INCOME ELASTICITY OF TAX STRUCTURE IN KENYA 1962/63 - 1972/73.

By

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This thesis is my original work and has not been presented for a degree in any other University.

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This thesis has been submitted for examination with our approval as University supervisors.

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A C K N O W L E D G E M E N T S

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TABLES

KEY TO NOTATIONS

Gross Domestic Product	Y
Monetary G.D.P.	M
National Expenditure	E
Total Tax Revenue	T
Total Import Duties	T_m
Excise Tax Revenue	T_e
Cigarettes Tax Revenue	T_{ci}
Beer Tax Revenue	T_b
Sugar Tax Revenue	T_s
Corporation Tax Revenue	T_c
Personal Income Tax Revenue	T_p
Indirect Tax Revenue	T_i
Direct Tax Revenue	T_d
Import Tax-Base	B_m
Excise Tax-Base	B_e
Cigarettes Tax-Base	B_{ci}
Beer Tax-Base	B_b
Sugar tax-base	B_s
Corporation tax base	B_c
Personal Taxable Income	B_p

A B S T R A C T

The purpose of this study is to estimate income elasticity of tax structure in Kenya during the 1962/63 to 1972/73. Income elasticity of tax structure is defined as the responsiveness of tax revenue to changes in national income when the effects of discretionary changes on tax revenue have been removed. It is usually contrasted with tax bouyancy which is a measure of the responsiveness of tax revenue to changes in national income without adjusting tax revenue for the effects of discretionary changes i.e. when changes in tax rates and tax bases which might have occured during the period are allowed.

There are two important uses of elastic tax structure namely, economic stabilization and financing of government expenditure. However, it is the contention of this paper that the latter, is by far the most important advantage of an income elastic tax structure in developing countries such as Kenya. The biggest problem facing these countries is the achievement of rapid economic growth and development which is necessary for the improvement of the welfare and living standards of their people. The achievement of this requires that a substantial and an increasing amount of national income of the country be saved and invested. In turn, this implies active government participation in productive investment besides its traditional role of providing social services and financing

the building of infrastructure because the private sector alone cannot be relied upon to marshall enough investible funds to enable the economy grow at the required rate. Hence, there has been a tendency for government expenditure in most developing countries to grow faster than the growth of national income. In turn, this calls for equally rapid growth in government revenues. Governments get their revenue from tax sources as well as non-tax sources. Because of the unreliability and other short-comings of non-tax sources of revenue, it is argued in this paper that if expenditure continues to grow, governments in most developing countries may be forced to rely heavily on tax sources of raising revenue. Such has the implication that tax revenues ought to grow faster than both government expenditure and national income. To ensure this, government can either rely on discretionary changes in its tax structure i.e. tax bouyancy or it can design its tax structure in such a way that it is income elastic. The main disadvantage of tax bouyancy is that it creates uncertainty in the tax structure which in turn is inimical to sustained growth of business and industry. Business as well as individuals require to plan under an environment of stable and consistent tax laws which is true only when the tax structure is income elastic. Tax bouyancy also has bad psychological effects on incentives to save, work and invest. So, for all these reasons, an income elastic tax structure is preferred to a tax structure that relies heavily on disrectionary changes i.e. tax bouyancy.

Although the main interest of this paper was with income elasticity, we have also for the sake of comparison, made an estimate of the bouyancy of tax structure in Kenya during the same period. Tax bouyancy was estimated using a simple linear regression method. (i.e. $T = a + bY$) while elasticity was measured using both simple linear method ($T = a + bY$) and log-linear method ($T = aY^b$) where Y is national income and T is tax revenue.

The result of this exercise shows that during the period 1962/63 to 1972/73, the tax structure in Kenya was income inelastic (0.81). Due to the fact that government expenditure was increasing faster than national income, the implication is that the country could not have relied on the elasticity of its tax structure alone to finance increments in government expenditure. To bring about rapid increases in its tax revenues it was seen that government resorted to discretionary changes in her tax structure. The observed inelasticity of tax structure on the other hand, was mostly a result of the inelasticity of indirect taxes (0.63) which were responsible for 60% of total tax revenue. Direct taxes made up mainly of Personal Income tax and corporation tax were income elastic but only just (1.09). The inelasticity of indirect taxes was caused by the fact that the two major indirect taxes namely, excise taxes and import duties were income inelastic being 0.83 and 0.66 respectively. It was found that these two taxes were income inelastic mainly because of widespread use of specific instead of ad valorem taxes, low rates of tax on commodities whose rate of consumption is high as well as narrow tax bases.

8.6
1.09
.63
172

To ensure that the tax structure in Kenya becomes elastic in future, the paper makes certain recommendation. In the field of indirect taxation it is recommended that a widening of excise and import tax bases and increase of rates of tax on commodities whose consumption is expanding fast. As for direct taxes, the paper recommends a reduction in allowances of various kinds and the use of a more progressive rate structure.

CHAPTER I

STATEMENT OF THE PROBLEM

I. INTRODUCTION

Among economists, the notion which is probably still held by the majority of the general public, that taxes are meant simply for collecting revenue and therefore the performance of a tax system can be assessed in terms of this alone is long gone. Most economists are agreed today that a comprehensive appraisal of a tax system in any country would require an examination of the system with respect also to economic efficiency in supply and allocation of resources, vertical and horizontal equity, income elasticity and administrative ease to mention only a few.[1] Simultaneous achievement of these requirements for a good tax system may not always be possible. Indeed, in some cases, it has been argued that perfect achievement in one area may only be possible at the expense of some other area or areas. Perhaps an often quoted example in this respect is efficiency versus equity. There is a continous controversy among economists as to whether these two criteria for a tax system can be realized in their perfect form at the same time.

Arguement for and against the possibility of simultaneous achievement of these two criteria have been advanced without agreement being reached. Partly because of the possible conflict among various criteria like the one mentioned above, and partly due to a desire to simplify the problem at hand, the

normal practice among economists is to isolate one of these criteria and subject it to a careful and close analysis. By so doing, there is an implied assumption that other criteria are either of no immediate importance in a particular economy or are not being violated. Following this practice therefore, it is the intention of this study to isolate income elasticity as a criterion for judging the performance of tax structure of Kenya during the period 1962/63 to 1972/73. Income elasticity of tax structure of any particular tax is also sometimes known as built-in flexibility or tax sensitivity.

For the purposes of this study, an income elastic tax structure is defined as that system of taxation which is such that as the national income of a country changes, tax revenue changes by a larger proportion without any changes in tax rates and tax bases. This implies that a tax structure or any particular tax will be income elastic if with unchanged tax rates and tax bases, the ratio of incremental tax revenue to national income is greater than the ratio of average tax revenue to national income. In other words, tax revenue is rising(falling) faster than the rise (fall) in the national income. The income elasticity of an individual tax in the tax system can be broken down into two components namely, tax-to-base elasticity and base-to-income elasticity.[2] A product of the elasticities of these two components gives the overall elasticity of the tax in question. It follows

therefore that for a tax to be income elastic, either each of the two components has elasticity above unity or one of them has a sufficiently high elasticity capable of countering the inelasticity of the other component:

Let T = tax revenue

B = tax base e.g. imports (value) subject to import tax.

Y = National income

η = Income elasticity of tax

$$\eta = \left(\frac{\Delta T}{\Delta B} \times \frac{B}{T}\right)\left(\frac{\Delta B}{\Delta Y} \times \frac{Y}{B}\right) = \left(\frac{\Delta T}{T} \times \frac{Y}{\Delta Y}\right)$$

TAX-TO-BASE ELASTICITY | BASE-TO INCOME ELASTICITY | INCOME ELASTICITY

From the above formula, it can be seen that tax elasticity is determined by the relationship among the following variables:

(1) Average rate of taxation $\left(\frac{T}{B}\right)$

(2) Marginal rate of taxation $\left(\frac{\Delta T}{\Delta B}\right)$

(3) Average share of tax base in national income $\left(\frac{B}{Y}\right)$

(4) Marginal share of tax base in national income $\frac{(\Delta B)}{\Delta Y}$.

If average share of tax base in national income remains constant, a given tax will be income elastic so long as the marginal rate of

of taxation is in excess of the average rate i.e. provided the rate structure of the tax is steeply progressive. On the other hand, if marginal and average rates of taxation are equal, a given tax will be income elastic if and only if the marginal share of the tax base in national income is greater than the average share. It will be income inelastic if the reverse holds. The tax will have unit elasticity if the marginal and average rates of taxation are equal while average share of tax base in national income is equal to marginal share of tax base in national income. Thus, it can be seen that it is possible for a regressive tax to be income elastic while a progressive tax can be income inelastic. Therefore, contrary to popular belief, progressivity is not a condition for the attainment of elasticity in a tax. The above can be presented algebraically as follows:-[3]

$$\eta = \left(\frac{\Delta T}{\Delta B} \times \frac{B}{T}\right)\left(\frac{\Delta B}{\Delta Y} \times \frac{Y}{B}\right)$$

$$= \left(\frac{\Delta T/\Delta B}{T/B}\right)\left(\frac{\Delta B/\Delta Y}{B/Y}\right)$$

$$\therefore \quad \eta > 1 \text{ if } \left(\frac{\Delta T/\Delta B}{T/B}\right)\left(\frac{\Delta B/\Delta Y}{B/Y}\right) > 1$$

or if $\frac{\Delta B}{\Delta Y} = \frac{B}{Y}$ and $\frac{\Delta T}{\Delta B} > \frac{T}{B}$ Progressive tax

or if $\frac{\Delta T}{\Delta B} = \frac{T}{B}$ and $\frac{\Delta B}{\Delta Y} > \frac{B}{Y}$ Proportional tax

" " $\frac{\Delta T}{\Delta B} > \frac{T}{B}$ by more than $\frac{\Delta B}{\Delta Y} < \frac{B}{Y}$ Progressive tax

" " $\frac{\Delta T}{\Delta B} < \frac{T}{B}$ by less than $\frac{\Delta B}{\Delta Y} > \frac{B}{Y}$ Regressive tax

Having obtained elasticities of individual taxes in the system, the income elasticity of tax structure as a whole can be calculated as the sum of weighted averages of the elasticities of all the taxes in the system.

Where t = Total tax revenue in the economy

y = National income

$T_1, T_2, T_3 \text{ ---- } T_n$ → Total tax revenue for individual taxes (there are n types of taxes in this particular case).

$$n = \frac{T_1}{t}\left(\frac{\Delta T}{T_1} \times \frac{Y}{\Delta Y}\right) + \frac{T_2}{t}\left(\frac{\Delta T}{T_2} \times \frac{Y}{\Delta Y}\right) + \text{------} + \frac{T_n}{t}\left(\frac{\Delta T}{T_n} \times \frac{Y}{\Delta Y}\right)$$

The implication of such a relationship between elasticities of individual taxes in the economy and the elasticity of the tax structure as a whole is that, those taxes which are dominant in the system have an important role to play in the determination of

the overall elasticity of tax structure. This means that for a tax structure as a whole to be income elastic, it is necessary that some of the taxes whose shares in total tax revenue are relatively high should have income elasticity above unity. Put another way, the higher the elasticities of most or all of the dominant taxes in the system, the higher relatively the overall elasticity of tax structure.

The alternative to an elastic tax structure is tax bouyancy. A tax structure is said to be bouyant if national income of a country changes tax revenue changes by a larger proportion as a result of both built-in elasticity as well as changes in tax rates and tax bases which may have been introduced during the period.

II. WHY AN INCOME ELASTIC TAX STRUCTURE IS IMPORTANT:

There are two main functions of an income elastic tax structure namely, economic stabilization and financing of growing government expenditure.

A. STABILIZATION

About a decade and half ago, when economists were mainly concerned with the economics of the developed countries only, the significance of an elastic tax system was probably wholly attributed to the fact that it was considered as one of the most efficient methods of attaining economic stabilization. In boom period tax revenue is designed to rise more than proportionately

to the rise in the national income thus cutting down aggregate demand and consequently averting the dangers of inflation. In slump periods on the other hand, revenue from taxation falls more than proportionately to the fall in the national income. Such a drop in tax revenue relative to national income, enables the economy maintain demand, prices and profits above what they would otherwise have been and by so doing mitigates economic recession or a deflationary situation.

The advantage which an elastic tax structure has over other methods of stabilization rests primarily upon the fact that the latter are discretionary in character and require explicit policy action. One such method is reliance on the bouyancy of tax structure. Discretionary methods of stabilization such as the use of tax bouyancy suffer greatly from the problem of timing and inaccuracies in forecasting.[5] There are bound to be considerable delays in the latter methods arising mainly from administrative inefficiency in both forecasting and implementations. Discretionary policies in the stabilization process require availability of a well qualified and efficient staff capable of correctly predicting changes in economic activity and taking the necessary action without delay. Such a calibre of staff is not always available, particularly in the less developed countries. As a result therefore, either incorrect predictions are made or due to delays, correct decisions are implemented long after they have ceased to be valid. There are also some political difficulties involved in bringing discretionary apparatus into operation which further worsens the timing problem. Consequently, there is a serious risk that far from stabilizing the economy, the use of

discretionary policies such as tax bouyancy, may exercabate tendencies of the economy to fluctuate. An income elastic tax structure avoids some of the timing and forecasting problems by building them into the system.

However, elastic tax yields do not resolve all the stabilization problems. In the first place, the effectiveness of an elastic tax structure as a device for economic stabilization is a function of the size of government expenditures and taxes in relation to national income. The lower the budget levels, the less the potential oscillation of automatic stabilizers and therefore the less its effectiveness in securing economic stability. In most less developed countries, the proportion of tax revenue to national income is likely to be low as a result of the existence in these economies of a large proportion of non-monetized income and generally low levels of personal income both of which cannot easily be taxed. In 1962/63 for instance, Kenya's proportion of total tax revenue to national income was only 13.4% while ten years earlier, Norway, Australia and Germany had 29.1%, 28.0% and 33.8% respectively of the proportion of their national income in total tax revenue.[6] It should be mentioned here that it is quite possible to have elastic tax structure as well as low ratio of tax revenue to national income. When the latter is the case, elastic structure cannot be relied upon to play an important role in economic stabilization.

A second and probably most important weakness is that elastic tax structure only presents wide fluctuations in private income at the expense of stability in government revenue. Stabilization of the overall economy can in this case be achieved only by government retaining a surplus in boom periods and undertaking deficit financing in recession. However, while this is possible in theory, it is difficult to put into practice even in some developed countries. In the less developed countries such as Kenya, demand for government revenue is so high as to rule out the possibility of keeping large sums of money idle in the name of stabilization alone.

