.48	21.56	17.74
1983	238.9	67.45	306.35	28.23	22.02
1984	296.2	100.69	396.89	33.99	25.37
1985	373.5	135.26	508.76	36.21	26.59
1986	391.1	154.03	545.13	39.38	28.26
1987	450.2	155.43	605.63	34.53	25.66
1988	653.7	258.72	912.42	39.58	28.36
1989	844.6	405.58	1,250.18	48.02	32.44
1990	888.0	529.13	1,417.13	59.59	37.34

Source: Author's calculations.

Between 1972 and 1990, tax evasion rose as both the size of the second economy and the average tax rate increased. As a percentage of actual total tax revenue and of potential tax revenue, tax evasion declined between 1972 and 1974. While showing fluctuations, thereafter it rose rapidly and was about 60% of actual tax revenue and 37% of potential tax revenue in 1990, representing sevenfold and fourfold increases, respectively.

These estimates were calculated on the assumption that incomes in the second economy would have been taxed at the same average income tax rate as incomes in the official

economy; hence that the structures of the two economies are similar. If incomes in the second economy were marginal incomes and hence if they were taxed at higher marginal tax rates, the estimates of tax evasion would have been higher. This might be the case with those who are engaged in the official economy and participate in the second economy to earn extra income. If they had declared this additional income, they would have paid higher taxes than those they actually paid on their reported incomes. In practice, the additional income may not be declared and so tax may not be paid on it. Besides, some people may not participate in the second economy if activities there are controlled or taxed. In other words, it is difficult to ascertain the exact loss in tax revenue from activities in the second economy. Under these circumstances, the assumption that has been made is the most practical.

It must also be pointed out that the estimates of tax evasion presented here relate only to tax evasion that is associated with the use of currency and activities in the second economy. Many other types of tax evasion, like non-reporting of rental income, false claims, etc., have nothing to do with the use of currency or activities in the second economy. Hence, the estimates presented here do not measure total tax evasion.

5. Tax policy and other implications

Actual tax yield in Malawi is significantly below potential because of the existence of the second economy. In absolute terms, the size of the second economy has grown rapidly, especially during the 1980s when existing tax rates were raised and new taxes were introduced. It has also increased rapidly in relative terms since that time. With expansion in the size of the second economy, the amount of revenue lost has also increased.

The results of the study have shown that the second economy GDP (Y^s) is increasing over time relative to the official economy GDP (Y^o). This suggests that using official GDP to estimate tax buoyancy and elasticity will give misleading results. To be more specific, since Y^s/Y^o is rising over time, tax buoyancy and elasticity with respect to official GDP are bound to be higher than with respect to combined second economy and official economy GDP. In order to raise tax buoyancy and elasticity, tax policy must attempt to bring the second economy into the tax base. One way of doing this is by introducing the so-called presumptive taxes, to which we now turn.

Presumptive taxes

Presumptive taxes are simple, cost-effective techniques of capturing informal transactions and sources of income that frequently escape identification by tax officials (Taube and Tadesse, 1996). There is a variety of these taxes, which Taube and Tadesse have classified into older techniques (including lump-sum levies on small-scale business activities, taxes levied through indicators or proxies to determine a taxpayer's income, and minimum taxes collected irrespective of a taxpayer's actual level of business activity), and newer techniques (including taxes on imports, withholding schemes to capture incomes of unregistered businesses and graduated business fees).

Until 1994 when it was abolished, Malawi had a tax levied through proxies to determine a taxpayer's income (estimated assessments). Being confined to formal rural business income, the base of this tax was narrow and the yield was low. Informal sector transactions and activities in handicrafts, moneylending, farming, fishing, dairying, transport and other activities were not included. If reintroduced and extended, this tax could become a means of capturing the informal sector.

Malawi never had minimum taxes levied on business people. There was a minimum tax on male persons aged 18 and above if they were not subject to other income taxes, but this particular tax was abolished in 1993. If a minimum tax on all business activity

were introduced for those who do not pay company tax, again, it would be one way of bringing the informal sector into the tax net. Similarly with lump-sum levies on small-scale business activities, which have never been levied in Malawi.

