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Tax reform and tax yield in Malawi

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Abstract

The problem of this study is to evaluate tax reforms as instruments for raising tax yield in Malawi. The study tests two hypotheses: that the yield of the tax system as a whole, of its major components and of individual taxes, is not buoyant; and that the yield of the tax system as a whole, of its major components and of individual taxes is not income elastic.

In order to test these hypotheses, two sets of regression equations were estimated. In the first set, tax revenue was regressed on GDP. Tax revenue was again regressed on GDP in the second set, but in individual tax revenue equations, dummy variables were used to capture discretionary tax changes. Moreover, in the total tax revenue equation, tax revenue adjusted for discretionary tax changes was the independent variable.

On the basis of the econometric analysis, a few taxes are buoyant. The tax system as a whole is not. In the context of Malawi, relying on increasing tax rates, extending existing taxes to new activities and introducing new taxes are not sufficient for raising buoyancy of the tax system.

Only PAYE tax (pay as you earn) is tax elastic. The whole tax system is not. To improve tax elasticity, the tax base must grow relative to GDP.

I. Introduction

The purpose of this study is to evaluate the tax reforms that Malawi has carried out over time, paying particular attention to intensive reforms that were undertaken in the context of structural adjustment in the 1980s and early 1990s. The study focuses on tax reform as an instrument for raising tax yield or productivity. The specific and principal objective of the study is to investigate the factors that influence yield or productivity of the tax system of Malawi, and how tax yield or productivity can be improved. To pursue this objective, the study estimates the buoyancy and elasticity of the tax system as a whole, of the major groups of taxes and of individual taxes.

Tax bouyancy is defined as the ratio of the percentage change in actual tax collections to the percentage change in the tax base gross of changes in the tax system — e.g., changes in tax rates or introduction of a new tax. Such changes in the tax system, to which buoyancy is due, are referred to as discretionary elements of revenue growth.

Tax elasticity, on the other hand, refers to the ratio of the percentage growth in revenue to the percentage increase in the tax base on the assumption that the tax system of a particular year had prevailed throughout the period. Tax elasticity is due to growth in the tax base (e.g., an increase in tax revenue from profits because of higher profits). Such growth in the tax base is an autonomous element of revenue growth.

Elasticity greater than unity is a desirable feature of a tax system if there is increasing demand for public services and if a country would like to pursue relative financial stability. If elasticity is low, discretionary changes may make up for it and buoyancy may be correspondingly high. But, unlike high elasticity, high buoyancy does not necessarily imply that buoyancy will continue to be high in future, since rates may have been pushed up to their limit.

The main hypotheses that are tested in this study are that:

- The yield of the tax system as a whole, of its major components or groups, and of individual taxes is neither buoyant nor income elastic.

- The yield of the tax system as a whole, of its major components or groups, and of individual taxes is neither base to income elastic nor tax to base elastic.

These hypotheses are tested by determining the significance of the regression coefficients of relevant regression equations that have been estimated and by determining whether the relevant regression coefficients exceed unity.

The rest of the report unfolds in seven sections. Section II presents the background to

the study and its justification. Section III examines tax changes, reforms and structure in the 1970s and Section IV does the same for the 1980s and 1990s. Section V sketches the methodology used to estimate tax buoyancy, which is analysed in Section VI, and tax elasticity, which is analysed in Section Vii. Finally, the summary and conclusions are presented in Section VIII.

II. Background and justification

Since independence 30 years ago, the tax system of Malawi has undergone a number of reforms and individual tax adjustments in response to the need for more revenue and for improving fiscal incentives for economic development. Although several tax reforms have been undertaken, especially since the 1983/84 fiscal year, taxation has failed to generate sufficient revenue to meet the needs of the government. In real terms tax revenue increased up to 1985/86, but has since then fallen (Table 1). Total expenditure and recurrent expenditure both rose in real terms up to 1986/87, but have since declined (Table 2). A look at the composition of real recurrent expenditure (Table 3), shows that only real expenditure on general services and economic services has increased, while that on social services and unallocable services has fallen since 1986/87.

The tax burden measured by the ratio of tax revenue to GDP averaged 17.6% over the period 1980-1989. The tax ratio exhibited no upward trend over this period, suggesting that tax reforms did not increase the tax burden. Instead, the tax burden appears to have decreased since 1989/90 (Table 4). Compared with a sample of other low-income African countries, Malawi's tax ratio was lower than the average for the whole sample in 1980, and nearly equal to the average in 1985 and in 1990 (Table 5). But compared with samples of middle-income African countries, Malawi's tax ratios were lower than the averages of the sampled countries (Table 5).

The apparent failure of the tax system to generate sufficient revenue to finance recurrent expenditure has led to large budget deficits, especially since the 1980/81 fiscal year (Table 6). Internal borrowing, mainly from the banking system, and external loans can be used to finance the overall budget deficit. But because these two sources of finance are not sustainable in the medium and long terms, every effort must be made to design a tax system that is viable and that can support government expenditure without recourse to deficit financing and foreign credit and aid.

During the 1970s, the overall budget deficit after grants rose absolutely and remained rather high as a proportion of GDP. The relatively large budget deficit was at first financed mainly by foreign borrowing. In the 1970/71 fiscal year, for example, foreign borrowing financed 89.3% of the deficit. Although foreign borrowing raised the level of external debt and future debt service obligations, it did not fuel domestic inflationary pressures in the manner that reliance on domestic borrowing would have done, unless credits to the private sector were cut. During the early 1980s, domestic borrowing, especially from the banking system, financed the larger part of the overall budget deficit (Table 7). In the 1980/81 fiscal year, for example, domestic borrowing financed 65.6% of the overall budget deficit, and external borrowing financed the remaining 34.4%. Greater reliance on domestic bank borrowing during this period had a marked impact on the growth of domestic demand, causing inflationary and balance of payments pressures in the economy.

Since then, the source of financing the deficit has largely been foreign. For example, in 8 out of 11 fiscal years between 1982/83 and 1992/93, more of the overall budget deficit was financed by foreign borrowing (Table 7). In only 3 of 11 years was the greater part of the overall budget deficit financed through domestic borrowing (Table 7).

But neither foreign loans nor foreign aid can be relied on with a reasonable degree of certainty for financing public expenditure. Both foreign loans and aid can be cut, as happened in 1992 because Malawi did not satisfy the requisite political conditions. Apart from such conditions, foreign aid is also often tied to imports from the donor countries, which limits the choices available to the country. In view of the problems associated with foreign loans and foreign aid, and the obvious inflationary nature of deficit financing, the main obligation for raising additional revenue must rest with taxation.

Table 1: The growth of total tax revenue

Fiscal year	Total tax revenue in nominal terms (Kmn)	Annual percentage change	Total tax revenue in real terms (Kmn)	Annual percentage change
1970/71	29.1	-	71.3	-
1971/72	36.0	23.7	81.6	14.5
1972/73	39.3	9.2	86.0	5.4
1973/74	43.5	10.7	90.4	5.1
1974/75	53.8	23.7	96.9	7.2
1975/76	66.6	23.8	103.9	7.2
1976/77	73.2	9.9	109.4	5.3
1977/78	90.0	23.0	129.1	18.0
1978/79	122.0	35.6	161.2	24.9
1979/80	143.8	17.9	171.2	6.2
1980/81	166.9	16.1	166.9	-2.5
1981/82	179.1	7.3	162.2	-2.8
1982/83	207.7	16.0	173.1	6.7
1983/84	238.9	15.0	175.4	1.3
1984/85	296.2	24.0	195.9	11.7
1985/86	373.5	26.1	214.9	9.7
1986/87	391.1	4.7	195.8	-8.9
1987/88	450.2	15.1	178.0	-9.1
1988/89	653.7	45.2	196.8	10.6
1989/90	844.6	29.2	219.7	11.6
1990/91	888.0	5.1	207.0	-5.8
1991/92	921.7	3.8	192.0	-7.3
1992/93	1,123.6	21.9	190.0	-1.0
1993/94	1,346.8	19.9	185.5	-2.4

Source: Malawi Government *Economic Reports* (various issues).
Note: High rates of inflation explain the drop-off in real revenues over 1990–1994.

Table 2: The growth of central government expenditure in Malawi

Fiscal year	Total expenditure in real terms (Kmn)	Annual percentage change	Recurrent expenditure in real terms (Kmn)	Annual percentage change
1970/71	196.3	-	115.2	-
1971/72	185.0	-5.8	114.5	-0.6
1972/73	181.2	-2.1	124.7	8.9
1973/74	191.3	5.6	128.3	2.9
1974/75	206.5	7.9	133.0	3.7
1975/76	240.9	16.7	131.7	-1.0
1976/77	213.0	-11.6	129.5	-1.7
1977/78	256.1	20.2	146.2	12.9
1978/79	327.6	27.9	177.7	21.6
1979/80	364.1	11.1	186.4	4.9
1980/81	358.6	-1.5	183.7	-1.5
1981/82	355.8	-0.8	201.0	9.4
1982/83	333.6	-6.2	217.3	8.1
1983/84	317.2	-4.9	218.3	0.5
1984/85	332.8	4.9	241.3	10.5
1985/86	352.0	5.8	244.9	1.5
1986/87	399.1	13.4	280.7	14.6
1987/88	325.8	-18.4	243.8	-13.2
1988/89	322.5	-1.0	209.3	-14.2
1989/90	336.3	4.3	250.5	19.7
1990/91	319.8	-4.9	247.2	-1.3
1991/92	333.8	4.4	254.0	2.8
1992/93	355.7	6.6	276.6	8.9
1993/94	323.8	-9.0	261.0	-5.6

Source: Malawi Government, *Economic Reports* (various issues).

Table 3: Central government recurrent expenditure (K million) in real terms

Fiscal year	General services[1]	Social services[2]	Economic services[3]	Unallocable services
1970/71	28.1	30.5	13.4	43.1
1971/72	30.3	30.5	13.3	40.6
1972/73	28.7	32.6	17.0	46.4
1973/74	32.7	33.8	15.8	46.1
1974/75	34.5	33.9	17.5	45.4
1975/76	41.4	32.5	16.9	40.9
1976/77	44.9	33.7	28.1	22.8
1977/78	54.8	34.8	31.0	34.8
1978/79	66.8	43.1	34.2	41.4
1979/80	67.3	43.9	35.7	59.2
1980/81	59.6	44.2	33.1	70.7
1981/82	66.6	46.8	35.9	98.0
1982/83	70.1	44.2	41.6	76.2
1983/84	69.8	45.8	39.9	76.1
1984/85	67.0	49.2	40.3	119.1
1985/86	82.6	50.6	44.1	121.5
1986/87	78.7	62.4	46.5	141.8
1987/88	69.1	50.0	39.1	130.1
1988/89	69.9	47.0	38.1	100.1
1989/90	81.8	54.3	41.6	109.4
1990/91	93.2	55.7	37.5	93.8
1991/92	72.2	44.8	63.8	95.5
1992/93	98.4	57.0	66.9	82.3

Source: Malawi Government, *Economic Reports* (various issues).