Alternative ways of dealing with the problem of instability in government revenue have recently been suggested by some economists but none of them is without faults. Among these methods, is the suggestion that moving averages of say, three or four years be used as a basis for direct income taxation. A second suggestion is that heavy reliance be placed on outlay (indirect) taxes as opposed to direct taxes i.e. a large proportion of tax revenue should be appropriated through indirect taxation. The assumption here is that consumption on which outlay taxes are based tends to be more stable than income in the short-run and heavy reliance on them would make for a more stable tax revenue. Either or both of these methods can be used to bring about some stability in government tax revenue without necessarily

sacrificing elasticity of the tax structure in question. However as mentioned earlier, these methods have their own short-comings. Averaging for instance, apart from the complexities involved in calculating, may result in greater instability in private income. Whether this is a worthy price to pay for stability in tax revenue is an empirical question. Outlay taxes on the other hand, tend to be regressive and therefore heavy dependence on these taxes is likely to interfere with the equity principle. Heavy reliance on outlay taxes also carry the risk of destabilizing personal income as is the case with averaging. Therefore, there are real problems involved in using elastic tax structure as an instrument for stabilization of the whole economy. Still an elastic tax would be useful in stabilization of specific income in the economy such as export earnings.

But even in the absence of these weakness, many economits argue that economic stabilization itself is almost an irrelevant factor in most developing countries and consequently an elastic tax structure cannot strongly be advocated in these countries on reasons of stabilization alone. Not that economic instability is not a problem in developing countries but rather, it is secondary to other problems confronting these countries. Moreover, some economists have even argued that economic growth can probably best be stimulated under destabilized rather than stabilized economic

conditions. So according to this group of economists, economic instability of a mild nature such as that experienced in developing countries could be considered an instrument of growth rather than an obstacle to it.

B. FINANCING OF GROWING GOVERNMENT EXPENDITURE:

The case for elastic tax structure in developing countries lies more in the role it can play in financing government expenditure. Apart from provision of social services, governments in most developing countries are also usually expected to play a leading role in increasing the level of investment expenditure in their respective countries. This is because government has to provide the much needed infrastructure which cannot be provided in adequate amounts if left to the private sector alone because of the existence of external economies. Without enough infrastructure a country cannot possibly develop at a rapid rate. Also because of shortage of capital and indegenous entreprenuers, governments in these countries are also called upon to participate in directly/productive activities. Usually they do this either alone through parastatal bodies or in partnership with foreign firms. It is therefore clear that the level of government development expenditure critically affects the pace of development in most developing countries.

In recognition of this fact, and faced by heavy pressure from the public for improved welfare and higher standard of living, most governments have tended to step up their development expenditures as the national income of their countries increases. As a result, there has been an observed tendency for government expenditure in most developing countries to show a rapid and continuous upward trend. This trend is unlikely to change in the near future.[8] Indeed if anything, it is bound to intensify especially in those countries where for one reason or another governments, have so far succeeded in restraining their levels of expenditures. In view of the crucial role governments in developing countries play in the development of their economies, it is only logical to expect that government expenditure in these countries will increase faster as national income increases since higher income levels can support larger budgets. In Kenya for instance, as shown in Table I-1, overall government expenditure grew more rapidly than national income between 1962/63 and 1972/73. While the latter increased just about three-fold, government expenditure increased three and half times during the period. As a result therefore, total government expenditure increased its proportion of national

TABLE I-1

GROWTH IN GOVERNMENT EXPENDITURE AND GDP IN KENYA 1962/63-1972/73

K£m.

YEAR	EXPENDITURE			GDP
	RECURRENT	DEVELOPMENT	TOTAL	
1962/63	49.21	8.52	57.73	251.60
1963/64	56.30	11.80	68.13	295.25
1964/65	56.90	13.64	70.54	330.95
1965/66	60.73	16.78	77.52	357.75
1966/67	64.80	20.10	84.88	395.85
1967/68	70.11	24.46	94.57	418.50
1968/69	75.23	29.76	104.98	452.45
1969/70	86.33	35.11	121.45	499.75
1970/71	101.75	55.05	156.80	578.75
1971/72	124.00	56.52	180.52	668.55
1972/73	137.70	63.70	201.41	746.10

Notes: G.D.P. Figures in Kenya are given in calendar years. The above fiscal year G.D.P. figures have been obtained by calculating the average GDP for every two consecutive calendar years.

Sources: Statistical Abstract (Kenya)

Economic Survey (Kenya)

income from 23% to 27%. Development expenditure contributed greatly to the observed rate of increase in overall government expenditure. Development Expenditure increased seven-fold from a mere £8.5 million

to £64 million while non-development expenditure increased less than three-fold from £49 million to £138 million. It is argued in the next Chapter that government overall expenditure probably did not grow as fast as might have been expected. It is further argued that since the factors which may have brought this about are of temporary nature, government expenditure may in the future grow at an even faster rate than hitherto relative to national income. Such a development in turn calls for a more rapid growth in government revenue relative to national income.

To finance their expenditures, governments in developing countries as indeed elsewhere, raise revenue from tax sources as well as non-tax sources. At best, the increasing government expenditure can be expected to be financed through proportional increases in revenue from the two sources. That is, revenue from each source will have to grow at the same rate as the growth in government expenditure and consequently faster than national income. At least this was the position in Kenya between 1962/63 and 1972/73 (see Table II-1 Ch.2). However this may not always be the case. It is the contention of this paper that should government expenditure in future grow faster than or even as fast as it has done in the past, non-tax revenue may not manage to grow at the same rate. The implication of this is that tax revenue would need to grow at a faster rate than hitherto in relation to both government expenditure and national income.

There are reasons for believing that non-tax revenue might not keep pace with the fast expanding government expenditure in developing countries.[9] Two of the most important sources of non-tax revenue are internal borrowing which includes credit creation and external borrowing or foreign loans. Internal borrowing is usually constrained by shortage of capital which is a characteristic of most developing countries. As a result of this shortage, government can increase non-inflationary domestic borrowing beyond a certain level only at the expense of the private sector. Unfortunately this type of borrowing has no effect on total national development expenditure.* It only results in a change in the composition of that expenditure in favour of the government sector. So, in terms of increasing growth which is the main objective the result might well be zero. As for inflationary deficit financing, the merits and demerits are well known and do not need further elaboration. Suffice to say that there is no consensus among economists about its suitability or otherwise for the purpose of financing government expenditure. In Kenya, during the period under consideration, revenue from domestic borrowing increased rather rapidly rising from zero in 1962/63 to £28.1 million in 1972/73. Indeed without such a rapid increase in domestic borrowing, non-tax revenue would have fallen both relatively and in absolute terms. The rapid increase in domestic borrowing must however be attributed to the possible existence at the beginning

of the period of untapped credit finance arising from the absence of a Central Bank as well as a Capital Market. The period saw the creation of a central bank and the development of a rudimentary capital market both of which opened way for increased government borrowing from domestic sources. The ability of revenue from this source to grow at the same rate in the future when hitherto untapped finance is exhausted depends on the rate at which the economy is being monetized and the level of foreign exchange. Inview of the basically agricultural nature of the economy, there is reason to believe that the above factors would be unfavourable and therefore domestic borrowing might not expand as fast as it has done in the past without resulting in inflation.

The gap created by the possible failure of revenue from domestic sources to increase at the required rate in future, could be filled by foreign loans. Consideration of debt servicing problems and the practice of tying aid to specific projects and to purchase in the donor country, usually acts as a constraint to the amount of loan a country might be prepared to accept from abroad. Also foreign loans are determined by economic as well as non-economic factors such as the political standing of the recipient country in the eyes of the donor. As a result therefore, foreign loans sometimes tend to be a very unreliable and unpredictable source of government finance especially in respect to the amount to be expected. This is more so now that the major donor countries are having economic

problems of their own. Because of the above reasons, it seems safe not to expect revenue from external sources to increase faster than, if not as fast as in the past. In Kenya, as can be seen from Table I-2, foreign loans actually fell in absolute terms

Table I-2

GROWTH IN NON-TAX REVENUE IN KENYA 1962/63-1972/73

K£m.

YEAR	DOMESTIC BORROWING	FOREIGN LOANS
1962/63	-	7.00
1963/64	-	10.74
1964/65	1.03	10.70
1965/66	2.00	9.45
1966/67	7.83	7.84
1967/68	9.00	7.83
1968/69	13.88	7.10
1969/70	18.70	10.70
1970/71	23.12	10.94
1971/72	16.70	11.50
1972/73	28.10	24.70

for most of the period (1963/64-69/70) and then towards the end, they rose suddenly such that in 1972/73 the figure was double and thrice the 1971/72 and 1962/63 figures respectively. If we consider 1972/73 as an abnormal year due to sudden rise in the figure, it

becomes clear that external finance grew at a relatively low rate during this period.

From the above discussion, it seems we must conclude that in order to finance their fast-growing expenditures, governments in developing countries will probably have to rely heavily on tax sources of revenue. Since the rate of growth of government expenditure in most of these countries is higher than the rate of growth of national income (In the case of Kenya see Table 1-I), the above statement implies that tax revenue must grow at a faster rate relative to both government expenditure and national income. Indeed, even if we assume in the case of Kenya, that non-tax revenue will continue to grow at the same rate as in the past, it is still necessary for tax revenue to grow faster than both national income and government expenditure.

In order to ensure that tax revenue grows faster than national income as required by the growth in expenditure, government can use either of the two policies at her disposal.

The first, is to rely on the bouyancy of tax structure. This implies maintaining a tax system which is heavily dependent on legislative action to bring about the required increases in tax revenue through changes in tax rates and tax bases and introduction of new taxes. A second policy builds automatic increases in tax revenues into the tax system in an elastic tax structure. The main disadvantage of tax bouyancy is that

it creates uncertainity in the tax structure which in turn is inimical to sustained growth of business and industry.[10] Business as well as individuals require to plan in an environment of stable and consistent tax laws which is true only when the tax structure is income elastic. Tax bouyancy on the other hand, has a bad psychological effect on the incentives to save, work and invest because no one is certain about what changes are likely to take place in tax policy within the planning period. A second and probably not so important disadvantage of tax bouyancy is that it is administratively difficult and costly. Take the extreme case involving introduction of new taxes and discarding of some of the existing ones. At best, this implies that tax administrators will have to take sometime to re-adjust themselves to the new tax laws and this by itself carries with it some cost. At worst however, it may require re-training of the staff. Such costs would not arise if the tax structure was initially fashioned in such a way that a growing share of increments in national income is more or less automatically siphoned off by government in the form of tax revenue i.e. an elastic tax structure. A third disadvantage is that tax bouyancy can be politically unpopular since not many people like living in an environment where laws change rapidly. It would therefore, seem that an elastic tax structure is preferable to tax bouyancy for the purpose of ensuring that tax revenues keep pace with increments in government expenditure.

The above conclusion, should not however be interpreted to imply that a discretionary tax policy is necessarily bad. Indeed, initially, at the early stages of development reliance on tax bouyancy is inevitable for it takes time to establish an elastic tax structure. Also the above conclusion should not be interpreted to mean that countries should depend entirely on tax elasticity. This may not be possible in practice. Some element of tax bouyancy is bound to be in the tax structure. What is required only is that a large share of increments in tax revenue should be borne by the elasticity of tax structure.

3. INCOME ELASTICITY Vs EQUITY

It is tempting to assume that an income elastic tax structure necessarily fulfills the equity criterion also. However, this is true only under certain circumstances. Attainment of equity requires progressivity in the tax structure as a whole. This implies the use of highly progressive tax rate structure on incomes of corporations and individuals and imposition of high rates of indirect tax on goods and services whose demand is elastic with respect to income (normally semi-luxury and luxury goods). Progressivity of tax structure as defined above is however only one of the two ways of achieving elasticity in tax structure. One other way is by re-structuring tax allowances and exemptions to ensure a fast-growing tax base. Therefore, in order that an elastic tax structure may also meet

equity principle, it is important that the elasticity of tax structure is achieved through either tax progressivity or both tax progressivity and tax base growth. If it is achieved through growth in tax base alone then the equity principle will not be met. It is therefore possible for a regressive tax to be income elastic just as it is possible for a progressive tax to be income inelastic.

4. DETERMINANTS OF INCOME ELASTICITY OF A TAX

The factors which influence income elasticity of any tax can best be analysed in terms of their influence on the two elasticity components namely, tax-to-base elasticity and base-to-income elasticity. The latter is influenced by the behaviour of exemptions and deductions, the distribution of increments to national income and the tax evasion. If a large proportion of increments to income does not get taxed at all because of basic exemptions and deductions, then widening the tax base by way of reducing deductions and exemption limits will greatly enhance elasticity of the tax base. Tax-base elasticity would also be enhanced by reduction of tax evasion. In most developing countries there is widespread tax evasion as well as a large number of deductions and high exemption limits. The effect of the latter is such that an income earner does not become liable to income taxation until his annual income is probably ten times the average per capita income of the country in question.

Tax-to-base elasticity on the other hand, is influenced by tax rate structure, distribution of increments to taxable income and tax administration. A highly progressive tax rate structure coupled with efficient tax administration would result in rapid growth in tax revenue i.e. high tax-to-base elasticity. Tax-to-base elasticity would also be enhanced if a larger proportion of increments in income is distributed to those who pay income tax at a very high rate or those who buy goods and services which are highly taxed.

Footnotes

1. See, A.R. Prest, Public Finance (Wiedenfeld and Nicolan 1960) Page 27.

2. L.J. Cohen "An empirical Measurement of built-in flexibility of individual income tax" American Economic Review (May 1959) and C.Y. Mansfield, Elasticity and Bouyancy of a tax system, Staff Papers Vol.XIX July 1972.

3. D.P. Ghai, "Taxation for development" a case study for Uganda."

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5. L.J. Cohen op.cit. D.P. Ghai, op.cit.

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7. Walter, Tax Sensitivity, Southern Economic Journal

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9. D.P. Ghai op.cit. pp3; A.R. Prest, op.cit. Pp104,105, G.S. Sahota op.cit. Pp5; Tripath, Public Finance in underdeveloped countries and Diejomaoh IDS Discussion Paper No.86.