The drawback with the minimum and lump-sum taxes is that they are not equitable. In addition, these taxes as well as the assessed income tax tend to be costly to collect. The expense incurred in tax administration did in fact contribute to the decision to abolish the minimum personal tax and the assessed income tax.

Of the newer techniques, Malawi already has a withholding tax. This tax was introduced in 1985 in order to speed up the collection of tax revenue and to ensure that tax is collected on incomes that are not declared by taxpayers. It has been effective in tapping the incomes of unregistered businesses and individuals. For example, the incomes of building contractors, professionals and others involved in selling goods or services to public and private sector institutions are subject to withholding tax up to 20%. This is in fact one of the few taxes that have been buoyant with respect to discretionary tax changes during the past one and a half decades (Chipeta, 1995).

The productivity of this tax should have been higher but for the inability to capture many second economy transactions and incomes and legal exemptions. Until the 1996/97 fiscal year, holdings of Treasury Bills were exempt from this tax. Interest income earned on Post Office (now Malawi Savings Bank) savings deposits are still exempt. Rental payments for office space, houses or other facilities are subject to the withholding tax. This works as long as an institution is involved in paying the rent. Where employees are given housing allowances, these allowances are also subject to withholding tax. But where rental payments for housing by employees are not effected out of such allowances, taxation can be evaded because there is no withholding tax on them. Such payments may be brought into the tax base by subjecting "petty landlords" themselves to some type of presumptive tax.

Malawi collects business licence fees, but these are not used as an income tax instrument. If they were to be turned into a revenue instrument, they would have to be graduated on the basis of such indicators as a firm's floor space, rental value or number of employees. As a means of bringing taxable incomes into the tax base, they have the advantage of being easy to administer.

A presumptive import tax to capture the incomes of both registered and unregistered importers is not levied. Such a tax can represent a down payment on the final tax liability of the former and a final profit tax on the presumed income of the latter. With the import value as the tax base, the tax can carry a low fixed rate. If levied, and barring evasion, it would bring into the tax base imports by individuals who at present are exempted from import duties on the first K2,000.00 value of imports. Unregistered importers do claim this exemption also, on the pretext that the goods are for personal use.

According to Taube and Tadesse (1996), these newer presumptive taxes are superior to the older techniques because they can be administered by existing institutions, such as customs and excise departments, business licensing offices and firms, and public organizations in the case of withholding taxes. They are particularly suitable in countries that have weak administrative capacities, as little additional administrative effort is required.

Improving tax administration

The adoption of presumptive taxes would go some way towards taxing transactions and incomes in the informal sector that are not taxed at present. But it would not capture illegal parallel and black market activities. Nor would it consciously address the problem of corruption among revenue collectors or fraud among taxpayers. The latter problem is facilitated by the general civil service problem of low rates of pay, which breed corruption and result in low morale and high staff turnover.

To address these problems, government is paying a fixed monthly allowance of K1,000.00 to each employee in revenue collecting departments. But the tax revenue collecting departments cannot do more to improve conditions of service for their employees unless government is able to do the same for all ministries and departments, something that, at present, is unlikely. If all tax revenue collecting departments were replaced by an autonomous parastatal body, it would be easier to improve conditions of service. Equally important is the need to create an efficient tax system.

Inflation tax

The monetary techniques used in this study imply that seigniorage can be an effective source of finance when there is a large second economy. Tax evasion that is associated with the second economy reduces tax revenue. If government expenditure cannot be contained, a budget deficit will emerge that may have to be covered through deficit financing. The inflation resulting from this method of financing causes money holders to pay an inflation tax on all M1 (currency plus demand deposits) because they are forced to hold larger money balances, with the part corresponding to the monetary base generating revenue for the government. As depositors attempt to maintain the real value of their bank deposits by placing extra money in their bank accounts, banks benefit to the extent that the real value of deposits can be maintained without increasing the deposit rate of interest, while borrowers benefit if the lending rate is below the rate of inflation. The benefit accruing to the government depends on the size of the money multiplier and on the share of government securities in the incremental assets of the banking system. In recent years, this share has increased.

6. Conclusions

To conclude, as measured by estimates of GDP for the years 1972 to 1990 using the Tanzi method, Malawi has a large second economy that is significant in relation to the size of the official economy, measured by its GDP. Moreover, the rate of growth of the second economy GDP exceeded the rate of the growth of the official economy GDP during this period.