1. General administration, defense, justice and public order.
2. Education, health, community and social development.
3. Natural resources, transport, posts and telecommunications, and other economic services.
4. Public debt servicing and gratuities and other unallocable services

Table 4: Malawi: Central government total tax revenue, total revenue and total expenditure as percentage of GDP

Year	Total tax revenue	Total revenue	Total expenditure
1970/71	11.3	15.4	33.3
1980/81	17.8	19.049.7[3]	
1981/82	16.2	20.0	32.2
1982/83	16.7	19.6	32.2
1983/84	16.6	19.9	30.1
1984/85	17.3	20.7	29.5
1985/86	19.2	22.7	30.0
1986/87	17.8	22.5	34.3
1987/88	16.3	21.2	29.9
1988/89	18.4	21.2	29.2
1989/90	19.2	22.628.6	
1990/91	17.5	20.6	27.1
1991/92	16.6	19.2	25.0
1992/93	16.3	19.131.4[3]	
1993/94[1]	14.5	21.9	25.4
1994/95[2]	15.4	22.023.4	

Source: Malawi Government, *Economic Reports* (various issues).

1. Revised estimates.
2. Estimates.
3. The high expenditure ratios are due to drought-related expenditure.

Table 5: Central government tax revenue as percentage of GDP in selected sub-Saharan African countries

	1980	1985	1990
Low-income			
Burundi	12.6	-	-
Burkina Faso	12.6	10.6	-
Kenya	21.1	18.8	19.3
Lesotho	29.2[1]	38.7	37.1
Liberia	20.8	18.8	17.4[4]
Malawi[2]	16.2	18.3	19.2
The Gambia	19.9	15.6	18.5
Sierra Leone	14.8	5.4	7.5
Tanzania	17.4	17.5	
Togo	25.4	22.6	20.0[3]
Uganda	3.2	10.9	-
Zambia	19.4	20.2	-
Zimbabwe	19.2	28.4	-
Simple average	17.8	18.8	19.9
Lower-middle-income			
Cameroon	13.6	14.1	-
Congo	24.5	-	-
Côte d'Ivoire	19.6	20.8	-
Swaziland	29.0	26.7	-
Simple average	21.7	20.5	-
Upper-middle-income			
Botswana	24.9	23.0	28.6
Gabon	23.5	27.3	-
South Africa	18.6	21.8	25.7[4]
Simple average	22.3	24.0	27.2

Source: IMF, Government Finance Statistics (various issues).

1. 1982.
2. By 1993 the tax ratio had declined to 14.5%.
3. 1987.
4. 1989.

Table 6: Trends in total public expenditure, revenue and the budget deficit (K million)

Fiscal year	Total expenditure	Total revenue and grants	Grants	Overall deficit	Overall deficit as percentage of GDP
1970/71	80.1	43.9	-	36.2	
1971/72	81.6	50.2	-	31.4	9.4
1972/73	82.8	56.9	1.5	25.9	7.2
1973/74	92.0	63.1	3.7	28.9	7.2
1974/75	114.6	58.7	1.3	55.9	11.5
1975/76	154.4	70.8	11.0	83.6	14.7
1976/77	142.5	105.2	9.4	37.3	5.7
1977/78	178.5	132.3	16.0	46.2	9.1
1978/79	248.0	174.6	26.0	73.4	9.2
1979/80	305.8	221.6	34.6	84.2	9.6
1980/81	358.6	242.5	43.3	116.1	11.1
1981/82	392.8	263.2	42.2	129.6	11.7
1982/83	400.3	286.0	41.7	114.3	9.2
1983/84	432.0	319.7	33.7	112.3	7.8
1984/85	503.2	393.7	40.5	109.5	6.4
1985/86	611.8	471.3	47.6	140.5	6.3
1986/87	797.0	544.6	51.7	252.4	11.5
1987/88	823.9	652.4	69.0	171.5	6.2
1988/89	1,071.3	962.1	209.2	109.2	3.1
1989/90	1,292.9	1,162.6	171.6	130.3	2.1
1990/91	1,371.8	1,155.9	112.7	215.9	4.2
1991/92	1,602.4	1,389.9	208.0	212.5	3.5
1992/93	2,103.1	1,610.9	231.8	492.2	6.8
1993/94	2,350.9	2,030.1	451.9	320.8	3.5

Source: Malawi Government, *Economic Reports* (various issues).

Table 7: Central government overall budget deficit and its financing (K'000)

Year	Overall budget deficit	Foreign **loans** (net)	Domestic borrowing (net)
1970/71	46,179	41,219	4,960
1980/81	116,100	40,000	76,100
1981/82	129,600	31,300	98,300
1982/83	114,300	75,200	39,100
1983/84	112,300	95,000	17,300
1984/85	109,400	53,000	56,400
1985/86	122,200	73,500	48,700
1986/87	252,400	99,500	152,900
1987/88	171,500	80,000	91,500
1988/89	109,200	163,000	-53,800
1989/90	92,700	190,600	-97,900
1990/91	215,980	265,400	-49,420
1991/92	212,510	202,400	-10,110
1992/93	492,250	398,410	93,840
1993/94[1]	320,830	693,540	-372,710
1994/95[2]	161,480	679,770	-518,290

Source: Malawi Government, *Economic Repots* (various isues).

1. Revised estimates.
2. Estimates.

III. Malawi's tax system in the 1970s

In seven of the ten years between 1970 and 1979, the government neither altered existing tax rates nor introduced new ones. The reason for this was that the revenue budget was often either balanced or in surplus. In the event that there was a deficit, the deficit was covered by drawing on accumulated reserves. Tax changes occurred only in the 1970/71, 1971/72 and 1977/78 fiscal years.

Tax changes and reforms

When the 1970/71 budget was being prepared, the government faced the prospect of a K2.5 million deficit on the revenue budget. In order to cover this deficit, it took a number of measures to raise tax rates and introduced a new tax. The company tax rate was raised from 35 tambala to 40 tambala on the kwacha. The specific customs duty on diesel fuel was increased by 2 tambala per gallon and the specific excise duty on traditional beer was increased from 5 tambala to 8 tambala per gallon.

A general sales tax (known as surtax) was introduced for the first time in the 1970/71 budget. More about this tax later. Other measures, which also had the effect of changing the structure of taxation, were introduced. These were the reduction in the maximum pay as you earn (PAYE) tax rate on chargeable income from 60 tambala to 40 tambala on the kwacha, and rationalization of the tax structure, including the reduction in the number of steps in income taxation. These changes were expected to have four desired effects. First, they would reduce the amount of labour involved in calculating the tax due. Second, they would remove the incentive to avoid taxation since the maximum rate of personal taxation would be the same as the company tax rate. Third, they would encourage hard work, saving and capital accumulation as they would raise the disposable income of the taxpaying public. Fourth, they would provide for the separate assessment of working wives, hence simplify income taxation.

Faced with the prospect of another revenue account deficit of K2.5 million in the 1971/72 fiscal year, the government raised the surtax rate from 5% to 10% while abolishing an additional customs duty of 81/3% that had been introduced in 1969. Meanwhile, the minimum tax was reduced by 25 tambala from K3.75 to K3.50.

1977/78 was another eventful fiscal year. The prospect of a K4.07 million deficit on the revenue account prompted the increase of specific import duty rates on imported beer, wines, spirits and cigarettes, and of ad valorem import duty rates on a wide range of consumer goods and luxury items. The excise tax on Malawi gin was raised, and the maximum income (personal and company) tax rate was increased from 40% to 45%.

Tax structure

Appendix A contains details of taxation in Malawi just before 1970. Appendix B Tables B1 and B2 show central government revenue as percentage of GDP and composition of tax revenue by major categories for the period 1970/71 to 1979/80.

From the information and data in these tables, a number of features can be discerned. First, in terms of the number of taxes, the tax base of the Malawi economy was seemingly fairly broad. However, taking the relative yield of the various taxes into account, the base was rather narrow. It consisted of company profits (on which company tax was paid), earnings of employees in the high income group (on which PAYE was paid), imports (on which import duties were paid) and domestic goods (on which surtax and excise duties were paid).

Second, changes occurred in the relative importance of different taxes. Import duties, which were the single largest source of revenue in 1970/7,1 lost that position during the decade and were only third in 1979/80, despite the increase in import duty rates on a number of goods in 1977/78. The relative decline of import duties was due to a shift in the composition of imports from consumer goods, which were taxed more, to intermediate and capital goods, which were taxed less, and to the large increase in revenue from other taxes. These included company tax, which retained its position as the second most important source of revenue. The company tax rate was adjusted upward, as mentioned above. In addition, company profits, the tax base, increased over the decade.

Surtax shifted its position from third in 1970/71 to first in 1979/80. Here too, the tax base rose as a result of an increase in domestically manufactured goods. Furthermore, the surtax rate was doubled, as noted above.

Next in importance as sources of revenue were PAYE and excise duties, which did not change their positions; they remained fourth and fifth, respectively, during the 1970s. An account of import duties, company tax, surtax, PAYE, excise duties and other taxes follows.

Import duties

Before 1970, import duties (customs and others) were the main indirect taxes. The absolute and relative yield from customs duties was high.

At the time of independence the average customs duty rate was about 10%, but by 1968 it had reached 16%. In 1969 it rose above 16% following the imposition of a general surcharge of 8 ⅓% — but even then the average duty rate was probably lower than in some of the other African countries.

Company income tax

This tax was governed by the Income Tax Ordinance, 1963, as amended. Generous concessions and capital allowances were provided, the purpose of which was to encourage private investment by making investment funds readily available out of profits, by reducing

risks and by making it possible for investors to recover capital costs in a relatively short time. The implication for public revenue was that the government did not share in the benefits as much as it would have done otherwise. Other sectors had to bear a larger tax burden. Further details can be found in Appendix A.

Surtax

This tax was originally fixed at 5% of the normal ex-factory selling price, including excise duties on local manufactures or 5% of the landed cost of equivalent imported manufactures after customs duty, augmented by a 20% margin representing the hypothetical cost of transport to the main consuming centres, where locally made goods might compete. The 20% margin was probably an attempt to tax some service inputs like value added by transport. Another interpretation is that it was an attempt to protect domestic producers. As a local sales tax, it exempted exports, capital goods and manufactures imported duty-free, mainly low-income basic consumer goods. The surtax yielded 10% of total tax revenue in 1970/71, compared with 8% brought in by excise duties.

PAYE tax

Personal income tax, like company tax, was governed by the Income Tax Ordinance, 1963, as amended. Charges were calculated under two schemes, the larger amount being the one payable. Thus it was difficult to escape without paying something. The method of taxation under Scheme 1 was as shown in Appendix A, except that taxable income classes went up to K1,201 and above. Between taxpayers at different points in the income bracket taxation was unfair, as illustrated in Table 8.

Table 8: Assessed tax rates

Taxable Income	Class mid-point	Rate of annual tax	Percentage	Tax	Rate
			At class mid-point	At lower limit	At upper limit
K2-K122	K62.00	K3.75	6.1	187.5	3.1
K124-K240	K182.00	K5.75	3.2	4.6	2.4
K242-K400	K321.00	K10.00	3.1	4.1	2.5
K402-K600	K501.00	K15.00	3.0	3.7	2.5
K602-K900	K751.00	K22.00	2.9	3.6	2.4

Under Scheme 2, personal allowances were deducted from taxable income in order to arrive at chargeable income. Only contributions to approved pension funds were deductible under Scheme 1. On the whole, allowances were built in largely to satisfy the needs of expatriates (0.5% of the total population) in the country.