10. G.S. Sahota op.cit. D.P. Ghai op.cit.

CHAPTER II

BOUYANCY OF TAX STRUCTURE IN KENYA 1962/63 - 1972/73

The purpose of this Chapter is to estimate the bouyancy of tax structure in Kenya during the period 1962/63 to 1972/73. Tax bouyancy, is defined as a measure of the responsiveness of actual total tax revenue to changes in national income. The difference between it and elasticity, lies in the fact that the concept of elasticity is in a way hypothetical in the sense that it assumes a constant tax structure (i.e. constant tax rates and tax bases) for the whole of the period under consideration. Bouyancy on the other hand, makes no such assumption but instead allows any changes which may have taken place in the tax structure to play their full role in influencing tax revenue collections. Consequently, while calculation of elasticity requires that tax revenue be adjusted to a chosen base-year tax structure, no such adjustment is required when calculating tax bouyancy. As will be seen in the last Chapter, knowledge of tax bouyancy is useful in the study of elasticity because it helps show the extent to which government reliance on the elasticity of her tax structure alone would have fallen short of her tax revenue requirements during the period. If the gap between elasticity and bouyancy coefficients is relatively large, then this is an indication that government is relying heavily on changes in her tax structure to raise the required increments in tax revenue. This on the other hand means that the tax structure is not sufficiently income elastic.

This Chapter also attempts to measure changes in the composition of Kenya's revenue over time. There are two reasons for undertaking such an exercise. First, it does help show what effect the observed tax bouyancies of individual taxes

in the economy have had on their relative importance in the tax structure. Secondly by identifying the contribution of each tax and the trend, it acts as a basis for any recommendations regarding where emphasis should be placed in future in respect to tax policy.

METHODOLOGY[1]

There are three ways of measuring tax bouyancy. First, tax bouyancy can be measured simply by calculating the proportion of tax revenue to national income over time. An increasing proportion or percentage over a period of time is an indication of more than unity tax bouyancy and vice versa. A second method is by using a simple linear regression equation $T = a + bY$ taking tax revenue (T) as dependent variable and national income (Y) or its components, as independent variable. After calculating the value of the coefficient "b" from the above regression equation, tax bouyancy is then computed by multiplying the "b" value by the ratio of national income to average total tax revenue $(\frac{Y}{T})$. Finally, tax bouyancy can be calculated by using a non-linear regression analysis which however can be transformed into a linear form using logarithms i.e. $T = a\ Y^b \rightarrow \text{Log } T = \text{Log } a + b \log Y$. As with the second method, tax revenue (T) is the dependent variable and national income (Y) or its components is the independent variable. The last two methods are also the ones used for calculating elasticity. The "b" coefficient in the log-linear method stands for tax bouyancy

coefficient. Therefore unlike the linear method no further calculation is required to get the tax bouyancy coefficient once the regression equation has been solved.

For the purpose of comparison with income elasticity, the last two methods of measuring tax bouyancy are appropriate for two related reasons. Firstly, as has already been mentioned, these two methods are also the ones used for measuring income elasticity. The percentages method is never used for this purpose. A second and closely related reason is that as in the case of income elasticity the use of either of the two methods summarizes tax bouyancy results by a single figure or coefficient, hence making comparison easy. However, if the idea is to study trends in the bouyancy of tax structure, the proportion (percentage) method is clearly the most appropriate because it does not depend on the particular base figures for national income and tax revenue.

In this paper, the log-linear method was used for calculating bouyancy of tax structure in Kenya. The percentages method was used entirely for the purpose of tracing the time trend of various taxes in the tax structure.

RESULTS

Table II-1 below, shows tax bouyancy of total tax revenue as well as those of various major taxes in the Kenyan economy between 1962/63 and 1972/73. The bouyancy of the tax

structure as a whole which was calculated as the sum of weighted averages of individual taxes was only 1.25. That is, on average, for every ten per cent increase in national income, total tax revenue rose by only twelve and half percent as a result of both built-in flexibility (i.e. elasticities) of the tax structure and discretionary action by tax authorities. Since in practice, income elasticity cannot exceed tax bouyancy, the above bouyancy results serve as a prior warning to us that the income elasticity of tax structure in Kenya during this period must have been low if not inelastic.

TABLE II-1

BOUYANCY OF TAX STRUCTURE:

ITEM	INDEPENDENT VARIABLE	BOUYANCY COEFFICIENT	R^2
1. Total tax Revenue	National Incomes	1.25	.92
2. Import duties	" "	0.81	.92
3. Excise Tax	" "	1.26	.95
4. Cigarettes tax	" "	0.93	.85
5. Sugar tax	" "	0.97	.94
6. Beer tax	" "	1.46	.87
7. Total Indirect taxes	" "	1.07	—
8. Personal income tax	" "	2.25	.91
9. Corporation tax	" "	0.98	.96
10. Total direct taxes	" "	1.54	

Given what was said in the first chapter about the role of taxation in development in developing countries like Kenya, such a low tax bouyancy seems to be a contradiction. However it is intended to argue here that these result do not at all invalidate the argument in the preceeding chapter that as time moves and government expenditure increases rapidly, developing countries will come to rely heavily on tax sources of raising revenue. It appears that Kenya was able to maintain a relatively low tax bouyancy during the period 1962/63 to 1972/73 because of two factors both of which we consider are temporary. First but less apparent, it appears that government expenditure in Kenya during the period 1962/63 to 1972/73 did not probably grow as fast as it should have. True, as demonstrated in the preceeding chapter, Kenya government expenditure during the period grew faster than national income (see table Chapter One). However the rate of growth of that expenditure was moderate. In turn, this naturally called for a correspondingly moderate growth in total tax revenue hence the low tax bouyancy. The relatively slow growth in government expenditure which must have been brought about mostly by government's restrictive policy should be considered a temporary phenomenon. In view of heavy demand on the government to raise the living standards of the people, coupled with the recent introduction of free primary education, it is doubtful how long government will continue holding back her expenditure as she has apparentlydone in the past. Therefore, there is a high probability that government expenditure will in future

grow faster than in the past and so must government revenue. A second factor accounting for the country's ability to get along safely with such a low tax bouyancy is that during this period government was able to raise revenue perhaps much more easily and less costly from non-tax sources. As can be seen from Table II-2, on average, non-tax revenue maintained their relative position versus total tax revenue during the period. The implication of this is that tax revenue on average, grew at the same rate as growth in government expenditure. But the rate of growth of the latter as we have

TABLE II-2

GROWTH IN REVENUE FROM NON-TAX SOURCES

K£m.

YEAR	NON-TAX REVENUE	NON-TAX REVENUE AS PERCENTAGE OF TOTAL REVENUE
1962/63	23.74	41
1963/64	32.18	42
1964/65	33.08	45
1965/66	29.40	40
1966/67	32.12	37
1967/68	36.83	38
1968/69	42.10	40
1969/70	43.06	41
1970/71	66.26	42
1971/72	64.23	38
1972/73	85.76	43

Source: Statistical Abstract (Kenya)
Economic Survey (Kenya).

already seen was only moderate. Consequently tax bouyancy was bound to be low. The reasons behind the good performance by non-tax revenues during the period have already been discussed in the first chapter. Also, for reasons already mentioned in the preceeding chapter, revenue from this source may not continue growing at the same rate in the future. This means that tax revenue will have to grow at a higher rate than before implying relatively high tax bouyancy and possibly high tax elasticity.

The low bouyancy of the whole tax structure in Kenya however, conceals the individual nature of the bouyancy of direct and indirect taxes. As can be seen from Table II-1, the bouyancy of indirect taxes was rather low (1.07) while that of direct taxes was relatively high (1.54). The fact however that indirect taxes were responsible for a larger proportion (60%) of total tax revenue, weighted rather heavily on the bouyancy of the whole tax structure. Consequently the total tax bouyancy coefficient was nearer the bouyancy coefficient of indirect taxes than direct taxes. Such a result follows logically from the fact that total tax bouyancy is a sum of weighted averages of the bouyancies of indirect and direct taxes.

In turn, the low bouyancy of indirect taxes is a consequence of less than unity (0.81) bouyancy of import duties which on average, contributed about 55% of total indirect tax revenue. The rate structure of import duties was mainly

to blame for the observed low import tax bouyancy. Though rates of duty on various imports were constantly being adjusted upwards, the truth of the matter however is that these adjustments were not only small relatively and absolutely, but they were also in most part restricted to categories of imports such as consumer goods which were growing relatively less fast. Rates of duty on fast-growing imports like capital goods, Transport equipment and Machinery on the other hand, remained very low throughout the period. As a result, the marginal rate of import taxation was notoriously below the average rate and this resulted in a declining average rate of import duties over time (see table III-2 Ch.3). No wonder therefore that tax-to-base bouyancy of import duties during this period was less than unity (0.85). The growth of import tax base in relation to national income, was also low such that base-to-income bouyancy was only 0.95. Since it is bad economic policy to seek to increase imports, base-to-income bouyancy can in future be increased only by bringing into the tax bracket those categories of imports which at present are exempt from import duty.[3] However such categories of imports are few and so, the growth of import tax base cannot be expected to increase significantly as a result of this. Infact there is a possibility that the rate of growth of import tax base may even

decrease in future as a result of a fall in the propensity to import due to import substitution policy. It seems therefore that efforts to increase the bouyancy of import duties in future would have to concentrate on raising average rate of import taxation. This requires raising the rates of duty particularly on imports which are expanding rapidly. In the short and intermediate run, such action could result in a more than unity tax-to-base bouyancy and this may give import duties a bouyant character.

Excise tax revenue unlike import duties were bouyant but only just (1.26). But the fact that they constituted a smaller proportion of total indirect tax revenue, means that their bouyant character did not have a significant impact on the bouyancy of the latter. Like import duties, the problem with excise tax bouyancy also seems to rest on relatively low and declining average rate of taxation. The base of excise tax expanded rapidly during the period due to the introduction of new commodities into the excise tax bracket. In 1962/63 there were only five commodities subject to excise tax but by 1972/73 the figure had gradually risen to twelve. However, the rate of tax on most of these commodities was low. Consequently, excise tax revenue continued to rely heavily on three commodities only namely, beer, cigarattes and sugar whose rates of excise duty were slightly higher than the rest. Infact beer duty was the only bouyant excise tax (1.46) and it

can be said that it alone was mainly responsible for the observed bouyancy of excise tax revenue.[1] On the other hand, beer tax was bouyant not so much because of high rate of tax but due to high rate of consumption experienced during this period. This is evidenced by the fact that tax-to-base bouyancy of beer duties was found to be only 0.73 while the rate of beer consumption represented by base-to-income bouyancy was fairly high (2.02). In the case of sugar and cigarettes duties, their tax-to-base bouyancies were higher than that of beer tax being, 1.00 & 1.08 respectively. Nevertheless, due to their low rate of consumption, the bouyancies of these two major taxes were below unity. The rate of consumption of sugar and cigarettes in relation to national income (i.e. base-to-income bouyancy) was 0.97 and 0.87 respectively.

The high bouyancy of direct taxes as can be seen from Table II-1, was a result of very high bouyancy of personal income tax (2.25) and just less than unity bouyancy of corporation tax (0.98). Lack of sufficient data unfortunately, prevents analysis of personal income tax in terms of tax-to-base and base-to-income bouyancies. The available data on taxable income is incomplete because it excludes taxable personal income subject soley to P.A.Y.E. as opposed to that subject to both P.A.Y.E. and SURTAX.

A priori however, it appears that the high personal income tax bouyancy was mainly a consequence of expanding personal income tax-base, i.e. high base-to- income bouyancy. In turn, this was brought about by the reductions during this period of tax allowances of various kinds and the lowering of exemption limits for income tax purposes (See Table IV-1 Ch.4). Tax-to-base bouyancy also played some part in bringing about high personal income tax bouyancy. The role played by tax-to-base bouyancy however, is not so much attributable to the tax rate structure but rather to improvement in tax administration. The rate structure of personal income tax did not change fundamentally during this period. It was the introduction of P.A.Y.E. system of income tax collection which must have had a greater impact on tax-to-base bouyancy. P.A.Y.E. system of income tax collection apart from ensuring prompt payment of tax on accrual of income, has the effect of gradually reducing tax evasion by those on pay-roll and in the process increases the proportion of tax revenue collection in relation to taxable income.

Corporation tax also underwent changes in its structure during the period affecting both its base and the rate structure. The rate of tax for instance, rose from 37½% in 1962/63 to 40% in 1962/63. Profit tax allowances such as investment allowance and capital consumption allowance also became relatively

less generous. Inspite of all these changes, corporation tax bouyancy remained low. The problem can be attributed to both rate structure and tax base growth. Tax-to-base bouyancy which gives a good reflection of the former (i.e. rate structure) was less than unity (0.95). Tax base growth on the other hand was only slightly fast in relation to national income such that base-to-income bouyancy was only 1.03. Besides allowances tax-base growth is influenced by growth of business profits and this in turn is a function of the rate of growth of the manufacturing sector. It seems that the main obstacle during this period was slow growth in the manufacturing sector which affected overall growth of business profits. This is evident from the fact that actual company income increased only twice during the period while both taxable income and national income increased roughly three-fold . A more rapidly growing aggregate company income therefore, given changes in allowances which took place during the period, would have resulted in a higher growth in company taxable income relative to national income. This in turn would have meant a relatively higher base-to-income bouyancy.

B. CHANGES IN THE COMPOSITION OF VARIOUS TAXES IN THE TAX STRUCTURE

A tax bouyancy of 1.26 of the whole tax structure in Kenya between 1962/63 and 1972/73 resulted in three and half times increase in total tax revenue. The annual rate of growth of total tax revenue as can be seen from Table II-2 row one, was neither

uniform nor stable. For no apparent reason except perhaps timing of payments into different fiscal years, tax revenue rose suddenly in 1966/67 but fell drastically the following year. Then, in 1969/70 they grew fast again achieving the highest growth rate (22%) for the period in 1970/71 before falling to a very low rate of growth two years later. However, despite the random nature of annual rate of growth of tax revenue, it is apparent that on average, the rate of growth was on an upward trend.