The results from the Tanzi method of estimating the size of the second economy suggest that high excise tax and import surtax rates are an important impetus to the second economy in Malawi. Part of the second economy can therefore be brought into the official economy by cutting these tax rates. In this way, the tax base can be raised.

Because of the size of the second economy GDP and fairly high average income tax rates, the amount of revenue lost through tax evasion is large and significant in relation to potential tax revenue as well as in relation to actual total tax revenue. Both absolute and relative amounts of revenue lost increased between 1972 and 1990.

Possibilities of taxing the incomes and transactions of the second economy exist in the form of simple and cost-effective taxes known as presumptive taxes. Presumptive taxes can be used to raise revenue from the second economy or they can be used to allow cuts in other tax rates, which would shrink the second economy.

Malawi levies a withholding tax, yields from which could be increased by reducing the number of exemptions and effectively taxing rental income. But because many second economy agents do not keep business records or file tax returns, the scope for using this tax for effectively taxing the second economy is limited. If introduced, presumptive import duties may provide another cost-effective means of taxing the second economy. However, the potential for tax evasion is high and these taxes may not yield much.

Until recently, Malawi used to levy an assessed income tax on small-scale business enterprises. This tax was abolished because net yield from it was low. If this tax is to be reintroduced, more cost-effective methods of administering it must be found. The same applies to lump-sum and minimum taxes on small-scale business enterprises that have not been levied before. The other promising presumptive tax is the business licence fee. At present, this tax is collected, but not as a revenue measure. If appropriately graduated, the yield from this tax could rise markedly.

The taxes described above would not reduce tax evasion through illegal black and parallel market activities. Such activities are a matter for law enforcement departments, while reducing tax loss through fraud and corruption can be addressed by improving systems for detecting fraud and improving the accountability of tax officials.

In this study, the currency demand model has been estimated for the period 1972 to

1990 only. The pre-1972 and post-1990 periods have been left out because reliable data for all the variables could not be found. If and when the relevant data for the post-1990 period are available, it would be interesting to extend the study as this period coincided with a reduction in tax rates in Malawi. It would also be interesting to see the model estimated replacing the three separate tax rates with an average tax rate.

References

Acharya, S.N. and Associates. 1986. *Aspects of the Black Economy in India*. Report submitted to the Ministry of Finance, Government of India. New Delhi: National Institute of Public Finance and Policy.

Bagachwa, M.S.D. and A. Naho. 1994. *A Review of Recent Developments in the Second Economy in Tanzania*. AERC Special Paper No. 16.

Bhattacharyya, D.K. 1990. "An econometric method of estimating the 'hidden economy', United Kingdom (1960–1984): Estimates and tests". *The Economic Journal*, 100, September: 703–17.

Cagan, Phillip. 1985. "The demand for currency relative to the total money supply". *Journal of Political Economy*, vol. 66 (August): 303–28.

Chipeta, C. 1995. *Tax Reform and Tax Yield in Malawi*. AERC Research Paper No. 81.

Del Boca, D. and F. Forte. 1982. "Recent empirical surveys and theoretical interpretations of the parallel economy in Italy". In V. Tanzi, ed., *The Underground Economy in the United States and Abroad*. Lexington, Mass: Lexington Books.

Dilnot, Andrew and C.N. Morris. 1982. "What do we know about the black economy in the United Kingdom?" V. Tanzi, ed., *The Underground Economy in the United States and Abroad*. Lexington, Mass: Lexington Books.

Economic Planning and Development. 1990. "Population dynamics, employment implications and labour market considerations in Malawi". Paper presented at a Malawi National Seminar on Prospects for Employment Creation, 14–16 August.

Ettema, W. 1984. *Small-Scale Enterprises in Malawi*. Zomba: Centre for Social Research.

Feige, Edgar L. 1979. "How big is the irregular economy?" *Challenge*, vol. 22 (November/December): 5–13.

Fishlow, A. and J. Friedman. 1994. "Tax evasion, inflation and stabilisation". *Journal of Development Economics*, vol. 43, no. 1: 105–23.

Green, R. 1981. "State, magendo and class formation in Uganda". Paper presented at the 25th Conference of the African Studies Association, Washington, D.C.