The allowances themselves were very generous. The single allowance at K600 per year could possibly be reduced to K400. The marriage allowance at K1,440 per annum was hard to justify. It was applied even to women who did not work. The same women were not subjected to the minimum tax.

Child allowance helped parents to take care of their children. But what mattered to most taxpayers was not what it cost them to bring up their own children, but what it cost them to help all their relatives during the course of each year. What was required was not that all relatives should be allowed deductions from the taxpayer's taxable income, for the Treasury would suffer, but that a lump sum of K200 should be granted to everybody, married and unmarried.

Relief for pension fund and life insurance contributions was beneficial, but the habit of taking out a life policy was not very common among most taxpayers. Insofar as this relief applied to resident expatriates, it fostered accumulation of wealth that benefitted their home countries rather than Malawi. A move to make it applicable to citizens only would have been useful.

Excise duties

Malawi's excise duty structure followed the Commonwealth tradition. Excise duties were imposed mainly at specific rates on a limited list of sumptuary items and on domestic goods only. The main revenue generators were beer, cigarettes and liquor, all of which are relatively price inelastic. Other important items on which excise duties were levied are soap, sugar and cotton.

Graduated tax

This tax was imposed on employees whose earnings did not exceed K900 per annum. The responsibility for its collection was placed on employers, who were required to affix graduated tax stamps to tax cards. The tax was calculated and imposed at rates provided by the Department of Taxes.

There were two undesirable features of this tax that needed removing. One was the practice of grouping taxable income so that the same amount was paid over a big interval (say 48t for income from K11.08 to K20.00 per month). The person who earned K11.08 or close to this limit paid a higher proportion of income in tax than somebody who earned K20.00 or close to this limit. Second, as income increased, the proportion paid in tax actually declined. Thus the richer bore a smaller burden than the poorer.

The great merit of this tax was that it was related to ability to pay. It was administratively efficient because the cost of collection was partly incurred by the employer. No allowances were given. This was legitimate enough since the tax rates were low.

Minimum tax

A minimum tax of K3.75, later reduced to K3.50, was payable by all *male* persons in Malawi who had attained the age of 18 years on the first day of each tax year, unless they were liable for other types of taxes, and also by people who worked under contract in South Africa. The numbers assessed in the tax year ending on 31 March 1968 were 402,647 at home and 42,919 in South Africa. People who were sick, aged or undergoing studies without means were exempted from the tax.

The merit of this tax was that it was simple and it applied to an easily recognizable group of persons who knew when and where to pay it. However, it was not easy to collect in practice. Substantial resources of the District Administration were spent on collecting it. Collectors and others who handled the revenue lost huge sums each year. In fact, the amount spent on collecting this tax often exceeded the revenue it brought in.

Equally serious was the fact that the minimum tax was regressive and unfair since it was not related to income and wealth. A peasant with a substantial cash income, be it from farming, fishing, trading or crafts, paid the same sum in tax as someone whose cash income earned and enjoyed under the protection of the state was much less. For example, fishermen on Lake Chilwa could easily gross K320 each in good years and yet the direct tax they were subjected to was only K3.75. A boy under the age of 18 who earned cash income from the sources cited above was exempt from all direct taxation while a boy of the same age who worked paid graduated tax. The fact that there were 33,903 tax defaulters in 1967 shows that there were individuals in the country who could not afford to pay it.

Moreover, the minimum tax was based on gender, which introduced another element of discrimination; men were in fact discriminated against. What justification could be given for this discrimination? Women look after babies and do a lot of home activities connected with the production and preparation of food, while men may be having free time at certain seasons. But then only men go out to seek employment in neighbouring countries. The point is that it is hard to justify that the family obligations of one gender are greater than those of another. Commercial activities in Malawi as in other countries are shared by both genders. Women are particularly active in selling produce in local markets, and in brewing and selling beer, to give just two examples of areas in which they dominate.

If both genders were subjected to the minimum tax, revenue from this source would have more than doubled, i.e., a sum in excess of K1.6 million would have been collected in 1969. However, this would not have removed all unfairness since taxation would still be based on existence and not on income and wealth. And the relative yield would still not be particularly high (Appendix B Tables B1 and B2).

Assessed tax

This tax was devised to deal with cases of small tax liability arising from income other than earnings in the rural areas of Malawi, thus it taxed business income. Rural Assessment

Boards, appointed by the Minister, had powers to deal with assessed tax in cases where income did not exceed K900 per annum.

Like the graduated tax, this tax was related to ability to pay, that is business receipts and possibly less legitimate expenses. It was administered by boards composed of local people who took local business conditions into account. The tax rate structure used was similar to the one for the graduated tax.

The number of people assessed in the tax year ending on 31 March 1968 was 8,000, which shows that the definition of business adopted was rather narrow. It would be fair to say that everybody was a "business person". In that tax year each assessed business person paid on the average K7.00. Suppose that all rural families paid the same amount on the average! The revenue accruing would exceed K5,463,500.

The data in Table 8 sum up what has been said concerning the unfairness of taxes where taxable income was grouped into classes and a single tax applied to each class. The people whose taxable income fell in mid-range suffered a smaller burden than those at the bottom but a higher one than those at the top.

These shortcomings could be removed only by charging taxable income by the kwacha. The arithmetic involved was within the ability of the people who collected the tax. And so the simplification of the tax could not be justified on grounds of administrative expediency.

IV. Tax changes, reforms and structure in the 1980s and 1990s

Tax changes and reforms

Except for the year 1980 when the revenue budget was in surplus, discretionary changes in taxation occurred every fiscal year during the 1980s. Unlike the 1970s, during the 1980s a number of factors necessitated higher levels of public expenditure. First there was the 1979/80 drought, which reduced food production and led to increased public expenditure on food imports and distribution. Then there was the increase in the servicing of external and internal debts, the increase in defense spending due to the deteriorating security situation in the region; the increase in transport costs following the severing of the shorter land routes to the sea through Mozambique; and the influx of Mozambican refugees (one million of them) who had to be provided for.

In the early 1980s, the rate of growth of nominal tax revenue was unsatisfactory. In real terms, in fact, the growth rate was actually negative (Table 1). Two recessions, during 1980-1982 and 1986–1988, adversely affected the growth of tax revenue. As a result, the revenue budget was in deficit and measures had to be taken to increase the buoyancy of the tax system and hence to increase tax revenue.

The measures introduced in the 1981/82 and 1982/83 fiscal years were isolated discretionary changes. From 1983/84, the changes were part of a conscious tax reform programme. In brief, government acted to raise tax rates, to increase the tax base by increasing the number of items and activities to which taxes applied, and to increase the tax base by introducing new taxes.

Surtax rates, import duties and excise duties were raised almost every year except in 1989/90, when certain excise and import duties were reduced. By 1988/89, the highest surtax rate was 85%, but there were some items that were still exempt from this tax. Surprisingly, specific duties continued to be levied on a number of products except soft drinks, beer, potable spirits, cigarettes and other tobacco products where the change to ad valorem duties was effected in the 1988/89 fiscal year. The excise duties on these products then were 10%, 50%, 60%, 30% and 60%, respectively.

Income tax rates were raised as follows: for companies from 45% to 50% from 1 April 1981; and for individuals from 45% to 50% from 1 April 1982. In 1983/84, an attempt was made to simplify the income tax system and improve equity at the same time that an attempt was made to improve income tax yield. First, the two personal income tax schedules were merged into one. Second, several personal allowances, such as single and marriage allowances and children's and educational allowances were abolished. The land tax was increased from K7.41 per hectare to K10.00 per hectare in

1985/86, after having been increased from K1.00 to K3.00 per acre in 1984/85.

The number of items and activities that became subject to taxation are too numerous to mention here. Taxes included surtax and excise duties mainly, but also import duties. What may be interesting to note was the extension of surtax to services, such as repair, laundry, etc., and the extension of income tax to insurance companies and to commercial and statutory corporations. In contrast, dividends received by taxpayers other than individuals were excluded from taxable income beginning in 1981/82.

New taxes introduced included:

- In 1981/82 a 10% levy on expenditure incurred by individuals in hotels and restaurants (accommodation and refreshment tax), and a 3% import levy.
- In 1983/84 a uniform fee of K25.00 chargeable for changing ownership of all sorts of motor vehicles.
- In 1985/86 a 10% levy on property rentals, royalties, fees and sales in excess of K200 in value; a 5% levy on sales of agricultural produce in excess of K200; a 5% levy on carriage and transport, on payment to contractors, and on receipts from public entertainment; a 10% levy on exports of tea and tobacco (this tax was abolished the following year); introduction of a 15% border tax on dividends, interest income and other remittances abroad; introduction of a 5% branch profits tax; and introduction of withholding taxes.

These ad hoc measures succeeded in temporarily raising the tax to GDP ratio (Table 4). However, they were considered to be inconsistent with the creation of a liberal economic environment for the long term (Shalizi and Thirsk, 1990). The following problems had been identified earlier in another World Bank study (Chamley et al., 1985).

First, many taxes had several objectives. For example, the surtax, which was designed to be a revenue tax mainly, had built-in protective features, especially the higher rate on imports (30%) compared with its domestic counterpart (25%) due to the 1.2 uplift factor and the partial rebating of taxes on competitive imports of intermediate goods. As another example, import duties served to generate revenue and influence consumption behaviour in addition to their protective role.

Second, the import levy, introduced as a proxy for devaluation, was retained even after devaluation. To the extent that non-merchandise imports were exempted and exports were not subsidized by an equivalent rate, even as a proxy it was not satisfactory. Furthermore, because capital goods imports were subject to the import levy without providing relief for exports, the import levy increased the cost of exports at a time when exports needed encouraging.

Third, the extension of import duties to imports of capital and intermediate goods reduced effective rates of protection for competitive imports. But, unfortunately, it had the effect of distorting incentives against exports, creating negative protection of the domestic production of essential final goods whose imports were exempted from import taxes, and transforming the indirect tax system into a set of production taxes that looked like a system of turnover taxes.

Fourth, the duty drawback system that was in existence was ineffective in compensating

exports for reasons that included narrowness in scope (it covered only 30 exported products), the requirement that the entire product should be exported and the requirement that the product should not be exported through a distributor.

Fifth, taxes on agricultural exports made it difficult for Malawi to compete on international markets. Sixth, the ad hoc changes in trade and commodity taxes as well as in personal income taxes undermined the equity features of the tax system.

Seventh, the increase in taxation of imported capital goods and in company tax rates were thought to have an adverse impact on investment.

Eighth, overall tax rates on incomes, goods, services and activities had become relatively high. Moreover, the various taxes were applied to a relatively narrow tax base made up of public sector employees, employees of large firms, the income of formal sector private firms, and traditional excisable products and imports. These probably accounted for no more than a third of GDP. Hence the tax to GDP ratio of about 17% in 1983 and 1984 was about 50% of the value added of the modern sectors of the economy.