The fact that individual taxes in the tax structure have different bouyancies from each other and from total tax revenue, implies that each of them taken separately, does not necessarily have to increase proportionately to total tax revenue. Those taxes that have higher bouyancies relative to overall tax bouyancy, naturally grow more than proportionately to growth in total tax revenue and by so doing they increase their relative position versus both total tax revenue and other taxes in the system. The reverse is true of those taxes whose bouyancies are low in relation to the bouyancy of total tax revenue. As for taxes whose bouyancies are equal to total tax bouyancy, their relative position in the tax structure will, on average, remain constant. That is, the average rate of growth for the period will be the same as that of total tax

TABLE II-3

REVENUE FROM VARIOUS TAXES AS A PERCENTAGE OF TOTAL TAX REVENUE

TAX-HEAD	1962/63	1963/64	1964/65	1965/66	1966/67	1967/68	1968/69	1969/70	1970/71	1971/72	1972/73
1. Total Tax revenue(growth rate)	5.2	8.0	11.5	20.5	20.5	12.0	9.0	17.0	22.0	15.9	8.6
2. Personal Income tax	8.	11	8	7	11	15	17	15	19	22	22
3. Corporation tax	24	25	26	29	25	20	21	21	19	19	21
4. Other Direct Taxes	4	0	1	2	2	5	2	7	6	3	5
5. Total Direct Taxes	36	36	35	38	38	40	40	43	44	44	47
6. Excise duties	15	16	16	14	16	17	18	17	16	15	14
7. Import duties	39	37	40	39	38	33	33	32	31	29	23
8. Petrol tax	3	3	3	3	3	3	3	3	2	2	3
9. Licences etc.	2.2	2.2	2.2	2.2	2.4	2.3	2.3	1.4	1.8	2.4	2.5
10.Total Indirect taxes	64	64	65	62	62	60	60	57	56	56	53

Sources:

Computed from (1) Economic Survey (KENYA)

(2) Statistical Abstract (KENYA)

revenue. The actual rate of increase for a particular tax however, may be quite different. From the above, it can be seen that effect of different bouyancies for different taxes in the tax structure, is to change the relative position of individual taxes in the system over time. In the case of Kenya this fact is clearly demonstrated in Table II-3 above.

Table II-3 shows the percentages of various taxes in total tax revenue during the period 1962/63 to 1972/73. At the beginning of the period, indirect taxes comprising mostly of import and excise duties, were dominant in the economy contributing about two thirds of total tax revenue. However, the fact that indirect taxes had a lower bouyancy than overall tax bouyancy meant that they did not maintain their dominance throughout the period. Indirect taxes actually reduced their proportion of total tax revenue gradually so that by the end of the period (1972/73) they were responsible for just a little over half of total tax revenue. In view of their high relative position initially the low bouyancy of indirect taxes could be seen as a deliberate policy on the part of government to reduce her heavy dependence on these taxes. The reduction in the relative position of indirect taxes was achieved almost solely through import duties. It was seen in the last section that import duties, being responsible for more than 55% of total indirect taxes, had a significant influence on the bouyancy of the latter and that in the case of Kenya this influence was negative because the bouyancy of import duties was relatively low. Perhaps this fact is better demonstrated

in Table II-3. From Table II-3, it is evident that import duties and indirect taxes behaved in more or less the same way throughout the period. Both attained their highest relative position versus total tax revenue in 1964/65 and then declined gradually for the rest of the period. But judging from the fall in the respective proportions, it is obvious that after 1964/65 the rate of growth of import duties was lower than that of total indirect taxes. It is interesting to note that the decline in the relative positions of import duties and indirect taxes coincided with a rapid rate of growth of total tax revenue. The implication of course in that import duties and total indirect taxes were growing at a very low rate in relation to both national income and total tax revenue.

On average, excise duties appear to have maintained their percentage contributions of total tax revenue and in the process they increased their relative positions versus both import duties and indirect taxes. Perhaps this is not surprising in view of the fact that the bouyancy of excise taxes was equal to that of total tax revenue and higher than the bouyancies of the other two taxes mentioned above. Two things appear evident from the above. The first, is that the fall in the proportion of import duties in total tax revenue did not at all result in a shift of emphasis towards excise duties. If this had been the case, excise duties would have increased their proportion of total tax revenue over time. The shift was towards direct taxes in particular, personal income tax. A second observation is that the fall in the proportion of indirect taxes was wholly a responsibility of import duties.

Within excise taxes, the three major excisable commodities namely beer, sugar and cigarettes have undergone substantial changes in their contribution to total tax revenue. The ability of excise duties to maintain their proportion in total tax revenue was almost entirely made possible by the behaviour of beer duties. The high bouyancy of beer tax revenues which we saw in the last section, resulted in an increase in beer tax revenue from just over a third to a half of total excise duties during the period. (see Table II-4 below). The proportion of both cigarettes and sugar duties declined at a faster rate than the rate of increase in the proportion of beer tax revenue. So part of credit for the ability of excise taxes to maintain their proportion in total tax revenue is attributed to other excisable commodities introduced during the period. However as mentioned earlier in the case of tax bouyancy, the contribution of these other excisable commodities was very low compared to their tax base. They were responsible for more than half of total excisable commodities and yet their contributions to total excise tax revenue never went beyond ten percent.

The high bouyancy of direct taxes enabled these taxes to increase their proportion of total tax revenue from a third to about half. They are credited for being mainly responsible for the observed growth in total tax revenue during the period.

TABLE II-4

REVENUE FROM MAJOR EXCISE TAXES AS A PERCENTAGE OF TOTAL EXCISE TAX REVENUE

	ITEM	1962/63	1963/64	1964/65	1965/66	1966/67	1967/68	1968/69	1969/70	1970/71	1971/72	1972/73
1.	Beer duties	35.0	36.0	37.1	39.4	37.6	36.9	36.7	38.7	42.2	45.0	51.7
2.	Cigarettes Duties	40.0	40.0	40.2	40.1	36.0	31.0	30.2	31.0	30.0	31.0	32.6
3.	Sugar duties	24.9	23.7	18.7	12.2	15.8	21.4	22.9	22.9	19.9	15.1	14.9

Source: Economic Survey
Statistical Abstract.

Direct taxes increased faster after 1965/66. It is worth noting that this was also the time when the administration of income tax was streamlined by the introduction of P.A.Y.E. system of income tax collection. Among direct taxes, personal income tax revenue performed better than corporation tax. This is a result of the fact that the bouyancy of personal income tax was high than that of corporation tax. However, as can be seen from Table II-3, the relationship between the two taxes is not as simple as that. Corporation tax revenue actually grew faster than personal income tax in the first four years and then grew less fast. The high rate of growth in personal income tax revenue relative to corporation tax revenue after 1965/66 is attributed to the introduction of P.A.Y.E. It resulted in an increase in the proportion of personal income tax revenue in total tax revenue from a mere 7% in 1965/66 to 22% in 1972/73. On the other hand, the proportion of corporation tax dropped from 29% to 21% during the same time. It is therefore clear that during this period personal income tax increased at the expense of both corporation tax and indirect taxes. An alternative way of saying this is that, personal income tax more than any tax in the system contributed greatly to the observed growth in total tax revenue between 1962/63 and 1972/73. Also, it is worth noting that the high bouyancy of personal income tax

during the period ended the dominance of corporation tax as a source of direct tax revenue.

In this Chapter we have measured the bouyancy of tax structure in Kenya and found that total tax bouyancy was relatively low. A look at the bouyancies of individual taxes in the system revealed that all the taxes in the system except two namely, personal income tax and excise duties had bouyancies less than unity. In the second section of the Chapter, we have tried to examine the effect tax bouyancies of various taxes in the economy have had on their relative importance in the structure. It has been found that those taxes which were bouyant increased their relative importance in the tax structure while the less bouyant ones decreased in their relative importance. Another point worth mentioning is that in the case of Kenya, it was found that the less dominant taxes in the economy at the beginning of the period were the ones which were more bouyant. Perhaps this was a deliberate policy desire to move away from dependence on a few taxes.[4]

Footnotes

1. For detailed discussion of how to measure tax bouyancy see G.S. Sahota op. cit. and D.P. Ghai op. cit.

3. Diejamoah - Tax mobilization - IDS discussion paper No. 86.

4. See Budget Speech June 1972 in respect to import duties.

INCOME ELASTICITY OF TAX STRUCTURE IN KENYA 1962/63 - 1972/73

METHODOLOGY:

As was mentioned in the first chapter, calculation of income elasticity of any tax requires the removal of the effects on tax revenue of changes in tax rates and tax bases. There are two views about the way revenue adjustment should be brought about. One view advocates the removal of the effects of discretionary changes on revenue only for the years in which the changes actually occured. So far, the sole advocate of this view is G.S. Sahota.[1] Sahota's main argument in favour of the above method of adjustment rests primarily upon the contention that tax elasticity is growing rather than a static phenomenon. Therefore, he argued that tax revenue should be adjusted for changes in tax rates and tax bases only for the years in which the changes were introduced so as to allow the effects of these changes to play their full role in other years. This according to him, would give a true picture of income elasticity of the tax in question. The trouble with Sahota's method of adjustment however, is that at the end of the adjustment exercise, one is left with a tax revenue series which is not adjusted to a single base-year tax structure. Instead, each year in the series would be a base-year for the year following it. To calculate elasticity using such tax revenue series would be a complete contradiction of the elasticity principle which requires that tax revenue for all the years be reduced to one base-year tax structure. The second method of adjustment - which is adopted in this paper,

advocates complete removal of the effects of discretionary changes on tax revenue throughout the period for which income elasticity of tax is being measured. This method of revenue adjustment was first used by Prest in studying the personal income tax in the United Kingdom. It has since been used by other economists also including Mansfield and Nimeiri in measuring income elasticities of tax structure in Paraguay and Sudan respectively.[2] It has the advantage of reducing tax revenue series to one base-year as demanded by the elasticity principle.

The adjustment process using the latter method is done in two steps. The first step is similar to Sahota's procedure. Estimates of changes in tax revenue brought about by discretionary changes are simply deducted from actual total tax revenue for the year in which the changes occurred. This step, as has already been mentioned above, leaves us with tax revenue series which is based on more than one base-year tax structure. The second step reduces the series to a single base-year (in our case 1962/63) by multiplying tax revenue series obtained by the first adjustment by a sequence of multiplicative factors:-[3]

Where

(1) $T_1, T_2, T_3 \text{ --------- } T_n$ actual tax yield for a series of years (n)

(2) $D_1, D_2, D_3 \text{ ------- - } D_n$ Effects of discretionary changes on the corresponding years' tax revenue as revealed in the budget or financial statements.

(3) T_{ij} - jth year's actual tax yield adjusted for the tax structure that prevailed in the year i.

where i = 1,2,3, -------, n

j = 1,2,3, -------, n

IST STEP

The first step in the adjustment process involves subtracting (2) from (1) as shown below:

YEAR		
1	T_{11}	= T_1
2	T_{12}	= T_2-D_2
3	T_{23}	= T_3-D_3
n	T_{n-1n}	= T_n-D_n

The base-year for any particular year in the series, is the year prior to the change in the tax structure. For instance, year two tax revenue is adjusted to year one tax structure and year three tax revenue is adjusted to the tax structure which prevailed

in year two. It can be seen that year one revenue needs no adjustment because it has no year preceeding it which can be used as a base-year. Year one tax structure therefore is a base-year for itself as well as for year two.

2nd STEP

In the second adjustment, the step one series is multiplied by a sequence of multicative factors. Each of these factors is obtained by dividing the above adjusted tax revenue by the corresponding actual total tax revenue i.e. $\frac{T_{ij}}{T_i}$. The effect of each factor is to adjust tax yields to the tax structure that prevailed in the year to which the factor refers. Multiplying each year's adjusted (by 1st step) tax revenue by each of these factors obtained for the years preceeding it, reduces all the tax revenue in the series to year one base-year:

YEAR

1 $T_{11} = T_1$

2 $T_{12} = T_2 - D_2$

3 $T_{13} = T_{23} \times \frac{T_{12}}{T_2}$

4 $T_{14} = T_{34} \times \frac{T_{23}}{T_2} \times \frac{T_{12}}{T_2}$

n $T_{1n} = T_{n-1,4} \times \frac{T_{n-2}}{T_{n-1}}$ n-1 ---- $\times \frac{T_{23}}{T_3} \times \frac{T_{12}}{T_2}$

Since the purpose of the second adjustment exercise is to reduce all the years' tax revenues to year one base-year, year two tax revenue will remain the same as in the first adjustment. This is because the first adjustment already reduced the revenue for this year to one base-year.

Having obtained the final tax revenue series, income elasticity of a tax is then calculated using either a simple linear regression analysis (i.e. $T = \alpha + \beta Y$) or a log-linear analysis ($T = \alpha Y^{\beta}$ i.e. $\text{Log } T = \text{Log } \alpha + \beta \text{Log } Y$) Where T and Y are tax revenue and national income respectively.

The advantage of using log-linear function is that tax rates multiply items in national income to give tax yields. The use of log-linear function also facilitates calculation of elasticity coefficient. The elasticity coefficient in the log-linear function is the value of "β". On the other hand, the use of a linear function is only a first step in the calculation of elasticity. The coefficient "β" in the simple linear function stands for the ratio of change in tax revenue to change in the national income. To arrive at the elasticity coefficient then, we have to multiply the coefficient "β" by the ratio of national income to total tax revenue ($Y_{/T}$). If therefore the results obtained by the two methods were always the same, it would be advantageous purely on time saving consideration to use the log-linear method. However, the results can be very different and therefore it is safe to use both methods of calculation if time allows. In this particular study, both methods of calculating income elasticity were tried for a few major taxes. The results as can be seen from Table III-1 were surprisingly similar although in general, the linear method results tended to be higher than the log-linear ones.

Recognizing the fact that some taxes may be more correlated and responsive to variables other than national income, an attempt was made in this study to measure the

responsiveness of various taxes in respect to two other variables namely national expenditure and monetary GDP. However for fear of running into multicolinearity problem no attempt was made to combine two or all three of the explanatory variables into a single equation. Each variable was considered separately.

As was shown in Chapter one, income elasticity of a tax can be broken down into two componants - tax-to-base elasticity and base-to-income elasticity. Where data is available, we have split elasticity of individual taxes into these two components. The advantage of doing this is that it helps in identifying the sources and causes of elasticity or inelasticity in a tax structure or any one particular tax.

THE FINDINGS:

Since the results produced by the two methods of calculation are similar, we intend in this section to comment on the log-linear results only. The first striking thing about the results of this exercise, as can be seen from Table III-1 below, is the high correlation which exists between national income and all the taxes which have been considered. In his study of income elasticity of Indian tax structure, Sahota found indirect taxes better correlated with

national income than direct taxes. Other economists carrying empirical studies in different countries have found the opposite results. However, in Kenya, both direct and indirect taxes are closely correlated with national income. One other interesting thing about the findings of this study is that the results obtained by using explanatory variable other than national income are more or less similar to those obtained by using national income as an explanatory variable. Finally, all the constant terms in log-linear regression function were negative for both direct and indirect taxes. This implies that the "α" coefficient in the non-linear equations is throughout less than one.