Guttman, P.M. 1977. "The subterranean economy". *Financial Analyst Journal*, vol. 34, (Nov-Dec.): 24–27.

ILO. 1972. *Employment, Incomes and Inequality: A Strategy for Increasing Productive Employment in Kenya*. Geneva: International Labour Organization.

Labat-Anderson. 1989. *Malawi Informal Sector Assessment*. Report prepared for US Agency for International Development.

Malawi Government. 1969. *Gazette*. 28 March.

Malawi Government. 1990. *Budget Statement*.

Malawi Government. 1993. *Budget Statement*.

Maliyamkono and M.S.D. Bagachwa. 1990. *The Second Economy in Tanzania*. London: Villiers Publications.

Manda, C.M. 1990. "The promotion of employment in the urban informal sector". Paper presented at an ILO/SATEP National Seminar on Promotion of Employment in Malawi. Lilongwe, August.

May, E. 1985. "Exchange controls and parallel market economies in sub-Saharan Africa: Focus on Ghana". *World Bank Staff Working Paper* No. 711. Washington, D.C.

Mirus, R. and R. Smith. 1982. "Canada's irregular economy". In V. Tanzi, ed., *The Underground Economy in the United States and Abroad*. Toronto and Lexington, Mass: Lexington Books.

Molefsky, B. 1982. "America's underground economy". In V. Tanzi. ed., op. cit.

Osoro, N.E. 1992. *Tax Reforms in Tanzania: Motivations, Directions and Implications*". AERC Research Paper No. 38.

Taube, G. and H. Tadesse. 1996. "Presumptive taxation in sub-Saharan Africa: Experiences and practices". *IMF Working Paper Series,* No. 96/5.

Tanzi, V. 1980. "The underground economy in the United States: Estimates and implications". *Banca Nazionale del Lavoro, Quarterly Review*, No. 135 (December): 427–53.

Tanzi, V. 1983. "The underground economy in the United States: Annual estimates, 1930–80". *IMF Staff Papers*, vol. 30 (June): 283–305.

Tucker, M. 1982. "The underground economy in Australia". In V. Tanzi, ed., op. cit.

Wiles, P. 1987. "The second economy, its definitional problems". In S. Allesandrini and B. Dallago, eds., *The Unofficial Economy*. Brookfield: Gower.

World Bank. 1990. *Malawi: Human Resource Study*.

Annex

Table A1: Data used in estimating the currency demand equation

Year	Curency–broad money ratio (C/M2)	Nominal per capita income (Y/P)	Excise tax rate	Wages and salaries as ratio of national income (WS/NI)	Savings deposit interest rate %	Income tax revenue as ratio of personal + corporate income	Import surtax rate
1965	36.39			23.70	3.00	9.09	
1966	36.79			27.18	3.00	8.44	
1967	36.96			25.57	3.00	10.98	
1968	33.93			27.49	4.00	11.38	
1969	32.74			26.27	4.00	11.61	
1970	30.49	69.17		21.36	4.00	13.15	
1971	30.46	64.16	2.70	17.67	4.00	10.59	69.17
1972	31.49	73.71	2.90	17.03	4.00	13.87	64.16
1973	29.45	92.51	3.50	16.01	4.00	13.71	73.71
1974	28.51	103.68	4.20	14.99	4.00	12.36	92.51
1975	26.83	109.56	4.80	14.37	4.00	16.33	103.68
1976	23.53	117.39	4.20	12.80	5.00	16.50	109.56
1977	20.03	135.04	4.50	15.68	5.50	17.69	117.39
1978	22.37	138.89	5.80	17.73	5.50	21.95	135.04
1979	22.32	146.16	6.00	20.48	6.75	21.63	138.89
1980	19.87	161.10	7.80	17.61	8.75	18.98	146.16
1981	18.02	200.64	9.00	18.26	8.75	17.19	161.10
1982	19.64	211.50	11.60	17.56	8.75	19.12	200.64
1983	19.20	254.34		14.62	10.75	23.11	211.50
1984	16.18		12.50	15.80	10.75	22.27	254.34
1985	18.78	409.76	12.50	15.80		22.27	292.23
1986	18.22	469.20	13.60	15.89		24.63	297.76