In reaction to these concerns, the government reduced excise duties on sugar, textile fabrics, soap, beer and liquor in the 1989/90 fiscal year. But the main reform started in the 1990/91 fiscal year (Malawi Government, 1990). The basic philosophy was that high tax rates did not necessarily ensure high tax yield because they encouraged tax evasion. In addition, they did not ensure a high rate of economic development as they reduced incentives to produce and to supply factors of production. They also adversely affected the level of aggregate demand by reducing disposable income. Accordingly, Malawi embarked on its medium-term programme of reducing direct taxes as well as indirect taxes on consumer and producer goods. Over a period of three years, the maximum marginal rate of personal income tax was cut from 50% to 35%. The company income tax rate was similarly reduced, to 35% from 50%. The graduated tax rate was cut and simplified by reducing the number of income brackets to which it applied. The minimum tax of K3.50 was abolished in the 1993/94 budget; the graduated tax faced a similar fate in the 1994/95 budget.

Although the government has tried to offset the loss in revenue from these measures by increasing certain indirect taxes, the result of the recent tax reform effort seems to have been a reduction in the ratio of tax revenue to GDP (Table 4). Thus, both buoyancy and tax elasticity may have been sacrificed.

Administrative reforms

A number of administrative reforms accompanied the tax reforms of the 1980s. In 1983, employers were given responsibility for verifying PAYE tax assessments, thus relieving the Department of Taxes of this task. As recommended earlier by the IMF, taxpayer identification numbers were issued in December 1988; computerization, staff training, the redesign of forms and documents, and the introduction of a document control system were all completed at the Department of Taxes in 1990.

However, these reforms did not address the problem of the level of general education of staff recruited into the Department of Taxes. The department recruits clerical and

executive officer cadres mainly whose level of judgement is low and who take a long time to develop competence in their work. Then there is the general civil service problem of low rates of pay, which results in low morale and a high rate of staff turnover.

Other tax collecting departments — the Department of Customs and Excise and District Commissioners' offices — were not covered by the reforms discussed above.

The administrative reforms also did not consciously address the problem of corruption among tax collectors and of fraud among taxpayers, both of which facilitate tax evasion.

Tax structure

Following increases in surtax rates and in the number of goods and services to which surtax was applied, revenue from surtax increased from 30.06% in 1979/80 to 34.95% as a proportion of total tax revenue. Surtax easily retained its position as the single largest source of tax revenue (Appendix B, Table B4).

Second to surtax were import duties. Despite a further decline in the proportion of dutiable imports in total imports, import duties moved from third to second position as a source of tax revenue. This improvement was assisted by an increase in import duty rates and by an increase in the number of items that were subject to import duties.

Company tax moved from second place in 1979/80 to third place in 1993/94. This shift was mainly due to a reduction in the company tax rate. PAYE and excise duties retained their respective fourth and fifth positions.

V. Methodology

Estimation of tax elasticity and buoyancy

Elasticity of tax revenue is usually presented with respect to income in aggregate models as a single number. More appropriately, it is conceived as a weighted average of elasticities of separate taxes that differ in response to changes in income. The elasticity of the tax system should thus be investigated by analysing separately elasticities of individual taxes. First, the income elasticity of each separate tax is broken into two components: the elasticity of the tax to the base and the elasticity of the base to income. Following Mansfield (1972), these elasticities can be defined as:

- Elasticity of total tax revenue to income

$$E_{T^t}Y = (\Delta T_t / \Delta Y)(Y / T_t)$$

- Elasticity of k-th individual tax to income

$$E_{T^K}Y = (\Delta T / \Delta Y)(Y / T_K)$$

- Elasticity of k-th individual tax to base

$$E_{T^K}Y = (\Delta T_t / \Delta B_K)(Y / B_K)$$

- Elasticity of k-th individual base to income

$$E_{B^K}Y = (\Delta B_K / \Delta Y)(Y / B_K)$$

where T_t is total tax revenue, T_K is tax revenue from the k-th tax, Y is income measured by gross domestic product (GDP), B is the base of the k-th tax, and Δ is a discrete change in the variable associated with it.

In a tax system made up of several taxes

$$E_{T^t}Y = \frac{T_1}{T_t}\left(\frac{\Delta T_1}{\Delta Y} x \frac{Y}{T_1}\right) + \ldots + \frac{T_K}{T_t}\left(\frac{\Delta T_K}{\Delta Y} x \frac{Y}{T_K}\right) + \ldots$$
$$+ \frac{T_n}{T_t}\left(\frac{\Delta T_n}{\Delta Y} x \frac{Y}{T_n}\right) \quad (1)$$

In other words, the elasticity of total tax revenue to income is equal to the weighted sum of individual tax elasticities, with the fractional distribution to total tax by each individual tax serving as its weight. The elasticity of any individual tax can be decomposed into the product of elasticity of the tax to its base and the elasticity of base to income as follows:

$$E_{T^K}Y = \left(\frac{\Delta T_K}{\Delta B_K} \text{x} \frac{B_K}{T_K}\right)\left(\frac{\Delta B_K}{\Delta Y} \text{x} \frac{Y}{B_K}\right) \quad (2)$$

Combining the two equations above, we get:

$$E_{T^K}Y = \frac{T_1}{T_t}\left[\left(\frac{\Delta T_1}{\Delta B_1} \text{x} \frac{B_1}{T_1}\right)\left(\frac{\Delta B_1}{\Delta Y} \text{x} \frac{Y}{B_1}\right)\right]$$

$$+ \ldots + \frac{TK}{T_t}\left[\left(\frac{\Delta T_K}{\Delta B_K} \text{x} \frac{B_K}{T_K}\right)\left(\frac{\Delta B_K}{Y} \text{x} \frac{Y}{B_K}\right)\right]$$

$$+ \ldots + \frac{T_n}{T_t}\left[\left(\frac{\Delta T_n}{\Delta B_n} \text{x} \frac{B_n}{T_n}\right)\left(\frac{\Delta B_n}{Y} \text{x} \frac{Y}{B_n}\right)\right] \quad (3)$$

which is the elasticity of total tax revenue to income in a system of n taxes where elasticity depends on the product of the elasticity of tax to base and elasticity of base to income for each separate tax, weighted by the importance of each tax in the total tax system. Equation 3 can permit identification of sources of revenue growth and identification of that part of revenue growth policy makers can control (Mansfield, 1972).

The traditional way of estimating elasticity of a particular tax, k, is by using the following model:

$$T_K = t_K Y^{\beta} K_{eK} \quad (4)$$

which may be expressed in double log form as

$$\log T_k = \log t_k + \beta_K \log Y + \log e_K \tag{4'}$$

where T is revenue from tax k, t is a constant term, β_k is an estimate of elasticity of the k-th tax, Y is GDP and e_K is a stochastic disturbance term.

To estimate elasticity of tax to income where there have been discretionary changes in tax policy, the model must be modified to correct for such policy changes: e.g., changes in the tax base, tax rates, efficiency of tax administration, introduction of new taxes or abolition of some taxes, etc. The procedure entails adjusting historical tax revenue series to eliminate the effects on tax revenue of all factors apart from GDP. One technique for doing so, developed by Prest (1962), involves cleaning data on discretionary revenue changes using official data on discretionary revenue. Cleaning is done by applying the following formula to the data to compute adjusted tax revenue (AT):

$$AT_{n-j} = T_{n-j} \quad (AT_{n-j} + 1/(T_{n-j} + 1 - D_{n-j} + 1)) \tag{5}$$

for j = 1, 2, ... $_{n-1}$, where T is actual tax revenue, D is estimated discretionary tax revenue and the subscript denotes the year of the data. Essentially, this technique estimates what the tax receipts would be in the absence of discretionary changes. The validity of the technique is contingent on the assumption that discretionary changes are more or less progressive than the tax structure that they modified (Leuthold and N'Guessan, 1986).

Having modified the tax revenue data, the model can be estimated on the adjusted data as:

$$\log AT_k = \log t_K + \beta_K \log Y + \log u_k \tag{6}$$

where AT is the adjusted revenue from tax k, t_K is a constant and β_K is an estimate of elasticity of the k-th tax.

To estimate buoyancy, one needs to run the regression:

$$\log T_k = \log a_K + b_K \log Y + u_k \tag{7}$$

where T_k is revenue from tax k, Y is GDP and v_K is a stochastic disturbance term. Ordinary least squares can be used to estimate the constant a_K and coefficient b_K. As the estimation model is in double log form, b_k is an estimate of tax buoyancy since it measures the percentage change in T_k for a one percentage change in Y.

But since the data are generated by Equation 4, we can solve for what the disturbance term v_k is:

$$v_k = \log t_k - \log a_k + \log u_k \tag{8}$$

What we have in Equation 7, then, is a regression with a missing term ($\log t_k - \log a_k$). From Theil's theorem, we know that b_k will end up being a biased estimate of β_K, with

$$E\,(b_k) = \beta_k + \delta_k \tag{9}$$

where δ_k is the coefficient in a regression of log Y on log t and b_K is the ordinary least squares estimate of β_K.

Y will normally be trending upward. Therefore the sign of β_K will depend on whether t has also been trending upward, or downward. As long as log t moves in only one general direction over the sample, we can say that buoyancy and elasticity have the standard interpretation: buoyancy greater than elasticity implies that discretionary changes improved revenue yield of the tax and buoyancy less than elasticity implies that they worsened the revenue yield.

Sometimes, however, buoyancy will come out very close to elasticity even though discretionary changes have been highly effective in altering tax yield upward or downward. In this case, $\delta_K \approx 0$. What this suggests is that the difference between buoyancy and elasticity is driven by the correlation between discretionary changes and income. Buoyancy equal or nearly equal to elasticity does not mean that discretionary changes are not important.

An alternative method of estimating elasticity is the dummy variable technique developed by Singer (Singer, 1968). This method entails introducing a dummy variable into Equation 4' for each exogenous tax policy change. The modified equation takes the form:

$$\log T_k = \log b_{0K} + b_{1K} \log Y_i + \Sigma b_{2i} D_{iK} + e_k \tag{10}$$

where the dummy variable, D, assumes the value 0 before the discretionary change and 1 after the change. The summation takes care of the possibility of multiple changes during the period covered. While this technique is simple, its usefulness in estimating tax elasticity where the number of discretionary changes is large relative to the length of the data period may be limited.

The Data

The general data required for this study — tax and total revenue, recurrent and total government expenditure, GDP at current market prices, and foreign and local borrowing — have all been extracted from the (annual) economic reports of the Malawi government. These general data were sufficient for estimating the bouyancy of the tax system and of individual taxes.

For the purpose of estimating tax elasticity, the technique developed by Prest (Equation 5) was used to obtain an adjusted total tax revenue series for the period 1970/71 to 1985/86 (Table 9). For the period after 1985/86, an adjusted total tax revenue series could not be estimated because the data on additional tax revenue from discretionary changes are not available.

Table 9: Actual total tax revenue, estimated discretionary tax revenue and adjusted total tax revenue in nominal terms (Kmillion)

Fiscal year	Actual total tax revenue	Estimated discretionary tax revenue[1]	Adjusted total tax revenue
1970/71	29.1	2.5	29.1
1971/72	36.0	2.5	33.5
1972/73	39.3		36.5
1973/74	43.5		40.5
1974/75	53.8		50.1
1975/76	66.6		61.9
1976/77	73.2		68.1
1977/78	90.0	4.1	76.3
1978/79	122.0		108.3
1979/80	143.8		127.7
1980/81	166.9		148.2
1981/82	179.1	8.8	143.8
1982/83	207.7	5.0	167.0
1983/84	238.9	11.0	179.1
1984/85	296.2	15.0	209.8
1985/86	373.5	44.9	215.7

Source: Malawi Government, *Economic Reports* and *Budget Statements.*
1. As per budget statements.