Table II-1 below, shows that the income elasticity of tax structure of Kenya between 1962/63 and 1972/73 was inelastic being only 0.81. That is, on average, an increase of ten percent in the national income resulted in an automatic increase of only eight percent in total tax revenue. Since government expenditure was increasing faster than national income the implications of such low elasticity coefficient is that during this period, Kenya government could not have relied on the elasticity of its tax structure alone to finance her growing expenditure. An increasing proportion of revenue to finance increments in expenditure had to come from additional tax effort through changes in the tax structure and/or non-tax sources. In Kenya, as was seen in Chapter two, both solutions were applied.

TABLE III

INCOME ELASTICITY OF TAX REVENUE IN KENYA

1962/63 - 1972/73

TAX HEAD	INDEPENDENT VARIABLE	LOG-LINEAR RESULTS			SIMPLE LINEAR RESULTS		
		ELASTICITY COEFFICIENT	$\bar{R}^2$	T-test	Elasticity Coefficient	$\bar{R}^2$	T-test
1. Personal Income Tax	National Income	1.60	0.91	15.72	1.66	0.93	13.64
	Monetary GDP	1.64	0.89	8.10	1.67	0.90	6.20
2. Company Tax	National Income	0.62	0.93	7.95	0.69	0.95	9.12
3. Total Direct Taxes	National Income	1.09	0.99	20.64	1.13	0.98	17.82
	Monetary GDP	1.10	0.98	16.20	1.16	0.96	14.53
4. Import Duties	National Income	0.66	0.87	11.84	0.73	0.93	7.90
5. Ecxise Duties	National Income	0.83	0.98	14.41	0.86	0.95	10.32
	National Expend.	0.86	0.98	17.39	0.88	0.95	7.55
6. Cigarettes Duties	National Income	0.64	0.98	15.27	0.60	0.97	11.89
	National Expend.	0.64	0.98	21.58	0.62	0.98	18.09
7. Beer Tax	National Income	0.93	0.86	5.69	0.99	0.89	4.18
	National Expend.	0.95	0.95	9.37	0.96	0.93	7.63
8. Sugar Tax	National Income	0.96	0.69	2.86	0.98	0.71	3.89
	National Expend.	0.97	0.72	5.42	0.99	0.70	4.08
9. Total Indirect Taxes	National Income	0.63	0.99	21.02	0.64	0.96	10.65
10. Total Tax Revenue	National Income	0.81	0.92	20.13	0.83	0.90	18.14

The inelasticity of overall tax structure in Kenya however, conceals the individual nature of the elasticities of various taxes in the system. In general as can be seen from Table III-1, indirect taxes were more income inelastic than direct taxes.

A. INDIRECT TAXES

On average, indirect taxes were responsible for about sixty percent of total tax revenue in Kenya during the period 1962/63 to 1972/73. This means that their income elasticity or inelasticity had an important role to play in the determination of the elasticity of tax structure as a whole. Such a conclusion follows logically from the fact that income elasticity of any tax system can be calculated as a sum of weighted averages of the elasticities of all the individual taxes in the system.

In Kenya, as can be seen from Table III-1, the elasticity of indirect taxes during the period was very low (0.63). Inview of their proportion in total tax revenue therefore, it seems we must conclude that indirect taxes had an important role to play in bringing about the observed inelasticity of tax structure in Kenya between 1962/63 and 1972/73. There are two major taxes which between them contribute over 85% of total indirect tax revenue. These are import duties and excise taxes. From the analysis of the elasticities of these two major indirect taxes, two conclusions appear evident. First

and foremost, the inelasticity of indirect taxes observed during this period, was a consequence of the inelasticity of both import duties and excise taxes. In turn, the two taxes were income inelastic mostly because of the failure of revenue collection in both cases to grow faster than or as fast as their respective tax bases i.e. due to low tax-to-base elasticity.

IMPORT DUTIES

The share of import duties in total indirect tax revenue during this period was roughly sixty per cent. Its income elasticity as has already been mentioned above was low in character (0.66). The implication is that the greater share of the responsibility for the observed inelasticity of indirect taxes lay on import duties.

An analysis of import duties in terms of tax-to-base and base-to-income elasticity, reveals that both these components played their part in ensuring low elasticity of import duties. Both components had less than unity elasticities. However as can be seen from the equations below, tax-to-base elasticity must clearly bear a large share of the blame. Its elasticity

$$\text{Log } T_m = 0.38 + 0.70 \text{ Log } B_m$$

t-test (1.64) (14.29)

$$\text{Log } B_m = 0.93 + 0.94 \text{ Log } Y$$

t-test (2.02) 12.4

was only 0.70 while base-to-income elasticity was 0.94. Total import duties collection therefore, lagged proportionately to growth in both import tax-base and national income. This has the implication that the marginal rate of import taxation was most of the time below the average rate and consequently the latter was declining over the period. This fact is clearly demonstrated in Table II-2 below. The table shows that, on average, overall average rate of taxation of imports, was on a downward trend between 1963 and 1973. This is so,

TABLE III-2

AVERAGE RATE OF IMPORT TAXATION

YEAR	NET IMPORTS (Overall Av Rate)	TRANSPORT EQUIPMENT MACHINERY	MISC.MANUFAC. ARTICLES	CHEMICAL	FUEL	TEXT. FOOD DRINK TOBAC.
1963	0.23	0.12	0.26	0.07	0.60	0.51
1964	0.21	0.10	0.26	0.07	0.53	0.50
1965	0.20	0.11	0.23	0.06	0.45	0.42
1966	0.20	0.09	0.22	0.07	0.45	0.37
1967	0.19	0.09	0.22	0.06	0.55	0.46
1968	0.21	0.11	0.24	0.06	0.50	0.60
1969	0.21	0.11	0.24	0.06	0.60	0.73
1970	0.21	0.12	0.25	0.05	0.57	0.60
1971	0.20	0.12	0.25	0.06	0.55	0.44
1972	0.17	0.12	0.23	0.04	0.33	0.38
1973	0.18	0.13	0.18	0.04	0.45	0.34

Source: Complied from Economic Survey and Statistical Abstract.

despite the fact that the revenues from which average rates were calculated have not been adjusted for changes in the import tax rate structure which occurred during the period. The implication is that if we assume 1962/63 rate structure, the decline in the average rate of import taxation would even be greater since the rate structure was continually being adjusted upwards during this period.

There are two main explanations for the observed falling average rate of import taxation which in turn, resulted in a less than unity tax-to-base elasticity. The first, is the prevalent use of specific instead of ad valorem taxes. Quite a number of import taxes in Kenya, are specific and are levied on unit measures not value of goods in question. The effect of having specific rather than ad valorem taxes is such that a declining share of the value of a commodity is paid in taxes when its price goes up. Considering that prices of most, if not all imported goods have been rising rather fast, the fact that some import taxes were specific in character must have played a very important part in bringing about the observed slow growth in import duties collection in relation to growth in the import tax-base during this period. This also goes to explain why, in general, the average rates of tax on individual import categories was falling (see Table III-2).

A second explanation for the inelastic tax-to-base elasticity, can be found in the change in the composition of imports which occurred during the period. The change as can be seen from table III-2 and table III-3, was towards categories of imports with lower rates of duty and which consequently contributed only a relatively small portion of total import tax revenue. From the two tables, it can be seen that the four commodities with high rates of import duty namely, food, drink and tobacco, fuel, textile and miscellaneous manufactured articles, constituted only 40% and 31% of total net imports in 1962/63 and 1972/73 respectively and yet they were responsible for 74% and 64% of total import tax revenue in that respect. On the other hand categories of imports with low rates of duty namely, machinery and capital equipment, metal, chemicals and basic material as well as some manufactured goods, were not only responsible for a large proportion of net imports at the beginning of the period but have also been growing relatively fast such that their relative importance has increased. Their contribution to net imports rose from 60% in 1962/63 to 69% in 1972/73 yet they contributed only 26% and 36% of import tax revenue respectively. It goes without saying, that if the first categories of imports (ie high duty imports) had instead increased faster and consequently increased their proportion of net imports, import tax

TABLE III - 3

PERCENTAGE CONTRIBUTION OF VARIOUS IMPORTS TO TOTAL IMPORTS AND TOTAL IMPORT DUTIES IN 1962/63 AND 1972/73

ITEM	% OF TOTAL IMPORTS		% OF TOTAL IMPORT DUTIES	
	1962/63	1972/73	1962/63	1972/73
1. Food, Drink & Tobacco	9	7	18	15
2. Textile	13	5	22	13
3. Fuel	11	11	25	13
4. Misc. Manufactures	7	8	9	8
5. Machinery & Transport equipment	26	33	13	10
6. Chemicals	7	11	3=	3

Sources: Statistical Abstract (Kenya)
Economic Survey (Kenya)

revenue would have grown more rapidly than it did between 1962/63 and 1972/73. Alternatively, if rates of duty on the fast-growing categories of imports had been relatively higher, import tax revenue would have grown faster, a thing which in

turn would have resulted in a higher tax-to-base elasticity than that experienced during the period. Therefore the reason for the low tax-to-base elasticity and the consequent low elasticity of import duties, lies partly in the fact that categories of imports with low rates of duty were growing faster than those with high rates of duty. To put it in a better way for our purpose, the problem was that rapidly expanding imports had lower rates of duty imposed on them while slow growing imports were subject to high rate of import duty.

In turn, rates of duty on the fast-expanding import categories were low between 1963 and 1973 as a deliberate part of Kenya government policy. The basic principles underlying the rate structure of import taxation in Kenya are protection of home industries most of which are of light type such as textile, encouragement of investment by among other things imposing low or no import duty on capital inputs and finally moderately high taxation of consumer imports for revenue purposes. In general, such a policy, better known as import substitution, tends to restrict growth of consumer imports and luxuries and enccurage growth of capital inputs such as machinery and transport equipment. To the extent that the latter have low rates of duty imposed on them, the over-all effect on tax revenue is a less than proportionate increase in the import duties collection relative to the increase in the import tax base. Besides being responsible

for the slow growth of import tax revenue collection relative to import tax base, this policy must also have contributed to the observed slow growth of import tax-base in relation to national income, a thing which is supported by the fact that base-to-income elasticity was less than unity. The implication is that the negative effects of high rate of duty on consumer imports more than offset the positive effects of low rates of duty on capital imports. This implies that the rate of decline in the rate of growth of high duty consumer imports was higher than the rate of increase in the rate of growth of low duty capital imports. This in turn, probably means that high duty imports found fairly good substitutes at home. If there were no substitutes, imports of these commodities would have grown fast enough to give base-to-income and probably over-all import duties an elastic character. A case in in point is that of paraguay. In his study of tax structure in Paragnay, Mansfield found tax-to-base elasticity of import duties as inelastic as that of Kenya (0.70). However, unlike Kenya, paraguay's base-to-income elasticity was more than unity (1.56). Consequently paraguay's import duties were found to be income elastic. This shows that inspite of the low tax-to-base elasticity, Kenya's import tax revenues would have had an elastic character if only imports had grown faster than they did between 1962/63 and 1972/73

However, for balance of payments purposes, it is not to the advantage of any country to have its imports grow fast. This implicitly means that the problem of elasticity of import duties in Kenya should be tackled from tax rate structure rather than tax-base growth.

(ii) EXCISE TAXES

Excise taxes are the second largest indirect taxes contributing about 28% of total indirect tax revenue. Their elasticity between 1962/63 and 1972/73 as can be seen from table III - 1 was income inelastic (0.83) but nevertheless relatively higher than the elasticity of import duties.

As in the case of import duties, the low elasticity of excise taxes during this period was mainly a consequence of low tax-to-base elasticity. The elasticity of the latter as shown in the equations below was only 0.62 while base-to income elasticity was 1.35. Such a result, is again an

$$\text{Log } T_e = -0.52 + 0.62 \log B$$

$$\text{t-test} \qquad (5.32) \qquad (12.39)$$

$$\text{Log } B = -6.06 + 1.35 \log Y$$

$$\text{t-test} \qquad (3.14) \qquad (9.11)$$

indication a falling average rate of excise taxation over time. Again we can cite the use of specific instead of ad valorem duties as one of the most important reasons accounting for the slow growth of tax revenue relative to growth of excisable

commodities. During the period under consideration, sugar, beer and cigarettes were being taxed on specific basis. Another contributing factor was the rate structure of excise taxes. There was too much emphasis on sugar, beer and cigarettes almost to the exclusion of other locally produced commodities whose consumption was as high if not higher than that of the three commodities. The result, as was the case with import duties, is that excise tax revenue collection lagged proportionately to consumption of excisable commodities as a whole. Finally, a part from taxing a large number of commodities at low rates as mentioned above, the 1962/63 tax structure also excluded completely from excise taxation a number of locally produced commodities. To the extent that consumption of some of these commodities was high, their inclusion would have enhanced excise tax elasticity via higher base-to-income elasticity.

(a) Beer duty

Beer tax revenues which were responsible for about 40% of total excise tax revenue between 1962/63 and 1972/73 were income inelastic (0.92). The low elasticity as can be seen from the equations below, was experienced despite a very high base-to-income elasticity (2.01) ie. high beer consumption. The problem therefore was with

$$\text{Log } B_b = -10.31 + 2.01 \text{ Log } Y$$

$$\text{t - test} \quad (8.04) \quad (9.81)$$

$$\text{Log } T_b = -0.19 + 0.46 \text{ Log } B_b$$

$$\text{t-test} \quad (2.88) \quad (10.38)$$

tax-to-base elasticity or growth in tax revenue collection in relation to growth in beer consumption. Tax-to-base elasticity as can be seen from the equations was only 0.46. This implies that tax collection lagged proportionately to consumption of beer. In turn this seems to be a consequence of a combination of low rates of duty imposed on beer during this period and more importantly the use of specific instead of ad valorem duties. The observed high base-to-income elasticity puts a strong case for heavier taxation of beer for revenue purposes. Increase taxation coupled with the use of ad valorem taxes would result in a higher tax-to-base elasticity without necessarily reducing base-to-income elasticity. However there is an arguement that high rates of duty on beer would render beer tax regressive since beer is consumed by all income groups in the society but more so by the poor.