Year	Curency–broad money ratio (C/M2)	Nominal per capita income (Y/P)	Excise tax rate	Wages and salaries as ratio of national income (WS/NI)	Savings deposit interest rate %	income tax revenue as ratio of personal + corporate income	Import surtax rate
1987	18.36	545.80	13.70	15.10		26.08	331.35
1988	19.39		13.10	13.13		22.88	409.76
1989	21.38		20.90	11.90		28.99	469.20
1990	19.38		28.80	12.43		29.61	545.80
1991	22.26		30.20	12.32		26.72	
1992	23.78		32.80	12.86		24.95	
1993	23.96		37.70	11.91		24.85	
1994	25.84		71.90	11.75		22.12	
1995	25.41		113.80	10.11		26.61	
			160.00			34.36	

Other publications in the AERC Research Papers Series:

Structural Adjustment Programmes and the Coffee Sector in Uganda, by Germina Ssemogerere, Research Paper 1.

Real Interest Rates and the Mobilization of Private Savings in Africa, by F.M. Mwega, S.M. Ngola and N. Mwangi, Research Paper 2.

Mobilizing Domestic Resources for Capital Formation in Ghana: The Role of Informal Financial Markets, by Ernest Aryeetey and Fritz Gockel, Research Paper 3.

The Informal Financial Sector and Macroeconomic Adjustment in Malawi, by C. Chipeta and M.L.C. Mkandawire, Research Paper 4.

The Effects of Non-Bank Financial Intermediaries on Demand for Money in Kenya, by S.M. Ndele, Research Paper 5.

Exchange Rate Policy and Macroeconomic Performance in Ghana, by C.D. Jebuni, N.K. Sowa and K.S. Tutu, Research Paper 6.

A Macroeconomic-Demographic Model for Ethiopia, by Asmerom Kidane, Research Paper 7.

Macroeconomic Approach to External Debt: The Case of Nigeria, by S. Ibi Ajayi, Research Paper 8.

The Real Exchange Rate and Ghana's Agricultural Exports, by K. Yerfi Fosu, Research Paper 9.

The Relationship between the Formal and Informal Sectors of the Financial Market in Ghana, by E. Aryeetey, Research Paper 10.

Financial System Regulation, Deregulation and Savings Mobilization in Nigeria, by A. Soyibo and F. Adekanye, Research Paper 11.

The Savings-Investment Process in Nigeria: An Empirical Study of the Supply Side, by A. Soyibo, Research Paper 12.

Growth and Foreign Debt: The Ethiopian Experience, 1964–86, by B. Degefe, Research Paper 13.

Links between the Informal and Formal/Semi-Formal Financial Sectors in Malawi, by C. Chipeta and M.L.C. Mkandawire, Research Paper 14.

The Determinants of Fiscal Deficit and Fiscal Adjustment in Côte d'Ivoire, by O. Kouassy and B. Bohoun, Research Paper 15.

Small and Medium-Scale Enterprise Development in Nigeria, by D.E. Ekpenyong and M.O. Nyong, Research Paper 16.

The Nigerian Banking System in the Context of Policies of Financial Regulation and Deregulation, by A. Soyibo and F. Adekanye, Research Paper 17.

Scope, Structure and Policy Implications of Informal Financial Markets in Tanzania, by M. Hyuha, O. Ndanshau and J.P. Kipokola, Research Paper 18.

European Economic Integration and the Franc Zone: The Future of the CFA Franc after 1996. Part I: Historical Background and a New Evaluation of Monetary Cooperation in the CFA Countries, by Allechi M'Bet and Madeleine Niamkey, Research Paper 19.

Revenue Productivity Implications of Tax Reform in Tanzania by Nehemiah E. Osoro, Research Paper 20.

The Informal and Semi-formal Sectors in Ethiopia: A Study of the Iqqub, Iddir and Savings and Credit Cooperatives, by Dejene Aredo, Research Paper 21.

Inflationary Trends and Control in Ghana, by Nii K. Sowa and John K. Kwakye, Research Paper 22.

Macroeconomic Constraints and Medium-Term Growth in Kenya: A Three-Gap Analysis, by F.M. Mwega, N. Njuguna and K. Olewe-Ochilo, Research Paper 23.