The dummy variable technique developed by Singer (Equation 10) was used for estimating elasticity of individual taxes. We could not use the Prest technique because data on additional revenue from discretionary changes in individual taxes are not available for all the years.

VI. Analysis of tax buoyancy

The estimates of buoyancy of the tax system, its major components and individual taxes for the period 1970/71–1979/80 and the period 1980/81–1993/94 can be found in Table 10. The regressions shown in this table are good fits of the data on revenue and income (see Appendix C, Table C1).

As measured by the estimated regression coefficient, buoyancy of total tax revenue at 0.993 for the period 1970/71–1979/80 was almost unity. Whereas taxes on income and profit as a group and stamp duties were generally buoyant, taxes on goods and services, and on international trade, were not. The buoyancy of taxes on property was actually negative.

Company income tax, PAYE tax and surtax all experienced buoyancy during the 1970/71–1979/80 period. In all cases, there were upward adjustments in tax rates. Stamp duties were the other category of taxes that exhibited buoyancy between 1970/71 and 1979/80. These taxes are difficult to evade and avoid.

The low buoyancy of taxes on individuals during this period was due to the low buoyancy of the minimum tax, minimum tax remittances, the graduated tax and the assessed tax. For the minimum tax and the minimum tax remittances (non-resident tax) low buoyancy was due to the reduction of the rate of taxation. In addition, many taxpayers did not comply with the tax. Low buoyancy of the graduated tax was accounted for by similar reasons. Not only were the tax rates not increased, but many employers engaging only a few people or employing temporary labour did not deduct the appropriate tax from payrolls. As for the assessed tax, low buoyancy was due to difficulties encountered by district commissioners in assessing tax liability.

With respect to taxes on goods and services and on international trade, the low buoyancy of excise, import and customs, and other duties was due to the fact that a large number of them were specific rather than ad valorem and that upward adjustments during this period were few. For licenses for goods and services, the low buoyancy might be due to problems of compliance. The other problems with all these taxes might be tax evasion, tax exemptions, corrupt tax administration and the presence of a second economy, which facilitated tax evasion.

To facilitate comparison of buoyancy between the 1970-1979 period and the 1980-1993 period, values of estimated intercepts (constants) and regression coefficients have been reproduced in Table 11. For total tax revenue and for taxes on income and profit as a group, the values of the intercepts increased, but those of the regression coefficients declined, during 1980-1993 compared with 1970-1979. The same applies to company income tax, assessed tax, PAYE tax and surtax. For all these taxes, it is difficult to conclude that buoyancy changed.

Table 10: Estimates of tax buoyancy in Malawi

	1970/71 to 1979/80	1980/81 to 1993/94	Percentage change
Taxes on income and profit	1.170**	0.983**	-15.983
Companies	1.449**	0.496**	-65.769
Individuals	0.747	1.043**	+39.963
Minimum	0.035	0.064	+82.286
Non-resident tax	-2.143	0.670*	+131.265
Graduated	0.606*	0.707*	+16.667
Assessed tax	0.645*	0.357**	-44.651
Withholding tax	n.a.	1.714**	n.a.
Fringe benefits tax	n.a.	0.025	n.a.
PAYE	1.141*	0.987**	-13.497
Taxes on property	-0.707	0.784**	+134.451
Stamp duties	1.063	1.233**	+15.993
Taxes on goods and services	0.683**	0.980**	+43.485
Accommodation and refreshment tax	n.a.	1.177*	n.a.
Surtax	1.495**	1.082**	-27.625
Excise duties	0.620**	0.727**	+17.258
Licenses for goods and services	0.275**	0.659**	+139.636
Business and professional	0.019	0.459**	+2315.789
Motor vehicle tax	0.392**	0.784	+100.000
International trade taxes	0.521	0.826**	+58.541
Customs duties	0.521	0.826**	+58.541
Import duties	0.525	0.863**	+64.381
Other duties	0.168	0.586**	+248.809
Total tax revenue	0.993*	0.951**-4.223	

*Significant at the 5% level of significance.
**Significant at both 5% and 1% levels of significance.

Table 11: Comparison of tax buoyancy between 1970–1979 and 1980–1993

Type of tax	1970-1979		1980-1993	
	Intercept	Coefficient	Intercept	Coefficient
Taxes on income and profit	-3.897	1.170**	-2.561**	0.983**
Companies	-6.087	1.449**	0.670	0.496**
Individuals	-2.253	0.747*	-3.907**	1.043**
Minimum	0.376	0.035	0.422	0.064
Minimum tax-remittances	11.523	-2.143	-4.647	0.670*
Graduated tax	-3.175*	0.606*	-4.006**	0.707**
Assessed tax	-5.972**	0.645*	-3.837**	0.357**
Withholding taxes	-	-	-11.294**	1.714**
Fringe benefits	-	-	2.408	0.025
PAYE	-5.188	1.141*	-3.703**	0.987**
Taxes on property	3.100	-0.707	-8.537**	0.784**
Stamp duties	-7.601**	1.063	-8.895**	1.233**
Taxes on goods and services	-0.787	0.683*	-2.614**	0.980**
Accommodation and refreshment tax	-	-	-8.759**	1.177**
Surtax	-6.574	1.495*	-3.562**	1.082**
Excise duties	-2.433	0.620*	-2.877**	0.727**
Licences for goods and services	-1.143*	0.275**	-3.340	0.659**
Business and professional	-0.903	0.019	-3.507**	0.459**
Motor vehicle	-2.172**	0.392**	-4.499**	0.784**
International trade taxes	-0.516	0.521	-1.924**	0.826**
Customs duties	-0.516	0.521	-1.924**	0.826**
Import duties	-0.538	0.525	-2.227**	0.863**
Other duties	-2.357	0.168	-4.849**	0.586**
Total tax revenue	-1.964	0.993*	-1.394**	0.951**

*Significant at the 5% level of significance.
**Significant at both 5% and 1% levels of significance.

For the majority of the other taxes the values of the intercepts decreased while the values of the regression coefficients increased during 1980–1993. These are taxes on individuals as a subgroup, minimum tax remittances, graduated tax, taxes on property, stamp duties, taxes on goods and services as a group, excise duties, licenses for goods and services as a subgroup, business and professional licenses, motor vehicle licenses,

customs duties, import duties, and other duties. Here too, it is difficult to conclude that buoyancy changed. Only for the minimum tax did the value of the intercept and coefficient increase.

What may be safe to say is that during 1980–1993, the buoyancy of the tax system as a whole remained close to unity. Newly introduced withholding taxes and accommodation and refreshment tax were also buoyant. Compared with 1970–1979, the company income tax was probably not buoyant during 1980–1993, as the value of the regression coefficient for the latter period was far below unity. Two known contributing factors were tax evasion and exemptions (*Daily Times*, 1994; Supplementary Budget Statement, 1994).

During 1980–1993, as during 1970–1979, other taxes on individuals–minimum tax, minimum tax remittances, graduated tax and assessed tax–were not buoyant, more or less for the reasons that have already been indicated. Fringe benefits tax, a newly introduced tax, was not buoyant either.

Taxes on goods and services, other than surtax and accommodation and refreshments tax, and taxes on international trade as a group were also not buoyant. These were excise duties, licenses, customs duties, import duties and other duties. There is increasing evidence that tax yield has been adversely affected by tax evasion and corruption (*The Nation*, 1994; *Weekly Chronicle*, 1994; *The Independent*, 1994).

VII. Analysis of tax elasticity

Elasticity coefficients

Elasticities of major taxes and of the whole tax system for 1971–1979 are shown in Appendix C, Table C2, and those for the period 1980–1993 are shown in Table 12. During 1971–1979, the whole tax system was income elastic, while individual taxes shown in Appendix C, Table C2, were all income inelastic. During 1980–1993, the income elasticity of the whole tax system declined. The elasticity coefficient for the whole tax system was lower than the one for the 1970–1979 period, but the intercept was higher.

Table 12: Elasticity of major taxes and of total tax system 1980–1993

Tax	Intercept	Elasticity coefficient	Weight of tax in 1993 (percentage of total)	Adjusted R^2	T ratio
1. Surtax	1.084**	0.212*	34.95	0.995	3.541
2. Import duties	-0.477	0.700*	20.12	0.990	3.208
3. Company tax	-0.879	0.808	18.57	0.974	2.441
4. PAYE	-2.165**	1.154**	16.99	0.989	11.840
5. Excise duties	0.223	0.220	4.17	0.981	2.341
6. Total of 1-6			99.02		
7. Total tax system	0.823	0.602**	100.00	0.911	7.212

Weights were not used in the estimates.
*Significant at 5% level of significance.
**Significant at both 5% and 1% level of significance.

Among individual taxes, the elasticity coefficient of import duties, PAYE tax and excise duties increased during the 1980–1993 period, but their intercepts declined. The elasticity coefficients of surtax and company tax both declined, while their intercepts increased. Surtax and excise duties had the lowest elasticities during 1980–1993. Further details of these and other elasticities are given in the next section.

Otherwise, for all the major taxes, changes in tax revenue in the 1980s and 1990s were systematically correlated with changes in GDP and in discretionary tax changes (represented by dummies in the estimation equations), as indicated by high values of

adjusted R^2 of over 0.900. The adjusted R^2 for the total tax system is also high at 0.911. There can be no doubt that tax revenues are functionally related to GDP. During 1971–1979, changes in tax revenue were also highly correlated with changes in GDP, as indicated by high values of adjusted R^2.

Decomposition of elasticities

As demonstrated above, the elasticity of a given tax consists of two elements: the base (tax to base elasticity) and the elasticity of the base to income (base to income elasticity). Thus income elasticity of a given tax is a product of tax to base and base to income elasticities.

Since the legal base of each tax is not known exactly, the yields of the major taxes covered here have been related to approximate or proxy bases. The proxy bases, in turn, have been related to GDP. The data in Table 13 summarize the relationships between these two sets of variables for the period 1980 to 1993.

Surtax

Surtax is the single largest source of tax revenue in Malawi, accounting for 34.95% of the total in 1993. It is levied on some but not all locally manufactured goods and imports, and on a few services like telephone and hotel services. Imports cif plus domestic manufacturing output has been chosen as the surtax base. Despite the low tax to income elasticity of 0.212, the proxy base to income elasticity (0.922) and the tax to proxy elasticity (1.165) are high. The adjusted R^2 statistic is high for all three coefficients, indicating that the function used is a good fit of data. Surtax collections have risen in proportion to the growth of imports and manufacturing output, but the base has expanded less than proportionately to the growth of income.

Import duties

Like surtax, import duties are levied on imports other than those that are legally exempted. Total imports cif has been chosen as the tax base. The estimated elasticity coefficient of 0.700 indicates that import duties are income inelastic. The base is also income inelastic (with a coefficient of 0.889). However, the import duties are elastic with respect to the tax base, probably reflecting improvement in tax administration: a low base to income elasticity reflects slow growth of dutiable imports. All the three adjusted R^2 statistics are high, indicating a strong relationship between tax collections and imports, tax collections and income, and imports and income.