(b) Cigarettes duty

This is the second largest excise tax in the Kenyan economy. During the period, it contributed about 32% of total excise tax revenue. Table III-1 shows that of the three major excise taxes, cigarettes duties were the most inelastic (0.64). As can be seen in the equation below, tax-to-base elasticity was probably mainly to blame

for the observed inelasticity of cigarettes duties. The elasticity of the latter was only 0.67 while

$$\text{Log } T_C = -0.27 + 0.67 \text{ Log } B$$

t-test (2.53) (7.34)

$$\text{Log } B = -3.15 + 0.95 \text{ log } Y$$

t-test (3.15) (9.18)

base-to-income elasticity was 0.95. The low tax-to-base elasticity seems to be a consequence of the use of specific taxes as well as lack of progressivity in cigarettes duties in the sense that high quality cigarettes were not taxed heavily enough. Base-to-income elasticity on the other hand was less than unity perhaps partly because some local consumers consider locally manufactured cigarettes as inferior good. Consequently, when their incomes rises, they tend to switch to the imported brands. In such a case, consumption of locally manufactured cigarettes and therefore base-to-income elasticity of cigarettes duties could be increased by imposing high duties on imported brands. However, inview of the small proportion of imported cigarettes, it is

not expected that this action will increase base-to-income elasticity of cigarettes duties substantially.

(c) Sugar duty

Like the other two excise taxes already considered, sugar duties were income inelastic (0.95) but their elasticity was relatively higher than that of the other two taxes. As can be seen in the equations below, sugar duties had a unitary tax-to-base elasticity and a base-to-income elasticity of 0.95. So, of the three

$$\text{Log } Ts = -1.31 + 1.00 \log B$$

$$\text{t-test } (12.21) \qquad (19.87)$$

$$\text{Log } Bs = 3.80 + 0.95 \log Y$$

$$\text{t-tes } (2.20) \qquad (3.28)$$

major excise taxes only sugar duties had a reasonable tax-to-base elasticity coefficient. This is a result of high rate of duty imposed on sugar. Of the three excise taxes, government considers sugar consumption as a luxury and a function of income and therefore may have seen it fit to tax sugar more heavily for revenue purposes. As for the low base-to-income elasticity, it appears that the problem may well be low production rather than low consumption of locally produced sugar. In other words, the observed low consumption of locally produced sugar could be a result of limited supply rather than low demand. As sugar production expands, base-to-income elasticity can be expected to become more elastic and

therefore sugar duties as a whole would be income elastic too.

B. DIRECT TAXES

Table III-1 show that direct taxes were slightly income elastic (1.09). The observed elasticity was brought about by a combination of highly elastic personal income tax and an inelastic corporation tax.

(a) Personal Income Tax

Among the four major taxes in the Kenyan economy namely, corporation tax, personal income tax, excise tax and import duties, personal income tax was the only elastic tax. It had an income elasticity of 1.60. Lack of sufficient data however, prevents a detailed analysis of its elasticity interms of tax-to-base and base-to-income elasticities as has been done with other taxes. The data on taxable personal income which would have made such analysis possible is incomplete in the sense that it omits that portion of personal which is subject to P.A.Y.E. and SURTAX.[4] The use of another variable as a tax-base, say, the number of people subject to income taxation is unlikely to produce better results since the same omission is made here too ie. the number of people paying income tax by P.A.Y.E. alone is not recorded.

Netherless, a priori, it appears that the high elasticity of personal income tax was a consequence of more than unity tax-to-base elasticity and less than unity or perhaps only slightly more than unity base-to-income elasticity. Tax-to-base elasticity is usually influenced by the rate structure and tax administration. The probable high tax-to-base elasticity which was experienced during the period could be attributed to both factors. Income tax administration improved tremedously following the introduction in 1966 of P.A.Y.E. system of tax collection. P.A.Y.E. did not only solve the problem of timing of tax revenue collection, but it also resulted in an increasing amount of revenue being collected at the same rate structure. The rate structure itself also played some part in bringing about high tax-to-base elasticity. However, considering that it was only slightly progressive in 1962/63, its contribution compared to that brought about by improvement in tax administration, must have been small.

On the other hand, there are reasons for believing base-to-income elasticity of personal income tax must have been less than unity or only slightly more than unity during this period. Growth of personal income tax-base is determined among other things, by the number and magnitude

of tax allowances of various kinds and tax evasion. Big allowances imply slow growth in tax-base and therefore low base-to-income elasticity. The system of tax allowances in Kenya in 1962/63 was rather generous such that taxable income, calculated as the difference between actual income and total allowances, must have grown less than proportionately to national income or at best at the same rate. Single allowance for instance, was £225 which was six times the country's average per capita income. In 1958/59 and 1965/66 they were £200 and £216 respectively. On the other hand, married allowance was £700 in 1962/63 while in 1958/59 and 1965/66 it was £350 and £480 respectively.[5] It can therefore be seen that the system of tax allowance in 1962/63 did not at all favour expansion of personal income tax-base. Hence, base-to-income elasticity must have been inelastic or at best only slightly elastic.

(b) Corporation tax

The income elasticity of corporation tax which contributed about 55% of total direct tax revenue was less than unity (0.62). As shown in the equations below, the observed inelasticity was a result of inelastic tax-to-base elasticity and only slightly elastic base-to-income

$$\text{Log } T_C = -0.39 + 0.60 \log B_C$$

$$\text{Log } B_C = -2.74 + 1.03 \log Y$$

elasticity. The major factors which influence base-to-income elasticity are the rate of growth of profits, which depends on rapid economic development, particularly rapid growth in the manufacturing sector, tax evasion and deductions for purposes of determining taxable profits. In Kenya, deductions have not been particularly generous. So, the responsibility for the slow growth of taxable profits lies mostly with growth of overall profits. That this is so, is supported by the fact that during this period, overall company profits increased only two-fold from £27.21 million in 1962 to £57.82 million in 1973, while both taxable profits and national income increased three-fold during the same period of time. The three-fold increase in taxable profits was achieved in the face of slower growth in overall company profits because of a decline in deductions both in absolute and relative terms. The amount of deductions actually fell from £9.78 million in 1962 to £2.03 in 1973. In turn, the slow growth of over-all company profits during this period, is mostly attributed to the rate of growth of the manufacturing sector. It appears that the manufacturing sector did not grow fast enough during this period. A second factor which might have lead to slow growth of overall company profits is tax evasion. The effect of tax

evasion is such that it leaves a certain amount of company profits unrecorded and should this amount increase with time, growth of overall profits is slowed. This may well have been the case in Kenya between 1962/63 and 1972/73. However, it is difficult to tell precisely the extent to which tax evasion contributed to the slow growth company profits. All that is known is that it is there and it played some part. Tax evasion by companies usually takes the form of underinvoicing of receipts and over-invoicing of costs. Its existence is an indication of inefficiency in tax administration.

Tax-to-base elasticity of corporation tax as has already been mentioned above, was inelastic (0.60). In cases where corporate tax is levied at a proportionate rate, tax-to-base elasticity cannot exceed unity and cannot be less than unity given efficient tax administration. In the case of Kenya, the low tax-to-base elasticity is attributed mostly to the absence of a uniform rate of corporate tax. The standard rate of corporate tax in 1962/63 was 37½%. However, certain businesses such as mining companies and trusts, enjoyed a lower rate of tax than the one given above while other companies which are branches of parent companies abroad, suffered higher rate of profit tax. For this to result in an inelastic tax-to-base

elasticity, it must be that taxable profits of those businesses enjoying lower rate of corporate tax were growing faster than taxable profits of businesses with higher rate of corporate tax. Another factor which could have contributed to the observed low tax-to-base elasticity is tax administration. Inefficiency in tax administration can result in less revenue being collected given taxable income. However, it can only affect tax-to-base elasticity if the proportion of revenue which goes uncollected changes with time. A decreasing proportion enhances tax-to-base elasticity while an increasing one tends to lower tax-to-base elasticity. In the case of Kenya, it is not easy to tell to what extent tax administration was responsible for the slow growth of corporation tax revenue in relation to taxable profits.

Footnotes

1. G.S. Sahota op. cit.

2. A.R. Prest "The Sensivity of the Yoeld of Personal Income Tax in the U.K." Economic Journal (Sept. 1962); C.Y. Mansfield op. cit. and S. Nimeiri op. cit.

3. Charles Y. Mansfield op. cit. 426.

4. See Statistical Abstract (KENYA) and E.A. Community Income Tax Department Annual Report.

5. M.J. Westlake - "Income distribution, tax evasion and avoidance in Kenya" (Research Paper).

CHAPTER IV

SUMMARY AND CONCLUSIONS

A comprison of tax bouyancy in chapter two and income elasticity in the preceeding chapter, reveals that during the period under consideration, Kenya was dependent for nearly 40% of her tax revenue increments on discretionary changes in her tax structure. Admittedly, the tax structure itself was not very bouyant, probably, a reflection of the fact that during this period the country was in a good position to marshall enough revenue from non-tax sources both internally and externally. There is no reason however to suppose that this trend will continue for long. As public expenditure continues to grow it seems likely that government will have to rely more heavily on tax sources of revenue. Consequently, a more bouyant and income elastic tax structure will be required so that tax revenue may grow faster than both expenditure and non-tax revenue.

Another interesting thing about the tax bouyancy and income elasticity results is that those taxes whose ratio of total tax revenue was relatively high at the beginning of the period had comparatively lower elasticities and bouyancies. For instance, indirect taxes whose percentage of total tax revenue in 1962/63 was 64% were both less bouyant and less elastic compared to direct taxes. However to be able to raise the amount of revenue

attributed to it during the period, direct taxes were slightly more dependent on discretionary changes than indirect taxes[1]. In other words, the gap between tax bouyancy yield and hypothetical income elasticity yield was narrower in the case of indirect taxes than direct taxes. For every ten percent increase in indirect tax revenue, discretionary changes were responsible for 36% while in the case of direct taxes the figure was 40%. Both these observations are an indication of the effort the country is making towards changing the composition of its tax structure in favour of low ratio taxes.

Among indirect taxes, excise taxes were found to be both more bouyant and income elastic than import duties. Excise taxes were also slightly more dependent on tax bouyancy for increments in its revenue than import duties. Once again this can be seen as part of government's deliberate policy desire to move a way from heavy reliance on external taxes to internal ones. In the long-run, the former is a very unreliable source of government revenue particularly in a country like ours which is pursuing an import substitution policy.

Corporation tax, with an initial high total tax ratio, was not only less bouyant and less elastic than personal income tax but its bouyancy and elasticity coefficients were less than unity. as a result therefore, personal income tax increased its share of total direct taxes relative to corporation tax. However unlike the case of import duties, the resultant shift in the composition of corporation tax in total direct tax revenue, may

not be described as a deliberate part of government policy aimed at shifting away from corporation profits tax to personal income tax. The most likely reason is that during the period, there existed a high potential for heavier taxation of personal income than corporation profits. Business profits were growing rather slowly and so corporation tax revenue was bound to grow less rapidly too. The slow growth in business profits as was seen in the preceeding two chapters, was less a result of big investment allowances as a consequence of slow growth in the manufacturing sector. In the short period we are considering, the latter is by and large outside government influence.

MAJOR CHANGES IN THE TAX STRUCTURE FROM 1972/73 - 1975/76[2]

The following are changes which have taken place in the tax strcture of Kenya from 1972/73, the time when this study ends, to 1975/76. It is hoped, that this would give an insight into the current elasticity of tax structure as compared to the period before 1972/73.

1972/73

1. Increase in custom duties on luxury and semi-luxury items.
2. Introduction of a ten per cent sales tax on locally manufactured and imported goods.
3. Introduction of consumption tax on certain locally produced luxury goods such as electricity, torch and transistor batteries, footwear, tyres etc.

1973/74

1. Cigarettes - up by between 10cts. to 25cts a packet.
2. Introduction of tax relief system of deducting allowances for income tax purposes. It led to lowering of various tax allowances.

1974/75

1. Beer - A half-litre bottle rose by 25cts. ,the revenue earning 21cts. and 4cts. to compensate the breweries for part of cost increases.
2. Cigarettes - Price per packet were up by between 15cts. for the cheapest brands to 50cts. for the more expensive ones. Imported cigarettes went up by 1/=.
3. Petrol - Up 20cts. alike, normal rate of sales tax to apply to lubricant and greases.
4. Luxury items - Sales tax up from 10% to 15% on wines, cameras, travel goods, domestic refrigeraters, washing machines etc.
5. Company profits - Tax up from 40% to 45%. The rate of tax on foreign branches up from 47½ to 52½%.

1975/76

1. Introduction of capital gains tax
   (a) A tax of 15 per cent of the value of real property and shares charged on all transfer instruments when property and shares are sold.

(b)

(b) A tax of 15 per cent on the value of real property and shares of deceased persons.

(c) Maximum tax liability being 35% of the difference between what was paid and what was received.

2. Beer - went up by 40 cts.
3. Luxury items - Sales tax up to 20%
4. Introduction of a 10% tax on raw materials and machinery items hitherto untaxed.
5. Cars - duty up to 7% to 20%
6. Imported clothing up by 10%. Replacement of specific taxes on a wide range of import.

HOW ELASTICITY COULD HAVE BEEN ACHIEVED AND THE EFFECT OF POST--1972/73 TAX POLICY CHANGES ON CURRENT ELASTICITY OF TAX STRUCTURE:

What is evident from the findings of this study is that the tax structure of Kenya between 1962/63 and 1972/73 was inflexible and income inelastic. It could neither act effectively as an instrument of stabilization nor could it be relied up to play a leading role in financing increasing expenditures. Consequently, the country relied heavily on non-tax sources of revenue and discretionary changes in her tax structure for increments in its revenue requirements during the period.

For a tax structure to be income elastic, it is essential that either all the taxes comprising it have income elasticities

above unity or elastic taxes must also be the dominant taxes in the system. Neither of these conditions seems to have been met in the case of Kenya during this period. Indeed apart from personal income tax, all other major taxes in the system namely import duties, corporation tax and excise duties were income inelastic. Yet put together, these three were responsible for over 80% of total tax revenue. Therefore, in order to raise the elasticity of Kenya's tax structure above what it was between 1962/63 and 1972/73, action needs to be directed towards raising the elasticities of some if not all of the above mentioned major taxes.

(i) INDIRECT TAXES.