The Foreign Exchange Market and the Dutch Auction System in Ghana, by Cletus K. Dordunoo, Research Paper 24.

Exchange Rate Depreciation and the Structure of Sectoral Prices in Nigeria under an Alternative Pricing Regime, 1986-89, by Olu Ajakaiye and Ode Ojowu, Research Paper 25.

Exchange Rate Depreciation, Budget Deficit and Inflation - The Nigerian Experience, by F. Egwaikhide, L. Chete and G. Falokun, Research Paper 26.

Trade, Payments Liberalization and Economic Performance in Ghana, by C.D. Jebuni, A.D. Oduro and K.A. Tutu, Research Paper 27.

Constraints to the Development and Diversification of Non-Traditional Exports in Uganda, 1981–90, by G. Ssemogerere and L.A. Kasekende, Research Paper 28.

Indices of Effective Exchange Rates: A Comparative Study of Ethiopia, Kenya and the Sudan, by Asmerom Kidane, Research Paper 29.

Monetary Harmonization in Southern Africa, by C. Chipeta and M.L.C. Mkandawire, Research Paper 30.

Tanzania's Trade with PTA Countries: A Special Emphasis on Non-Traditional Products, by Flora Mndeme Musonda, Research Paper 31.

Macroeconomic Adjustment, Trade and Growth: Policy Analysis Using a Macroeconomic Model of Nigeria, by C. Soludo, Research Paper 32.

Ghana: The Burden of Debt Service Payment under Structural Adjustment, by Barfour Osei, Research Paper 33.

Short-Run Macroeconomic Effects of Bank Lending Rates in Nigeria, 1987–91: A Computable General Equilibrium Analysis, by D. Olu Ajakaiye, Research Paper 34.

Capital Flight and External Debt in Nigeria, by S. Ibi Ajayi, Research Paper 35.

Institutional Reforms and the Management of Exchange Rate Policy in Nigeria, by Kassey Odubogun, Research Paper 36.

The Role of Exchange Rate and Monetary Policy in the Monetary Approach to the Balance of Payments: Evidence from Malawi, by Exley B.D. Silumbu, Research Paper 37.

Tax Reforms in Tanzania: Motivations, Directions and Implications, by Nehemiah E. Osoro, Research Paper 38.

Money Supply Mechanisms in Nigeria, 1970-88, by Oluremi Ogun and Adeola Adenikinju, Research Paper 39.

Profiles and Determinants of Nigeria's Balance of Payments: The Current Account Component, 1950-88, by Joe U. Umo and Tayo Fakiyesi, Research Paper 40.

Empirical Studies of Nigeria's Foreign Exchange Parallel Market I: Price Behaviour and Rate Determination, by Melvin D. Ayogu, Research Paper 41.

The Effects of Exchange Rate Policy on Cameroon's Agricultural Competitiveness, by Aloysius Ajab Amin, Research Paper 42.

Policy Consistency and Inflation in Ghana, by Nii Kwaku Sowa, Research Paper 43.

Fiscal Operations in a Depressed Economy: Nigeria, 1960–90, by Akpan H. Ekpo and John E. U. Ndebbio, Research Paper 44.

Foreign Exchange Bureaus in the Economy of Ghana, by Kofi A. Osei, Research Paper 45.

The Balance of Payments as a Monetary Phenomenon: An Econometric Study of Zimbabwe's Experience, by Rogers Dhliwayo, Research Paper 46.

Taxation of Financial Assets and Capital Market Development in Nigeria, by Eno L. Inanga and Chidozie Emenuga, Research Paper 47.

The Transmission of Savings to Investment in Nigeria, by Adedoyin Soyibo, Research Paper 48.

A Statistical Analysis of Foreign Exchange Rate Behaviour in Nigeria's Auction, by Genevesi O. Ogiogio, Research Paper 49.

The Behaviour of Income Velocity in Tanzania 1967–1994, by Michael O.A. Ndanshau, Research Paper 50.

Consequences and Limitations of Recent Fiscal Policy in Côte d'Ivoire, by Kouassy Oussou and Bohoun Bouabre, Research Paper 51.

Effects of Inflation on Ivorian Fiscal Variables: An Econometric Investigation, by Eugene Kouassi, Research Paper 52.