Company tax

Company tax is an important tax under income tax, contributing 48.81% of total income tax revenue in 1993. According to the relevant tax legislation, company tax now applies to private firms and statutory corporations. Corporate profits as reported in the Annual Economic Survey have been used as the proxy base. The estimated income elasticity of this tax (0.808) is less than unity. However, both base to income elasticity and tax to proxy base elasticity exceed unity, an indication of rapid growth of corporate profits and efficient tax administration. The adjusted R^2 statistics are all high, indicating that the function assumed is a good fit of the data.

PAYE

Whereas the base (wage bill) rose less in proportion to GDP (base to income elasticity of 0.734), tax to income elasticity (1.54) and tax to proxy base elasticity (1.499) were both high. The relatively lower base to income elasticity reflects slow growth of the wage bill in Malawi arising from both low average wage rates and slow adjustment of nominal wages to changes in the cost of living. A high tax to base elasticity reflects (until the early 1990s) high marginal rates of taxation.

Excise duties

The chosen proxy base for excise duties is domestic manufactured output. The low tax to income elasticity of 0.220 is the product of a low proxy base to income elasticity of 0.202, which is a reflection of the slow growth of manufacturing output relative to GDP, and a high tax to proxy base elasticity of 3.521, which reflects efficient tax administration.

Summary

This analysis of the components of the overall tax elasticities shows the importance of the generally low values of proxy base to income elasticities as the factor in explaining the fairly low tax to income elasticity of the system. The proxy bases for surtax, import duties, PAYE and excise duties, all grew less proportionately than GDP. If proxy bases had grown fast relative to GDP, tax to income elasticities would have been higher. Proxy base to income elasticities can be increased by improving the growth of domestic manufactured output, by increasing formal imports of dutiable goods and by improving the growth of wages. During the 1971–1979 period, proxy base to income elasticities were again lower than tax to proxy base elasticities (Appendix C, Table C3).

Table 13: Decomposition of tax elasticities 1980–1993

Tax and related proxy base	Tax-to-income elasticity		Proxy base-to-income elasticity		Tax-to-proxy base elasticity	
	Coefficient	Adjusted R^2	Coefficient	Adjusted R^2	Coefficient	Adjusted R^2
1. Surtax and imports (cif) plus manufacturing value added	0.212*	0.995	0.922**	0.951	1.165**	0.938
2. Import duties and imports (cif)	0.700*	0.990	0.889**	0.924	1.074**	0.931
3. Company tax and corporate profits	0.808	0.974	1.023**	0.746	1.369**	0.931
4. PAYE and the wage bill	1.154**	0.989	0.734**	0.987	1.499**	0.984
5. Excise duties and manufacturing value added	0.220	0.981	0.203**	0.884	3.521**	0.846

*Significant at the 5% level of significance.
**Significant at both 5% and 1% levels of significance.

Tax buoyancy versus tax elasticity

As summarized in Table 14, during 1980–1993 the tax system as a whole had a buoyancy of 0.951, compared with an elasticity of 0.602. The difference between the two, 0.349, is large and significant.

The differences between buoyancy and elasticity of surtax, import duties and excise duties are large and positive. However, it cannot be concluded that discretionary tax changes improved revenue yield because the value of the constants in the elasticity regression equations moved in different directions over the sample. In contrast, the differences in buoyancy and elasticity of company income tax and PAYE tax were large

and negative. The value of the constant in the elasticity regression equation of PAYE tax moved in the same direction over the sample. Hence, it can be concluded that discretionary changes did not improve the yield of the PAYE tax. As for company income tax, the value of the constant in the elasticity regression equation moved in different directions over the sample. So discretionary changes did improve tax yield.

During 1970-1979 the buoyancy of the tax system as a whole was less than elasticity (Appendix C, Table C4).

Table 14: Differences between tax buoyancy and tax elasticity for all taxes and selected major taxes 1980–1993

Tax	Buoyancy	Elasticity	Difference (in percentage points)
All taxes	0.951	0.602	+0.349
Surtax	1.082	0.212	+0.870
Import duties	0.863	0.700	+0.163
Company tax	0.496	0.808	-0.312
PAYE	0.987	1.154	-0.167
Excise duties	0.727	0.220	+0.507

VIII. Summary and conclusions

This study set out to evaluate tax reforms in Malawi, paying particular attention to the tax reforms undertaken in the 1980s and early 1990s, which were far-reaching and more numerous than those of the 1970s. The main reasons for tax reforms included creating tax incentives for investment, improving equity, simplifying the tax system and liberalizing trade. This study focused on tax reform as a means of increasing the yield of the tax system, which the government attempted to achieve by introducing new taxes, raising tax rates and broadening the base of existing taxes.

On the basis of the analysis of the data for the 1970s, the null hypothesis that tax yield is not buoyant is accepted for the tax system as a whole and for a number of individual taxes: minimum tax, minimum tax remittances, graduated tax, assessed tax, taxes on property, licenses, excise duties and import duties. The same hypothesis is rejected for company income tax, PAYE, surtax and stamp duties.

Using the 1980–1993 data, the null hypothesis that tax yield is not buoyant is accepted for the tax system as a whole as well as for minimum tax, minimum tax remittances, graduated tax, assessed tax, fringe benefits tax, excise and import duties, licenses, and taxes on property. It is rejected for withholding taxes and accommodation and refreshment tax.

The buoyancy of the tax system is probably adversely affected by tax evasion, by exemptions and by the existence of a second economy, which facilitates tax evasion. Tax buoyancy is probably adversely affected by tax allowances also.

The low buoyancy of licenses, excise duties, customs duties, import duties and other duties is due to the fact that several such taxes are levied as specific rather than as ad valorem taxes. Buoyancy of these taxes may be improved by changing the basis of taxation from specific to ad valorem.

Malawi has found it difficult to improve the buoyancy of its tax system by raising tax rates, by extending existing taxes to new activities or by introducing new taxes. Improving tax buoyancy in future will not be easy either. Direct and indirect tax rates were pushed to the limit during the 1980s, though company and PAYE tax rates have since been reduced. Minimum tax, minimum tax remittances and graduated tax have all been abolished. The policy now is to reduce indirect tax rates further, especially for taxes on capital and intermediate goods to stimulate business activity and investment, and for taxes on goods that are consumed by the poor.

The hypothesis that tax yield is not income elastic is, using the 1970–1979 data, rejected for the tax system as a whole, but accepted for surtax, import duties, company income tax, PAYE tax and excise duties. Using 1980–1993 data, the same hypothesis is accepted for the tax system as a whole and for surtax, import duties, company tax and

excise duties. But it is rejected for PAYE. That tax yield is not base to income elastic is accepted for surtax, import duties, PAYE and excise duties, but rejected for company tax. And that tax yield is not tax to base elastic is rejected for all the major taxes whose elasticity has been investigated.

The lower than unity tax to income elasticity of the tax system appears to be due to the generally low base to income elasticities of surtax, import duties, PAYE and excise duties, implying that tax bases have grown less rapidly than GDP. Base to income elasticities can be increased by improving the growth of domestic manufactured output, by expanding formal imports of dutiable goods and by improving the growth of wages.

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Appendix A: Taxation in Malawi in 1969

The taxation system and the level of taxes are designed to avoid creating disincentives to saving and investment. Two major Taxation Acts are currently in operation — the Income Tax Act (as amended), and the Taxation Act.

General personal taxes

Under the Taxation Act are three types of tax:

- ***Minimum tax*** - Every male person aged 18 and over, whose income is less than K122 per annum, is required to pay the minimum tax of K3.75 each tax year. Included in this amount is a local rate of 75t paid to district councils.

- ***Graduated tax*** - The taxable income under this scheme ranges from K122 to K900, divided into five income brackets to which are fixed rates of taxation, paid weekly or monthly depending on the nature of employment (Table A1). Women earning less than the minimum wage fixed for adults are exempted. Males under 18 years earning less than fixed rates for adults are also exempted.

Table A1: Graduated tax

Eearnings paid monthly			Earnings paid weekly		
Not exceeding K10.17 30t.					
Exceeding	Not exceeding		Exceeding	Not Exceeding	
K10.17	K20.00	30t	K2.35	K2.62	11t
K20.00	K33.33	83t	K2.62	K7.75	19t
K33.33	K50.00	K1.22	K7.75	K11.54	28t
K50.00	K75.00	K1.82	K11.54	K17.31	42t

- ***Assessed tax*** - This tax covers a class of persons who are self-employed in such fields as farming, petty trading, etc., earning between K122 and K900 per annum. The assessed tax schedule is shown in Table A2.

Table A2: Assessed tax

Taxable income		**Tax per year**
Not exceeding	K122	K3.75
Exceeding	Not exceeding	
K	**K**	**K**
122	240	5.75
240	400	10.00
400	600	15.00
600	900	22.00

Income tax

Income tax falls under the Income Tax Act, as amended. It covers all incomes derived from sources in Malawi accruing to either individuals or companies.

Taxation of individuals

Taxation of individuals is governed by two schemes, related to amount of taxable income. These schemes are:

- ***Scheme 1*** - Tax is calculated on the basis of "taxable income", which, in the case of employed persons, is the amount of salary accrued, less allowable deductions. No account is taken of a taxpayer's circumstances, e.g., whether married or not. (See Table A3.)

Table A3: Tax on taxable income under Scheme 1

	Taxable income	Tax for the year
Not exceeding	K122	K3.75
K122	K240	K5.75
K240	K400	K10.00
K400	K600	K15.00
K600	K900	K22.00
K900	K1,200	K30.00
K1,200	K1,500	K37.00
K1,500	K1,800	K43.00
K1,800	K2,100	K49.00
K2,100	K2,400	K55.00
K2,400	-	K61.00

- ***Scheme 2*** - Under this scheme a taxpayer's personal circumstances are taken into consideration. The following allowances may be deducted from the gross taxable income to arrive at "chargeable income".

- *Personal Allowances*

Single person K600
Married person K1,440
In addition, a person can claim an allowance of K1,020 if he is responsible for the maintenance of a lawful child.

- *Child allowances* - An allowance of K288 is given for each child, up to a maximum of four children, under the age of 18 years at the end of the tax year, or beyond this age if the child is in full attendance at an educational establishment. No allowance is given if a child has own income of K300 or more per annum.

- *Life insurance* - An allowance is provided for life insurance premium policies on the taxpayer's life or that of his wife. There are two restrictions:

1) In the case of premiums, the allowable amount to be deducted from taxable income is restricted to 7% of the capital sum payable at death. This excludes benefits such as a bonus or profits.

2) The total amount allowable must not in any case exceed K288.

- *Other deductions* - Certain deductions are allowed for building houses, the cost of educational passages for children and contributions to approved pension funds. Table A4 shows the taxation rates applicable to chargeable income exceeding K408 after all personal allowances and deductions are made, with the addition of the sum of K1 per annum in each case. This scheme does not apply if chargeable income does not exceed K408. Where this is the case after deducting all allowances, the taxpayer is charged under the Taxable Income Scheme 1. In certain cases, the tax calculated will be reduced where the income subject to tax includes wife's earnings.