Inspite of the low bouyancy and low elasticity compared to direct taxes, indirect taxes are still an important source of government revenue responsible for a little over half of total tax revenue in 1972/73. The implication of this is that indirect taxes still have an important role to play in the determination of the elasticity of the overall tax structure in Kenya. It was largely because of the inelastic character of these taxes and the fact that they were responsible for about two thirds of total tax revenue in 1962/63, that overall tax structure in Kenya was income inelastic between 1962/63 and 1972/73. Although their share in the tax structure had fallen by 1972/73, the ability of these taxes to offset the impact of elasticity of direct taxes on the elasticity of total tax revenue still exist

should their own elasticity remain as low as it was between 1962/63 and 1972/73. It is for this reason that effort should be direct towards raising elasticity of indirect taxes. By so doing, there is a real possibility that income elasticity of the overall tax structure will rise well above unity.

One way of raising income elasticity of indirect taxes is by increasing elasticity of import duties. In Kenya, there is doubt as to whether it is reasonable to expect import duties to play an important role in the determination of overall tax elasticity in the future. It seems that in the long-run, as import substitution policy begins to take hold, import duties can neither be an elastic nor a bouyant source of revenue. However in the short and intermediate run, there is a possibility of making import duties income elastic. It was found in chapter three that the real causes of inelasticity of import duties were a falling average rate of taxation over time, and a low base-to-income elasticity. The former, is a result of an import duty rate structure that was biased infavour of fast-expanding imports such as machinery, capital inputs, chemicals and raw materials. The latter, on the other hand, is usually a function of the the country's propensity to import as well as a function of tax exemptions. During the period, base-to-income elasticity was influenced by the behaviour of these two factors. However, since

it is not optimal development policy to allow an increase in the propensity to import, base-to-income elasticity of import duties can in future be raised only by reducing the number and the amount of duty-free imports. In this respect, the decision in 1974 to impose import tax on imports by the Kenya government and East African Community and the introduction in 1975 of a 10 per cent tax on raw materials and some capital goods hitherto duty-free, was a step in the right direction. These are goods whose imports have been rising rather fast compared to other imports. Consequently their inclusion into the import tax bracket will greatly enhance the import tax-base growth which in turn implies a relatively high base-to-income elasticity. But in the intermediate-run, when all the important categories of imports have been brought into the import tax bracket and when the import tax exemption limits have been reduced to a reasonable minimum, the way to increase elasticity of import duties is through tax-to-base elasticity via import tax rate structure and the use of ad valorem as opposed to specific taxes. The rate structure of import duties should be such that as income rises, the increments in import consumption is in the import categories with high import taxes. As was seen in the last two chapters, this was not the case in Kenya between 1962/63 and 1972/73. Import categories such as capital goods, transport equipment, machinery and chemical whose propensities to import were very high during the period were taxed at very low rates of duty. While there is no dispute about

the need to encourage investment, we would like to argue that the present inducements in the form low rates of duty on these categories of imports, are in excess of what is necessary to encourage the corresponding flow of investment. It is the view of this paper therefore, that tax allowances on these imports should be lowered further and rates of duty be raised relatively higher than they were between 1962/63 and 1972/73. Such a step if implemented with care, is unlikely to have disincentive effects on investment both foreign and domestic. At the same time, it would impart an elastic character to import duties at least in the short and intermediate run. Also during the period, certain consumer durables whose income elasticity of demand is elastics, enjoyed relatively low rates of import tax. Among these imports are luxury and semi-luxury items such as motor-cars, cameras, films and many other manufactured items. As can be seen in the preceeding section, the rates of duty on these imports have been going up in the last four budgets. This would lead to an increase in tax-to-base elasticity which in turn will increase overall elasticity of import duties. The elasticity of import duties also suffered during the period 1962/63 to 1972/73 because of widespread use of specific instead of ad valorem taxes. The introduction in 1972/73 of sales tax on imports other than inputs and subsquent changes in the last three budgets, had radically altered this situation. It appears therefore

that import duties are relatively more elastic today than they were between 1962/63 and 1972/73. There is still room for making them more income elastic by way of having a more progressive rate structure and further reduction of tax allowances.

In the long-run, as import substitution policy begins to bear fruits, elasticity of indirect taxes in Kenya, would be determined by the elasticity of excise taxes alone rather than excise taxes and import duties as will be the case in the short and intermediate-run. The implication of this is that the present trend whereby excise duties are relatively more income elastic and more bouyant than import duties should be maintained and intensified. This gradually prepares way for excise duties to take over as the sigle most important source of indirect tax revenue when revenue productivity of import duties fall as a result of a fall in the import tax base. Elasticity of excise duties in Kenya depends on the consumption of commodities manufactured in East Africa and the tax rate structure. During the period under study, excise duties in Kenya were income inelastic, but as experience elsewhere in the developing world shows, there seems to be no reason why they cannot be income elastic. In India for instance, excise duties had income elasticity of 1.62 while in Paraguay the figure was even high 2.4[3]. The inelasticity of excise taxes in Kenya between 1962/63 and 1972/73 was brought about by a number of

factors which included low rates of duty on excisable commodities, narrow coverage and the use of specific instead of ad valorem taxes. Indeed, as mentioned elsewhere in the second and third chapters, excise tax revenue depended almost entirely on three commodities namely beer, cigarettes and sugar. The situation has however changed even since 1972/73. The introduction of sales tax and consumption tax in 1972/73 solved the coverage problem and reduced the dominance of the above three commodities as the most important sources of internal indirect tax revenue. Unlike excise taxes sales tax and consumption tax are also ad valorem in character. Therefore, the introduction of sales tax and consumption tax is likely to lead to the achievement of highly elastic tax yield from those domestically manufactured commodities subject to these taxes. This will be a result of both high tax-to-base and base-to-income elasticities. The former is brought about about mostly by the use of ad valorem taxes and progressive rate structure. The latter on the other hand will be brought as a result of rapid growth in the tax-base due to imposition of tax on a wide range of commodities. The position has also changed slightly for the three most important sources of excise taxes namely beer, sugar and cigarettes. The rates of duty on these commodities have been rising since 1972/73. However inview of the fact that the tax on these commodities is still specific rather than ad valorem, the influence of the

increases in the rates of duty on the elasticity of revenue from these taxes is minimal. There is need for ad valorem taxes on these commodities if longrun elasticity of excise taxes is to be guaranteed.

As a whole therefore, most of the factors which contributed to the inelasticity of excise duties which was the only major source of internal indirect tax revenue between 1962/63 and 1972/73 are being modified. The introduction of sales tax will not only impart elasticity into the internal indirect tax revenue because of its ad valorem nature and coverage, but will also in the long-run result in internal in indirect taxes becoming the single most important source of government indirect tax revenue. The latter is necessary since import duties may in future decline in importance as a result of import substitution. Sales tax could be made more income elastic in future by modifying the rate structure such that instead of a flat rate on all commodities, higher and progressive rates of tax should be imposed on those commodities other than necessities, whose consumption is a positive function of income. The 1974/75 and 1975/76 budgets introduced some of these changes by raising the rate of tax on luxury and semi-luxury items from the

original flat rate of 10% to 15% and 20% in the two years respectively. It is hoped that this trend will continue with an aim of making the tax more progressive and income elastic. The introduction of sales tax and subsequent changes, have left beer, sugar and cigarettes taxes as the only sources of excise tax revenue. Since prices on these commodities are likely to remain on the upward trend, the continued use of specific taxes on these commodities is likely to render excise tax revenue income inelastic inspite of increased rates of tax. At the existing rates of duty, tax revenue from beer, sugar and cigarettes would be relatively income elastic if the taxes were ad valorem.

(ii) DIRECT TAXES

Direct taxes were found to be only slightly income elastic but there is considerable scope for substantially increasing their elasticity in future. To understand how elasticity of these taxes can be increased, we have to turn to a more detailed analysis of the two major direct taxes namely. personal income tax and corporation tax which between them contribute more than 95% of total direct tax revenue.

CORPORATION TAX

The revenue productivity of corporation tax depends on a number of factors which include the rate of growth of

company chargeable income, tax administration. and the rate structure of the tax. Usually, company profits are subject to a proportionate tax. Where this is the rule, the rate structure of tax cannot in any way be manipulated to influence tax-to-base elasticity or overall elasticity of the tax. Given an efficient tax administration, the charging of a proportionate tax on profits can only result in unity tax-to-base elasticity since average and marginal rate of taxation are equal. In such a case, the only way that overall elasticity can be increased above unity is through growth in company profits. The position in Kenya in respect to the rate structure, has been such that three proportionate rate of company tax have been operated two for resident companies and one for branches of foreign companies respectively. The rate of tax on the profits of the latter group of companies has always been greater that the rate of tax on the profits of resident companies. In 1962/63 for instance, branches of foreign companies were subject to 40% profit tax while resident companies were subject to 37½% profit tax.Another aspect of Kenya's corporation tax is that the rate of tax is influenced by rates existing in developed countries such as Britain which are the main sources of this country's foreign investment capital. There are double taxation agreements between Kenya and some of the developed countries to the effect that whenever profits are remitted to these countries, the receiving country would tax an amount equal to the difference between the

rates of operating in Kenya and that country provided the Kenya rate is the lower. The effect of such agreement is such that Kenya has been able to vary its rate of corporation tax without causing disincentive effects on foreign and domestic investment. As a result therefore, Kenya's rate of corporate tax has been on an upward trend in line with the rates of tax in the developed countries. By 1973/74 the rate of corporation tax had increased from 37½% and 40% in 1962/63 to 45% and 47½%. However as long as the tax is proportional, the magnitude of the rate has no influence on elasticity i.e. tax-to-base elasticity would remain unity irrespective of whether the rate of corporation tax is 40% or 45%. The other major determinant of corporation tax productivity or elasticity is the rate of growth of company chargeable income. The two major factors influencing the rate of growth of company income, are the rate of growth of company profits which depends on rapid growth in the manufacturing sector and the size and growth of deductions allowed for purposes of determining taxable income. A high rate of growth of company chargeable income implies high base-to-income elasticity and consequently relatively high overall elasticity of corporation tax revenue.

In Kenya, during the period 1962/63 to 1972/73 corporation tax revenues were not only income inelastic but they were also not bouyant despite several changes which occurred

in the structure of the tax. The reasons for the inelasticity included slow growth of company profits, system of tax allowances such as investment allowances and capital consumption allowances, tax administration and tax rate structure. The latter two factors affected tax-to-base elasticity which was found to be inelastic. It was seen earlier that in a situation where a proportionate tax is used, tax-to-base elasticity ought to be unity given an efficient tax administration. In such a case if tax-to-base elasticity is below unity then the blame should clearly go to tax administration. The situation in Kenya however, was a bit different because as mentioned earlier, there were three rates of tax applying to different groups of companies. The low tax-to-base elasticity therefore, could have been a result of both inefficient tax administration which might have resulted in less revenue being collected given chargeable income, and the rate structure of the tax. The use of three proportionate rates of tax on different groups of companies can result in a low tax-to-base elasticity if chargeable income of those companies subject to a lower rate of tax grow relatively faster. This may well have been the case in Kenya between 1962/63 and 1972/73. It is however difficult to tell to what extent each of these two factors contributed to the low tax-to-base elasticity of corporation tax. Suffice to say that an improved tax administration and the use of a single rate of

tax for all companies, would probably have resulted in unity or close-to-unity tax-to-base elasticity, consequently corporation tax revenue would have been more income elastic than it was during the period under consideration. The adverse effect which tax administration may have had on tax-to-base elasticity may soon be brought under control. The transfer in 1973 of the responsibility for income tax and corporation tax collection from the East African Community to individual states, is likely to lead to greater efficiency in tax collection.

In the long-run it seems the problem of the income elasticity of corporation tax will have to be tackled from base-to-income elasticity component. Between 1962/63 and 1972/73, this component of elasticity was only just elastic. There are two possible reasons why company chargeable income did not grow fast enough during this period. The first seems to be narrow coverage of business profits for tax purposes. In turn, this is a result of excess allowances given to certain companies for the purpose of encouraging investment, tax evasion and underassessment of business profits. It is not however easy to apportion responsibility for the inelasticity separately to each of these factors. Nor is it possible in the absence of documentary evidence to say with clarity by how much all of them together may have contributed to the observed low base-to-income elasticity of corporation tax. However, as was shown the preceeding chapter, tax allowances were not

particularly generours and consequently their influence may have been relatively small. Tax evasion and the consequent under-assessment of profits for tax purposes might have played an important role in bringing about relatively low base-to-income elasticity of corporation tax revenue. It is usually a function of poor-tax administration. With the creation of a national income tax department in 1973 in place of the East African income tax department, and the subsequent recruitment of university graduates to undergo intensive courses in income tax and corporation tax assessment and collection, it is hoped that the problem of poor tax administration would be reduced to a minimum. Companies may soon find it very difficult to evade taxes. A second reason for the low base-to-income elasticity during this period appears to be slow growth in company profits in general. As was mentioned earlier, the growth of company profits depends mostly on the rate of economic development particularly rapid growth in the manufacturing sector. It seems that the manufacturing sector did not grow fast enough in Kenya especially in the early years of this study. However, because of import substitution policy being pursued now, there is reason to believe that in future the manufacturing sector is likely to grow faster than in the past. If this should happen, company profits are sure to grow faster too and this, coupled with improved tax administration and reduced investment and capital

consumption allowance would lead to a higher elasticity of corporation tax than it was between 1962/63 and 1971/73.