European Economic Integration and the Franc Zone: The Future of the CFA Franc after 1999, Part II, by Allechi M'Bet and Niamkey A. Madeleine, Research Paper 53.

Exchange Rate Policy and Economic Reform in Ethiopia, by Asmerom Kidane, Research Paper 54.

The Nigerian Foreign Exchange Market: Possibilities For Convergence in Exchange Rates, by P. Kassey Garba, Research Paper 55.

Mobilizing Domestic Resources for Economic Development in Nigeria: The Role of the Capital Market, by Fidelis O. Ogwumike and Davidson A. Omole, Research Paper 56.

Policy Modelling in Agriculture: Testing the Response of Agriculture to Adjustment Policies in Nigeria, by Mike Kwanashie, Abdul-Ganiyu Garba and Isaac Ajilima, Research Paper 57.

Price and Exchange Rate Dynamics in Kenya: An Empirical Investigation (1970–1993), by Njuguna S. Ndung'u, Research Paper 58.

Exchange Rate Policy and Inflation: The Case of Uganda, by Barbara Mbire, Research Paper 59.

Institutional, Traditional and Asset Pricing Characteristics of African Emerging Capital Markets, by Ino L. Inanga and Chidozie Emenuga, Research Paper 60.

Foreign Aid and Economic Performance in Tanzania, by Timothy S. Nyoni, Research Paper 61.

Public Spending, Taxation and Deficits: What is the Tanzanian Evidence? by Nehemiah Osoro, Research Paper 62.

Adjustment Programmes and Agricultural Incentives in Sudan: A Comparative Study, by Nasredin A. Hag Elamin and Elsheikh M. El Mak, Research Paper 63.

Intra-industry Trade between Members of the PTA/COMESA Regional Trading Arrangement, by Flora Mndeme Musonda, Research Paper 64.

Fiscal Operations, Money Supply and Inflation in Tanzania, by A.A.L. Kilindo, Research Paper 65.

Growth and Foreign Debt: The Ugandan Experience, by Barbara Mbire, Research Paper 66.

Productivity of the Nigerian Tax System: 1970–1990, by Ademola Ariyo, Research Paper 67.

Potentials for Diversifying Nigeria's Non-oil Exports to Non-Traditional Markets, by A. Osuntogun, C.C. Edordu and B.O. Oramah, Research Paper 68.

Empirical Studies of Nigeria's Foreign Exchange Parallel Market II: Speculative Efficiency and Noisy Trading, by Melvin Ayogu, Research Paper 69.

Effects of Budget Deficits on the Current Account Balance in Nigeria: A Simulation Exercise, by Festus O. Egwaikhide, Research Paper 70.

Bank Performance and Supervision in Nigeria: Analysing the Transition to a Deregulated Economy, by O.O. Sobodu and P.O. Akiode, Research Paper 71.

Financial Sector Reforms and Interest Rate Liberalization: The Kenya Experience by R.W. Ngugi and J.W. Kabubo, Research Paper 72.

Local Government Fiscal Operations in Nigeria, by Akpan H. Ekpo and John E.U. Ndebbio, Research Paper 73.

Tax Reform and Revenue Productivity in Ghana, by Newman Kwadwo Kusi, Research Paper 74.

Fiscal and Monetary Burden of Tanzania's Corporate Bodies: The Case of Public Enterprises, by H.P.B. Moshi, Research Paper 75.

Analysis of Factors Affecting the Development of an Emerging Capital Market: The Case of the Ghana Stock Market, by Kofi A. Osei, Research Paper 76.

Ghana: Monetary Targeting and Economic Development, by Cletus K. Dordunoo and Alex Donkor, Research Paper 77.

The Nigerian Economy: Response of Agriculture to Adjustment Policies, by Mike Kwanashie, Isaac Ajilima and Abdul-Ganiyu Garba, Research Paper 78.

Agricultural Credit Under Economic Liberalization and Islamization in Sudan, by Adam B. Elhiraika and Sayed A. Ahmed, Research Paper 79.

Study of Data Collection Procedures, by Ademola Ariyo and Adebisi Adeniran, Research Paper 80.

Tax Reform and Tax Yield in Malawi, by C. Chipeta, Research Paper 81.