Table A4: Tax rates under Scheme 2

First	K1,000	20t
Next	K1,000	40t
Next	K1,000	60t
Next	K3,000	65t
Next	K3,000	70t
Next	K5,000	75t
Excess over	K11,000	80t

PAYE

Employed persons who earn K900 and over fall under the Pay As You Earn system.

Company taxes

The standard rate of taxation applicable to all companies is 40t to the K. Distinction is made, however, between companies incorporated in Malawi and those incorporated elsewhere. A further 5t to the K is levied on companies not incorporated in Malawi and, in certain cases, where dividends are distributed to shareholders not resident in Malawi. This would be the case if a foreign company pays more than 40t to the K in the foreign country concerned.

Capital allowances

An initial allowance is made on capital expenditure incurred by the taxpayer during the year of assessment on the construction of new farm improvements, industrial buildings, additions or alterations to such capital items, and for articles, implements, machinery or utensils purchased and used by the taxpayer for industrial or farming purposes. Current allowances are:

- Initial allowance for farm improvements, industrial buildings and railway lines - 10% of capital expenditure incurred.
- Articles, implements, machinery and utensils - 20% of capital expenditure incurred.
- Fencing - 33% of capital expenditure incurred.
- In addition, initial allowance may be given for capital expenditure used for purposes other than those specified above.

Annual allowances

Depreciation allowance for capital items specified under “capital allowances” is as follows:

- Farm improvements, railway lines and industrial buildings - 5%
- Fencing - 10%
- Rates for other assets are determined by the Commissioner of Taxes.

Mining

Where persons carrying on mining operations incur certain mining expenditure after 1 November 1969 in any year of assessment, they may claim an allowance for that year and each of the four following years of 20% of such expenditure.

Investment allowances

If a taxpayer is a manufacturer, an allowance of 10% of the cost of new and unused industrial buildings and plant or machinery used in the process of manufacturing for the purpose of the business is granted as an allowance. This excludes motor vehicles, and the equipment must be used in the year of assessment.

Appendix B: Selected tax revenue data for Malawi, 1970-1994

Table B1: Malawi: Tax revenue as a percentage of GDP, 1970/71–1979/80

	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76	1976/77	1977/78	1978/79	1979/80
Taxes on net income and profits	4.18	4.15	4.38	4.37	4.14	4.85	5.14	5.69	6.76	6.32
Companies	2.14	2.25	2.46	2.48	2.43	3.21	3.53	3.89	4.60	4.06
Individuals	2.04	1.90	1.92	1.89	1.70	1.64	1.61	1.80	2.17	2.26
Minimum tax	(0.56)	(0.52)	(0.50)	(0.43)	(0.30)	(0.26)	(0.21)	(0.28)	(0.24)	(0.23)
Minimum tax remittances	(0.10)	(0.11)	(0.10)	(0.11)	(0.10)	(0.03)	(- -)	(- -)	(- -)	(- -)
Graduate tax	(0.40)	(0.35)	(0.36)	(0.34)	(0.31)	(0.29)	(0.28)	(0.29)	(0.29)	(0.30)
PAYE deductions	(0.96)	(0.90)	(0.94)	(0.98)	(0.98)	(1.04)	(1.10)	(1.22)	(1.61)	(1.71)
Assessed tax	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Taxes on property	0.03	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01
Taxes on goods and services	2.39	3.28	3.38	3.32	3.47	3.27	3.50	3.94	4.52	5.46
Surtax	1.07	2.08	2.19	2.09	2.36	2.23	2.61	3.10	3.61	4.61
Exercise duties	0.82	0.79	0.77	0.83	0.80	0.76	0.61	0.59	0.68	0.64
Licenses for goods and services	0.50	0.41	0.42	0.39	0.31	0.29	0.28	0.25	0.24	0.22
Business and professional	(0.16)	(0.11)	(0.11)	(0.12)	(0.07)	(0.07)	(0.09)	(0.06)	(0.06)	(0.06)
Motor vehicle tax	(0.34)	(0.30)	(0.31)	(0.28)	(0.24)	(0.22)	(0.19)	(0.19)	(0.18)	(0.16)
Taxes on international transactions	3.52	3.09	2.79	2.50	2.59	2.34	1.94	2.14	3.05	3.48
Import taxes	3.52	3.09	2.79	2.50	2.59	2.34	1.94	2.14	3.05	3.48
Customs duties	(3.51)	(3.08)	(2.78)	(2.49)	(2.58)	(2.32)	(1.91)	(2.12)	(3.02)	(3.45)
Other	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.03)	(0.02)	(0.03)	(0.03)
Stamp duties	0.06	0.05	0.06	0.05	0.05	0.06	0.09	0.08	0.06	0.05
Total tax revenue	10.18	10.58	10.62	10.26	10.26	10.53	10.67	11.86	14.41	15.33

Sources: *Financial Statements,* various issues, 1970/71 –1980/81; and data provided by the Malawi authorities.

Table B2: Malawi: Composition of tax revenue by major categories, 1970/71 – 1979/80

	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76	1976/77	1977/78	1978/79	1979/80
Taxes on net income profits	41.07	39.19	41.25	42.59	40.34	46.02	48.18	48.00	46.93	41.24
Companies	21.00	21.29	23.14	24.13	23.73	30.44	33.05	32.82	31.90	26.50
Individuals	20.07	17.90	18.11	18.46	16.61	15.58	15.13	15.18	15.03	14.74
Minimum tax	(5.54)	(4.90)	(4.74)	(4.22)	(2.88)	(2.45)	(1.98)	(2.32)	(1.65)	(1.48)
Minimum tax—remittances	(1.00)	(1.00)	(0.97)	(1.06)	(0.93)	(0.24)	(0.04)	(- -)	(- -)	(- -)
Graduate tax	(3.91)	(3.30)	(3.39)	(3.35)	(3.03)	(2.79)	(2.64)	(2.41)	(2.03)	(1.96)
PAYE deductions	(9.45)	(8.48)	(8.81)	(9.60)	(9.57)	(9.90)	(10.27)	(10.26)	(11.18)	(11.15)
Assessed tax	(0.17)	(0.19)	(0.20)	(0.23)	(0.20)	(0.20)	(0.20)	(0.19)	(0.17)	(0.15)
Taxes on property	0.28	0.06	0.05	0.16	0.11	0.10	0.08	0.09	0.05	0.06
Taxes on goods and services	23.46	31.00	31.81	32.32	33.82	31.06	32.78	33.19	33.41	35.67
Surtax	10.48	19.63	20.58	20.41	23.00	21.13	24.45	26.15	25.03	30.06
Exercise duties	8.03	7.46	7.26	8.08	7.79	7.18	5.74	4.97	4.72	4.18
Licenses for goods and services	4.95	3.91	3.97	3.83	3.03	2.75	2.59	2.08	1.66	1.43
Business and professional	(1.59)	(1.03)	(1.07)	(1.12)	(0.69)	(0.66)	(0.80)	(0.48)	(0.38)	(0.37)
Motor vehicle tax	(3.36)	(2.88)	(2.90)	(2.71)	(2.34)	(2.09)	(1.79)	(1.60)	(1.28)	(1.06)
Taxes on international transactions	34.64	29.25	26.30	24.40	25.23	22.26	18.15	18.08	21.18	22.69
Import duties	34.64	29.25	26.30	24.40	25.23	22.26	18.15	18.08	21.18	22.69
Customs duties	(34.54)	(29.17)	(26.20)	(24.31)	(25.10)	(22.03)	(17.90)	(17.84)	(20.96)	(22.50)
Other	(0.10)	(0.08)	(0.10)	(0.09)	(0.13)	(0.23)	(0.25)	(0.23)	(0.22)	(0.19)
Stamp duties	0.55	0.50	0.59	0.53	0.50	0.56	0.81	0.64	0.43	0.34
Total tax revenue	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Sources: *Financial Statements*, various issues, 1970/71 – 1980/81; and data provided by the Malawi authorities.

Table B3: Tax revenue as a percentage of GDP, 1980/81 – 1993/94

	80	81	82	83	84	85	86	87	88	89	90	91	92	93
Taxes on net income and profits	6.60	5.56	6.45	6.51	7.01	8.36	7.70	6.63	7.54	8.15	7.32	6.10	5.94	5.12
Companies	3.91	3.07	3.71	3.71	4.39	5.06	4.74	3.56	4.91	5.44	4.59	3.94	3.34	8.81
Individuals	2.69	2.49	2.74	2.80	2.62	2.70	2.96	3.11	2.73	2.71	2.73	2.16	2.60	2.31
Minimum tax	(0.22)	(0.19)	(0.20)	(0.15)	(0.15)	(0.16)	(0.12)	(0.10)	(0.08)	(0.06)	(0.05)	(0.05)	(0.02)	(-)
Min-tax-remitt.	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(0.06)	(0.05)	(0.07)	(0.06)	(0.04)	(0.05)
Graduated tax	(0.30)	(0.28)	(0.25)	(0.21)	(0.17)	(0.23)	(0.17)	(0.14)	(0.11)	(0.13)	(0.15)	(0.16)	(0.20)	(0.14)
PAYE	(2.14)	(1.99)	(2.27)	(2.42)	(2.27)	(2.29)	(2.37)	(2.50)	(2.47)	(2.46)	(2.45)	(1.88)	(2.33)	(2.12)
Assessed tax	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.004)
Taxes on property	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.01	0.02	0.03	0.01	0.01	0.14	0.01
Taxes on goods and services	5.88	5.94	5.98	6.01	6.17	6.77	6.38	6.41	7.48	7.57	6.87	6.75	6.33	7.69
Surtax	4.82	4.84	4.71	4.73	5.32	5.76	5.45	5.68	6.60	6.70	5.95	5.92	5.56	7.07
Excise duties	0.78	0.82	0.94	0.97	0.55	0.70	0.66	0.47	0.59	0.64	0.69	0.64	0.57	0.46
Licenses	0.28	0.28	0.27	0.31	0.30	0.31	0.27	0.26	0.29	0.23	0.23	0.19	0.19	0.16
Business and Professional	(0.06)	(0.06)	(0.07)	(0.06)	(0.06)	(0.05)	(0.04)	(0.04)	(0.05)	(0.04)	(0.04)	(0.03)	(0.02)	(0.04)
Motor vehicle	(0.22)	(0.22)	(0.20)	(0.25)	(0.25)	(0.26)	(0.23)	(0.22)	(0.24)	(0.19)	(0.19)	(0.16)	(0.17)	(0.12)
Taxes on international trade	4.28	4.61	4.18	4.07	4.04	3.96	3.59	3.18	3.29	3.34	3.21	3.54	3.75	3.13
Import taxes	4.28	4.61	4.18	4.07	4.04	3.96	3.59	3.18	3.29	3.34	3.21	3.54	3.75	3.13
Custom duties	(4.21)	(4.44)	(4.11)	(4.03)	(4.02)	(3.94)	(3.53)	(3.17)	(3.24)	(3.32)	(3.21)	(3.52)	(3.73)	(3.01)
Other	(0.07)	(0.17)	(0.07)	(0.04)	(0.02)	(0.02)	(0.06)	(0.01)	(0.05)	(0.02)	(-)	(0.02)	(0.02)	(0.12)
Stamp duties	(0.06)	0.08	0.14	0.02	0.08	0.09	0.09	0.07	0.07	0.11	0.13	0.10	0.09	0.15
Total tax revenue	16.83	16.20	16.71	16.62	17.31	19.20	17.78	16.30	18.40	19.20	17.54	16.50	16.25	16.10