PERSONAL INCOME TAX

As has been mentioned elsewhere in chapter two and three, lack of sufficient data on taxable personal income makes the analysis of elasticity of this tax interms of tax-to-base and base-to-income elasticities rather shaky. However, a priori, it seems that the high income elasticity of personal income tax (1.60) experienced during this period was mainly a consequence of improved tax administration which accompanied the introduction of P.A.Y.E. system of income tax collection. It was also to some extent a product of the rate structure which was slightly progressive. On the other had, it appears that personal taxable income did not grow sufficiently fast in relation to national income. There are two reasons for believing that this might have been the case. The first and probably the most important reason is that during this period, tax exemption limits and tax allowances of various kinds were fairly high and therefore generous. This fact is clearly demostrated in table IV-1 below which contrasts personal income allowance in Kenya in 1962/63 and 1973/74 with those of Britain in 1962/66. From the table, it can be seen that allowances for

TABLE IV - 1

PERSONAL INCOME TAX ALLOWANCES IN KENYA AND BRITAIN

	KENYA		BRITAIN
	1962/63	1972/74	1965/66
Single	£225	£180	£222
Married	£700	£360	£340
Child	£135	£90	£115-£165

Sources: Budget statement 1973/74

Diejomaoh - IDS discussion paper No.86

M.J. Westlake -"Income distribution Tax evasion and avoidance in Kenya" (Research Paper).

personal income tax in Kenya in 1962/63 were very generous. The single allowance was equal to that of Britain while married allowance was twice Britain's, a country whose average per capita income is several times the average per capita income of Kenya. Such high allowances simply imply that those whose earnings are high deserve an amount income well above the average per capita income before they begin paying tax. As far as Kenya is concerned the 1962/63 single allowance was more than seven times the average per capita income. In a country where a large proportion of the population live below average per capita income, such big allowances were clearly unjustified. Perhaps the only grounds for having such big allowances is that there are diseconomies by way of cost

of collecting income tax at low levels of income. The determination of the exact point at which these diseconomies set in is however an empirical question. In the case of Kenya, it does seem that a level of income seven times the average per capita income is well in excess of this point. A second explanation for the apparent slow growth in personal income tax-base is tax evasion and the consequent under-assessment of personal income for tax purposes. In his study on tax evasion in Kenya, westlake argues that more than half of total income of employees in Kenya in 1971 was not reported.[4] He further argues that the figure must even be higher for self-employed such as businessmen, farmer and professionals. The tax liability of the latter, rather than being a simple function of wages or salaries, is the difference between their gross earnings and total costs and this margin can be reduced considerably by over-invoicing cost and/or under-invoicing earnings in an attempt to avoid high tax liability.

The government has effected some changes in the income tax structure which we believe will partially remove these impendiments to the growth of personal taxable income. First, as can be seen from table IV-1, allowances have reduced considerably. Married allowance for instance, has been halved between 1962/63 and 1973/74. This is encouraging especially inview of the fact that the average per capita income in 1973/73 was higher than that of 1962/63 when allowance were very high. Allowances have

therefore fallen relative to average per capita income. But there is still need for further reduction of allowances. In 1973/74 for instance, average family income in Kenya was £220 a year and according to the Minister of Finance a large proportion of the population lived below it[5]. Yet according to the structure of allowances that year, an average family (a family with four children) does not begin paying income tax until their income is above £720 a year. There seems to be no justification for this especially when more than half the population live on or below average. Therefore, further reduction in allowances is necessary and this is likely to result in a more rapid growth in personal taxable income. The other factor affecting the growth of personal taxable income is tax evasion which can only be curbed by among other thing efficient tax administration. The creation of a separate income tax department for Kenya in 1973 and subsequent recruitment and training of university graduates as tax assessors, is likely to result in more efficiency in tax administration. Evaders may not find it so easy to evade income tax as they have done in the past.

With the widening of the tax base through reduction in allowances and elimination of tax evasion, the next step towards achieving a more elastic personal income tax revenue is to make the rate structure more progressive. This would ensure that tax revenue collections grow faster than before relative to the tax-base. In turn the above implies a much higher tax-to-base elasticity. Since 1962/63, the rate structure of

personal income tax has been changing gradually towards more progressivity and therefore tax-to-base elasticity is higher today than it was between 1962/63 and 1972/73. Two important changes in the personal income tax structure were recently introduced and we believe will go along way to make the tax more progressive and income elastic. The first one is the introduction in 1973 of "tax relief" system of deducting allowances for income tax purpose. The tax relief system is such that all the income of an individual is taxed before deducting the amount of tax allowance one is entittled to i.e. allowances are given on total tax liability rather than on gross income as in the past. By so doing, the new system has made tax relief equal for all income levels. The old system, by its way of calculation, gave more tax relief to those with higher incomes and less to those with lower incomes. Consequently the tax liability of the rich was relatively reduced. However, with the introduction of the new system, the tax liability of the rich has increased at the same rate structure while the tax liability of those whose income is within the first rate bracket remains constant. The overall result of such a change is an increase in total tax revenue, the increase being met by the rich. A second change which occurred in the same year was the introduction of a new personal income tax rate structure. The rate structure was made more progressive than before. However, there is still room for making income tax rate structure more progressive than it is now so that the elasticity of personal

income tax can further be enhanced. At the moment, it cannot be said that our income tax rate structure is sufficiently progressive.

SUMMARY

In his budget speech in 1973/74 the Minister for Finance in the Kenya government, asserted that hitherto, Kenya's tax structure has been income inelastic, a fact which has been proved in this study. The Minister blamed the country's heavy reliance on import duties as one of the main factors which contributed to the inelasticity of the tax structure. Consequently he instituted measures which were meant to shift reliance towards internal sources of tax revenue thus ensuring long-term elasticity of tax structure. Among the measures he announced were reduction in import duties for certain commodities, introduction of sales tax and introduction of "tax relief system of calculating allowance for income tax purposes. The findings of this study concur with the Minister that the tax structure of Kenya was indeed income inelastic between 1962/63 and 1972/73. These findings also agree that being responsible for a large proportion of total tax revenue, import duties played an important role in bringing about inelasticity in the tax structure as a whole. However, by lowering rate of duty on some imports, the Minister seemed to have arrived at the conclusion that the inelasticity of import duties during this period was caused by the high rate of taxation which harpered growth in the import tax base. This decission was

reversed in 1975. The arguement advanced in the paper is in favour of the 1975 action which resulted in an increase in the rates of duty on certain commodities. It is the contention of this paper that the inelasticity of import duties during the period was brought about by a low tax-to-base elasticity which in turn implies a regressive import tax rate structure. What was required then was an increase in the rate of duty on those commodities whose propensities to import are relatively high. As for the other changes which were introduced that year, it has been the contention of this paper that they will go a long way to improve elasticity of tax structure as it stood between 1962/63 and 1972/73. But much remains to be done if the tax structure is to become reasonably income elastic. Sales tax for instance, can be made more elastic by modifying the rate structure so that it is fairly progressive. This can be done by charging high and progressive rates of sale tax on commodities which are consumed by high income groups. This is also true of excise duties and import duties. Besides progressivity, long-run elasticity of the latter two taxes can be guaranteed only by a complete shift from the use of specific taxes to ad valorem taxes. As for personal income tax its base ought to be broadened by further reduction in tax allowances of various kinds and the rate structure should be made more progressive than it is now.

Footnotes

1. The dependence of a tax on discretionary changes has been calculated as the ratio of the difference between tax bouyancy and income elasticity coefficients to tax bouyancy coefficient (i.e. $\frac{M - \eta}{M}$ where M is tax bouyancy and η is elasticity coefficient). The higher the ratio, the higher the dependence of the tax in question on discretionary changes.

2. See Budget statements 1972/71 - 1975/76.

3. G.S. Sahota op. cit.; C.Y. Mansfield op.cit.

4. M.J. Westlake op. cit.

K£m.

GROWTH OF CENTRAL-GOVERNMENT TAX REVENUE IN KENYA 1962/63 - 1972/73

Year	Total Tax Revenue	Corporation Tax	Personal Income Tax	Total Direct Taxes	Import Duties	Excise Duties	Total Indirect Taxes	Beer Tax Rev.	Cigarettes Tax Rev.	Sugar Tax.Rev.
1962/63	34.94	8.44	2.68	12.42	13.76	5.60	22.52	2.00	2.20	1.40
1963/64	36.77	9.28	4.00	13.38	13.69	6.00	23.39	2.15	2.40	1.43
1964/65	39.74	10.36	3.10	13.91	15.89	6.24	25.83	2.32	2.50	1.17
1965/66	44.32	12.92	3.00	16.80	17.20	6.30	27.52	2.76	2.81	0.90
1966/67	53.42	13.50	5.29	20.08	20.08	8.47	33.33	3.20	3.05	1.34
1967/68	59.85	12.05	10.63	24.16	19.76	10.35	35.69	3.82	3.72	2.20
1968/69	65.20	13.38	10.23	25.78	21.83	11.79	39.43	4.31	3.60	2.70
1969/70	76.18	15.68	13.52	32.39	24.35	13.15	43.79	5.10	4.08	3.00
1970/71	92.98	17.65	20.13	41.30	28.72	15.27	51.68	6.45	4.64	3.00
1971/72	107.81	20.73	24.41	47.80	31.50	16.21	60.01	7.31	5.04	2.45
1972/73	117.14	24.23	25.97	54.57	27.00	16.84	62.57	8.72	5.50	2.50

Sources: Economic Survey

Statistical Abstract.

APPENDIX II

GROWTH OF TAX REVENUE IN KENYA WHEN THE EFFECTS OF DISCRETIONARY CHANGES HAVE BEEN MOVED

K£m.

Year	Total Tax	Corporation Tax	Personal Income Tax	Total Direct Taxes	Import Duties	Excise Duties	Total Indirect Tax	Beer Tax	Cigarettes Tax	Sugar Tax
1962/63	34.90	8.44	2.68	12.40	13.76	5.60	22.50	2.00	2.20	1.40
1963/64	36.00	8.60	4.00	12.60	13.69	6.00	23.40	2.15	2.40	1.43
1964/65	37.80	9.44	3.31	13.00	15.00	6.04	24.80	2.32	2.50	1.17
1965/66	40.20	11.22	3.88	14.30	15.10	6.00	25.90	2.53	2.81	0.90
1966/67	47.50	11.74	4.94	17.00	17.20	7.80	30.50	2.90	3.05	1.34
1967/68	49.00	9.64	9.62	19.60	17.00	9.56	29.40	3.20	3.22	2.20
1968/69	49.54	10.80	9.23	17.70	18.40	10.48	31.84	3.64	3.17	2.70
1969/70	58.45	11.90	9.48	22.25	20.50	10.77	35.20	4.22	3.56	3.00
1970/71	66.35	12.75	14.27	27.75	23.90	12.57	38.60	5.35	3.61	3.00
1971/72	73.40	15.00	15.89	31.90	25.90	12.70	41.50	4.17	3.98	2.45
1972/73	74.70	17.40	15.50	35.10	24.00	13.49	39.60	4.90	4.30	2.50

Sources: Statistical Abstract (Kenya)
Economic Survey

APPENDIX III

GROWTH OF VARIOUS TAX-BASES

KEm.

Year	Taxable Profits	Value of Excisable Commodities	Value of Imports subject to import duty	Value of Excisable Cigarettes	Value of Excisable Beer	Value of Excisable Sugar
1962/63	16.70	14.36	82.10	3.64	5.60	5.12
1963/64	18.85	15.92	75.15	4.08	6.13	5.71
1964/65	23.00	15.59	82.87	4.99	6.22	4.58
1965/66	30.00	15.63	100.72	5.73	6.60	3.30
1966/67	32.70	18.14	109.95	6.35	6.82	4.97
1967/68	30.80	22.63	110.65	7.55	7.33	7.83
1968/69	32.50	26.62	115.82	8.96	8.03	9.63
1969/70	38.50	32.35	149.49	12.87	8.60	10.88
1970/71	41.10	39.75	163.06	19.08	9.86	10.80
1971/72	45.24	43.71	180.86	22.21	12.28	9.22
1972/73	52.80	49.15	191.70	25.02	13.43	10.72

Sources: Compiled from Statistical Abstract and Economic Survey (Kenya)

MAJOR IMPORTS SUBJECT TO IMPORT DUTY

KEm.

Year	Food, Drink and Tobacco	Textile	Fuel	Chemicals	Transport equipment	Machinery	Misc. Manufactured articles
1962/63	6.74	8.06	8.22	5.22	9.41	9.64	5.50
1963/64	6.30	8.11	8.36	6.10	9.84	11.24	5.80
1964/65	8.57	8.19	9.27	6.78	11.45	11.60	5.80
1965/66	11.60	9.52	10.28	8.34	15.97	13.65	6.90
1966/67	9.00	8.83	11.82	8.81	20.70	18.69	7.24
1967/68	5.53	8.18	11.96	8.08	19.73	19.44	7.76
1968/69	4.48	9.15	13.00	11.94	20.15	18.61	8.64
1969/70	5.28	10.00	14.56	14.82	21.80	22.85	9.94
1970/71	9.48	9.72	16.75	18.42	25.40	31.26	14.22
1971/72	13.20	9.34	20.41	19.23	25.90	37.33	16.00
1972/73	14.80	10.81	22.82	25.40	25.62	37.25	15.31

Sources: Statistical Abstract (Kenya)

Economic Survey (Kenya)

APPENDIX V

IMPORT DUTIES FROM VARIOUS CATEGORIES

K£m.

Year	Food, Drink and tobacco	Textile	Fuel	Chemicals	Transport equipment	Machinery	Misc Manufactured articles
1962/63	2.00	3.28	3.56	0.39	1.47	0.52	1.36
1963/64	2.41	3.32	3.91	0.45	1.50	0.55	1.41
1964/65	2.83	3.48	4.18	0.48	1.68	0.58	1.37
1965/66	3.64	4.22	4.64	0.55	2.22	0.64	1.53
1966/67	3.14	4.17	5.30	0.53	2.86	0.72	1.54
1967/68	2.47	4.02	5.86	0.56	3.06	0.88	1.70
1968/69	2.56	4.31	6.42	0.66	3.29	1.11	2.02
1969/70	2.74	4.31	7.08	0.72	4.01	1.37	2.37
1970/71	3.85	4.30	8.12	0.91	4.85	1.88	3.49
1971/72	4.70	4.34	7.75	0.94	4.85	2.25	3.82
1972/73	4.57	4.50	8.35	0.95	4.52	2.90	3.10

Sources: Statistical Abstract

Economic Survey.

APPENDIX VI

THE VALUES OF THREE INDEPENDENT VARIABLES USED IN THE ANALYSIS OF BOTH TAX ELASTICITY AND TAX BOUYANCY

K£m.

Year	G.D.P. (at Factor Cost)	Monetary G.D.P.	National Expenditure
1962/63	251.60	178.90	290.60
1963/64	295.25	234.23	315.25
1964/65	330.95	246.46	346.60
1965/66	357.75	266.98	384.60
1966/67	395.85	291.50	430.00
1967/68	418.50	316.24	465.25
1968/69	452.45	347.27	501.80
1969/70	499.75	381.76	551.20
1970/71	478.75	424.54	634.40
1971/72	668.55	478.48	710.40
1972/73	746.10	545.41	776.20

Sources: Economic Survey
Statistical Abstract

APPENDIX VII

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