Real Exchange Rate Movements and Export Growth: Nigeria, 1960–1990, by Oluremi Ogun, Research Paper 82.

Macroeconomic Implications of Demographic Changes in Kenya, by Gabriel N. Kirori and Jamshed Ali, Research Paper 83.

An Empirical Evaluation of Trade Potential in the Economic Community of West African States, by E. Olawale Ogunkola, Research Paper 84.

Cameroon's Fiscal Policy and Economic Growth, by Aloysius Ajab Amin, Research Paper 85.

Economic Liberalization and Privatization of Agricultural Marketing and Input Supply in Tanzania: A Case Study of Cashewnuts, by Ngila Mwase, Research Paper 86.

Price, Exchange Rate Volatility and Nigeria's Agricultural Trade Flows: A Dynamic Analysis, by A.A. Adubi and F. Okunmadewa, Research Paper 87.

The Impact of Interest Rate Liberalization on the Corporate Financing Strategies of Quoted Companies in Nigeria, by Davidson A. Omole and Gabriel O. Falokun, Research Paper 88.

The Impact of Government Policy on Macroeconomic Variables, by H.P.B. Moshi and A.A.L. Kilindo, Research Paper 89.

External Debt and Economic Growth in Sub-Saharan African Countries: An Econometric Study, by Milton A. Iyoha, Research Paper 90.

Determinants of Imports In Nigeria: A Dynamic Specification, by Festus O. Egwaikhide, Research Paper 91.

Macroeconomic Effects of VAT in Nigeria: A Computable General Equilibrium Analysis, by D. Olu Ajakaiye, Research Paper 92.

Exchange Rate Policy and Price Determination in Botswana, by Jacob K. Atta, Keith R. Jefferis, Ita Mannathoko and Pelani Siwawa-Ndai, Research Paper 93.

Monetary and Exchange Rate Policy in Kenya, by Njuguna S. Ndung'u, Research Paper 94.

Health Seeking Behaviour in the Reform Process for Rural Households: The Case of Mwea Division, Kirinyaga District, Kenya, by Rose Ngugi, Research Paper 95.

Trade Liberalization and Economic Performance of Cameroon and Gabon, by Ernest Bamou, Research Paper 97.

Quality Jobs or Mass Employment, by Kwabia Boateng, Research Paper 98.

Real Exchange Rate Price and Agricultural Supply Response in Ethiopia: The Case of Perennial Crops, by Asmerom Kidane, Research Paper 99.

Determinants of Private Investment Behaviour in Ghana, by Yaw Asante, Research Paper 100.

An Analysis of the Implementation and Stability of Nigerian Agricultural Policies, 1970–1993, by P. Kassey Garba, Research Paper 101.

Poverty, Growth and Inequality in Nigeria: A Case Study, by Ben E. Aigbokhan, Research Paper 102.

The Effect of Export Earnings Fluctuations on Capital Formation in Nigeria, by Godwin Akpokodje, Research Paper 103.

Nigeria: Towards an Optimal Macroeconomic Management of Public Capital, by Melvin D. Ayogu, Research Paper 104.

International Stock Market Linkages in Southern Africa, by K.R. Jefferis, C.C. Okeahalam and T.T. Matome, Research Paper 105.

An Empirical Analysis of Interest Rate Spread in Kenya, by Rose W. Ngugi, Research Paper 106

The Parallel Foreign Exchange Market and Macroeconomic Performance in Ethiopia, by Derrese Degefa, Research Paper 107.

Market Structure, Liberalization and Performance in the Malawian Banking Industry, by Ephraim W. Chirwa, Research Paper 108.

Liberalization of the Foreign Exchange Market in Kenya and the Short-Term Capital Flows Problem, by Njuguna S. Ndung'u, Research Paper 109.

External Aid Inflows and the Real Exchange Rate in Ghana, by Harry A. Sackey, Research Paper 110.

Formal and Informal Institutions' Lending Policies and Access to Credit by Small-Scale Enterprises in Kenya: An Empirical Assessment, by Rosemary Atieno, Research Paper 111.

Financial Sector Reforms, Macroeconomic Instability and the Order of Economic Liberalization: The Evidence From Nigeria, by Sylvanus I. Ikhide and Abayomi A. Alawode, Research Paper 112.