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

Table B4: Composition of tax revenue by major categories (1980/81–1993/94)
(as percentage of tax revenue)

	80	81	82	83	84	85	86	87	88	89	90	91	92	93
Taxes on net income and profits	38.94	34.50	28.27	39.27	39.58	41.29	43.16	39.96	45.56	41.39	41.81	44.73	38.04	38.05
Companies	23.66	19.04	21.76	22.31	24.39	27.39	26.54	21.50	25.79	24.40	25.09	26.16	19.81	18.57
Individuals	15.28	15.46	16.51	16.96	15.19	13.90	16.62	18.46	19.77	16.99	16.72	18.57	18.22	19.48
Minimum tax	(1.26)	(1.23)	(1.20)	(0.92)	(0.84)	(0.69)	(o.79)	(0.84)	(0.49)	(0.49)	(0.49)	(0.65)	(0.17)	(–)
Min-tax-remit.	(–)	(–)	(–)	(–)	(–)	(–)	(–)	(–)	(0.43)	(0.39)	(0.55)	(0.72)	(0.28)	(0.50)
Graduated tax	(1.68)	(1.73)	(1.54)	(1.34)	(1.05)	(1.15)	(0.95)	(0.94)	(0.68)	(0.78)	(0.84)	(1.05)	(2.43)	(1.95)
PAYE	(12.22)	(12.39)	(13.63)	(14.57)	(13.20)	(11.84)	(14.44)	(16.36)	(17.91)	(15.24)	(14.76)	(15.98)	(14.99)	(16.99)
Assessed tax	(0.12)	(0.11)	(0.14)	(0.13)	(0.10)	(0.22)	(0.44)	(0.32)	(0.26)	(0.09)	(0.08)	(0.17)	(0.35)	(0.04)
Taxes on property	0.06	0.06	0.05	0.13	0.07	0.13	0.12	0.09	0.11	0.14	0.06	0.05	0.09	0.04
Taxes on goods and services	35.47	86.91	35.53	36.04	37.37	33.23	35.69	42.03	39.50	39.80	39.10	31.58	37.63	40.08
Surtax	29.12	30.15	28.07	28.62	31.36	27.96	30.33	36.51	34.43	34.88	34.21	27.74	33.14	34.95
Excise duties	4.67	5.03	5.68	5.45	4.32	3.74	3.54	3.91	3.20	3.54	3.54	2.56	3.43	4.17
Licenses	1.68	1.73	1.78	1.96	1.69	1.53	1.82	1.61	1.87	1.38	1.35	1.28	1.06	0.96
Business and Professional	(0.36)	(0.39)	(0.48)	(0.39)	(0.31)	(0.25)	(0.53)	(0.20)	(0.49)	(0.33)	(0.24)	(0.22)	(0.12)	(0.12)
Motor vehicle	(1.32)	(1.34)	(1.30)	(1.57)	(1.38)	(1.28)	(1.28)	(1.41)	(1.38)	(1.05)	(1.11)	(1.06)	(0.94)	(0.84)
Taxes on international trade	25.22	28.03	25.27	24.48	22.52	24.79	20.50	19.26	17.62	18.02	18.34	22.95	22.46	20.12
Import taxes	25.22	28.03	25.27	24.48	22.52	24.79	20.50	19.26	17.62	18.02	18.34	22.95	22.46	20.12
Custom duties	(24.86)	(27.65)	(24.84)	(24.24)	(22.38)	(24.57)	(19.96)	(19.07)	(17.33)	(17.90)	(18.34)	(22.69)	(22.33)	(20.08)
Other	(0.36)	(0.38)	(0.43)	(0.24)	(0.14)	(0.22)	(0.54)	(0.19)	(0.29)	(0.12)	(–)	(0.26)	(0.13)	(0.04)
Stamp duties	0.36	0.45	0.87	0.13	0.51	0.46	0.54	0.44	0.43	0.64	0.71	0.68	0.09	0.80
Total tax revenue	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

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

Appendix C: Tax buoyancies and elasticities in Malawi

Table C1: Estimates of tax buoyancy in Malawi

	1970/71–- 1979/80				1980/81 –- 1993/94			
Dependent Variable	Constant	Log GDP	Adjusted R2	D.W.	Constant	Log GDP	Adjusted R2	D.W.
Taxes on income and profit	-3.897	1.170**	0.499	0.759	-2.561**	0.983**	0.969	0.746
(log TIP)	(-1.682)	(3.376)			(6.619)	(20.185)		
Companies	-6.087	1.449**	0.552	0.829	0.670	0.496**	0.593	0.717
(log CT)	(-2.382)	(3.476)			(0.741)	(4.468)		
Individuals	-2.253	0.747*	0.329	0.634	-3.907**	1.043**	0.992	0.666
(log IT)	(-1.144)	(2.326)			(18.814)	(39.903)		
Minimum tax	0.376	0.035	-1.116	1.195	0.422	0.064	-0.037	1.511
(log MT)	(0.434)	(0.247)			(0.641)	(0.755)		
Minimum tax remittances	11.523	-2.143	0.253	1.143	-4.647	0.670*	0.537	2.374
(log MTR)	(1.560)	(-1.742)			(-2.096)	(2.608)		
Graduated tax (log GT)	-3.175*	0.606*	0.479	0.851	-4.006**	0.707**	0.842	0.640
PAYE tax (log PT)	(-2.601)	(3.045)			(-5.994)	(8.390)		
Assessed tax (log SBT)	-5.188	1.141*	0.387	0.701	-3.703**	0.987**	0.979	1.539
	(-1.916)	(2.583)			(-11.663)	(24.6648)		
Withholding tax (log WT)	-5.972**	0.645*	0.362*	1.066	-3.837**	0.357**	0.622	0.960
	(-3.734	(2.472)			(-6.417)	(4.736)		
Fringe benefits tax (log FBT)	-	-	-	-	-11.294**	1.714**	0.971	2.196
					(-12.859)	(16.267)		
Taxes on goods and services								
(log TGS)	-	-	-	-				
Accomodation and	-0.787	0.683*	0.417	1.289	2.408	0.025	1.000	2.000
refreshments tax	(0.512)	(2.725)			(0.000)	(0.000)		
(log ART)								
	-	-	-	-	-2.614**	0.980**	0.971	1.157
					(-7.000)	(20.855)		
Surtax (log ST)	-6.574	1.495*	0.422	0.909	-8.759**	1.177*	0.944	1.475
	(-1.973)	(2.750)			(-12.150)	(13.039)		
Exercise duties (log ED)	-2.433	0.620*	0.433	0.864	-3.562**	1.082**	0.987	0.665
	(-1.796)	(2.807)			(-12.869)	(31.011)		
Licences for goods and								
services (log LGS)	-1.143*	0.275**	0.503	1.288	-2.877**	0.727**	0.951	1.224
	(-2.156)	(3.179)			(-7.889)	(15.839)		
Business and profes-								
sional (log BP)	-0.903	0.019	-0.123	2.735	-3.340	0.659**	0.853	1.043
	(-1.034)	(0.133)			(-5.588)	(87.748)		
Motor vehicle tax	-2.172**	0.392**	0.569	0.857	-3.507**	0.459**	0.634	1.007
(log MVT)	(-3.246)	(3.587)			(-4.667)	(4.847)		
Taxes on property	3.100	-0.770**	-0.093	0.728	-4.499**	0.784**	0.945	0.651
(log TP)	(0.401)	(-0.563)			(-10.782)	(14.910)		
Stamp duties (log SD)	-7.601**	1.063	0.599	1.340	-8.537**	0.784**	0.945	0.651
	(-4.432)	(3.799)			(-5.949)	(5.257)		
Taxes on international	-0.516	0.521	0.122	0.575	-8.895**	1.233**	0.832	2.471
transactions (log TIT)	(-0.242)	(1.499)			(-9.434)	(10.320)		
Customs duties (log CD)	-0.516	0.521	0.122	0.575	-1.924**	0.826**	0.980	1.751
	(-0.242)	(1.499)			(-7.372)	(24.156)		
Import duties (log ID)	-0.538	0.525	0.126	0.574	-1.924**	0.826**	0.980	1.751
	(0.253)	(1.515)			(-7.372)	(25.156)		
Other duties (log OD)	-2.357	0.168	-0.087	1.352	-2.227**	0.863**	0.985	1.121
	(-1.203)	(0.527)			(-9.522)	(29.255)		
Total tax revenue (log TTR)	-1.964	0.993*	0.396	0.703	-4.849**	0.586**	0.408	2.922
	(-5.513)	(29.889)			(-3.189)	(3.044)		
					-1.394**	0.951**	0.986	0.866
					(-5.513)	(29.889)		

* Significant at the 5% level of significance.
** Significant at both 5% and 1% levels of significance.

Table C2: Elasticity of major taxes and of total tax system, 1970–1979[1]

Tax	Intercept	Elasticity coefficient	Weight of tax in 1979 (percentage of total)	Adjusted R^2	T Ratio
1. Surtax	-1.676	0.791	30.06	0.480	1.145 2 .
Import duties	1.366	-0.153	22.69	0.603	-0.442
3. Company tax	-1.203	0.875	26.50	0.729	2.296
4. PAYE	-0.659	0.505	11.15	0.939	13.101
5. Excise duties	0.505	0.017	4.18	0.2700.048	
6. Total of 1-5			94.58		
7. Total tax system	-3.154	1.149*	100.00	0.966	20.790

[1]Weights were not used in the estimates.
*Significant at 5% and 1% levels of significance.

Table C3: Decomposition of tax elasticities, 1970–1979

	Tax-to-income elasticity		Proxy base-to-income elasticity		Tax-to-proxy base elasticity	
Tax and related proxy base	Coefficient	Adjusted R^2	Coefficient	Adjusted R^2	Coefficient	Adjusted R^2
1. Surtax and imports cif plus manufacturing value added	0.791	0.480	0.454	0.038	1.511**	0.827
2. Import duties and Imports cif	-0.153	0.603	0.908*	0.399	0.734**	0.746
3. Company tax and corporate profits	0.875	0.728	1.033**	0.638	1.353**	0.849
4. PAYE and the wage bill	0.505	0.677	0.522	0.227	1.766*	0.973
5. Excise duties and manufacturing value added	0.017		0.097	-0.120	1.064**	0.679

*Significant at 5% level of significance.
**Significant at both 5% and 1% levels of significance.

Table C4: Differences between tax buoyancy and tax elasticity for all taxes and selected major taxes, 1970–1979

Tax	Buoyancy	Elasticity	Difference (in percentage points)
All taxes	0.993	1.149	-0.156
Surtax	1.495	0.791	+0.704
Import duties	0.525	-0.153	-0.678
Company tax	1.449	0.875	+0.574
PAYE	1.141	0.505	+0.636
Excise duties	0.620	0.017	+0.603

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