ECONOMIC GROWTH AND TAX REVENUE IN UGANDA : 1962-70 1/

By

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Introduction

Revenue projection should be an essential part of any development plan, for it shows the resources likely to be available to the state through taxes for the financing of the plan. Unfortunately, most development plans, and this is especially true of the Development Plans of the East African countries, contain only a perfunctory analysis of the fiscal implications of the rate and pattern of growth assumed in the plans. It is, therefore, not surprising that inadequacy of domestic finance should prove a crucial constraint on the implementation of development plans in many developing countries 2/. Part of the reason for the relative neglect of fiscal policy in development plans undoubtedly lies in the extreme difficulty of making forecasts of tax revenue over the plan period. Yet the successful implementation of the plan is so closely dependent on the availability of adequate finance that, as a first step towards designing an appropriate tax structure for rapid growth, an attempt must be made to work out the fiscal implications of the pattern and rate of economic growth assumed in the plan. The basic purpose of this paper is to develop a method for making medium-term projections of tax revenue for countries possessing a tax structure similar to that of East African countries. We shall illustrate the application of this method by reference to Uganda. Projections of tax revenue are made on the basis of the existing structure of central government taxation and on the assumption that the Uganda economy follows the growth path charted in the Clark-Van Arkadie model 3/. Although this paper

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1/ I am deeply indebted to Professor P.G.Clark for his encouragement and advice throughout the preparation of this paper. I alone am, of course, responsible for the remaining shortcomings of this paper.

2/ For the viewpoint that Finance is likely to be the most important constraint on development in East Africa see: P.G.Clark: "Foreign aid, domestic finance and the Development Plan": E.D.R.P.45

3/ P.G.Clark and B.Van Arkadie: "Development goals for the Uganda economy in 1981" E.D.R.P.42 and P.G.Clark : "The rationale and use of a projection model for Uganda."E.D.R.P.39.

attempts a quantitative analysis of the relationship between tax revenue and economic growth, it must be emphasized at the outset that the author is not "wedded" to any of the figures used here; indeed some of the quantitative assumptions made in the projections of tax revenue may appear highly dubious, or even positively wrong. All that is claimed here is a modest contribution towards designing a method for projecting tax revenue in a growing economy.

The Growth Model

Before proceeding with the main analysis, it is essential to give a brief description of the Clark-Van Arkadie growth model of the Uganda economy, which forms the basis for tax revenue projection. We shall describe only those elements of the growth model directly relevant to our analysis. The model divides the economy into six producing sectors - agriculture, construction, manufacturing, services, government, transport -; imports are divided into seven kinds - food, manufactured consumer goods, vehicles, intermediate goods, fuel, construction material, equipment -; and exports into agricultural and non-agricultural categories. On the basis of certain structural relationships derived from a statistical model of the Uganda economy, the Clark-Van Arkadie model projects gross products in the different sectors of the economy on the assumption that the per capita income is to be doubled by 1981. The model shows the various structural changes that will be necessary if the goal of doubling per capita income is to be achieved. The authors also discuss the structural changes in the economy if it grows at a less ambitious rate of 6.6% p.a., rather than at 8.2% p.a. Some of the important structural changes in the economy implied by the model, discussed in greater detail below, are a sharp increase in the share of capital formation in national income, a relative decline in the share of agriculture and agricultural exports in the economy, a rise in the share of most other sectors, especially of construction; a change in the composition of imports and exports, with an increase in the share of equipment and construction in the import bill, and a slight reduction in the share of agricultural exports in total exports.

In order to use this model for projection of tax revenue, we have had to make some alternations. In the first place, the time period relevant for our analysis

is 1962-70, rather than 1981. The Clark-Van Arkadie model assumes lower growth rate in the early phase, accelerating to a higher rate later in the period. In our analysis we have assumed that the rate of growth of the economy will be 8.2% (and 6.6% under the less ambitious growth assumption) between 1962 and 1970. Secondly, for our purpose we are only interested in imports from outside East Africa, while the Clark-Van Arkadie model lumps together inter-territorial and foreign imports. We have attempted to separate inter-territorial from foreign imports on the assumption that both types of imports grow at the rates assumed in the growth model. Lastly, whereas the projections contained in the growth model are based on the assumption of a substantial increase in the ratio of tax revenue to G.D.P., to finance greatly increased public investment programme, we shall proceed on the assumption of an unchanged tax structure since our basic purpose is to make projections of tax revenue on the basis of existing tax structure. This procedure may appear highly unsatisfactory, but we can meet at least part of the objection by assuming that the increase in public investment is financed through deficit financing and additional foreign aid. With these qualifications we can proceed to our analysis of the fiscal implications of the pattern and rate of economic growth assumed in the Clark-Van Arkadie model:

Projection of Tax Revenue

In this section we shall attempt to project Central Government tax revenue to 1970 on the assumption that the Uganda economy follows the path described in the growth model discussed above. We shall primarily be interested in import taxes, corporate and individual income tax, export taxes, excise duties and "all other taxes." The first step in our analysis is to "tie" various tax bases to identifiable sectors in the Clark-Van Arkadie model. We shall begin with imports.

1. Projection of Import Tax Revenue

We shall make two sets of projections, corresponding to the two assumed rates of growth of the economy - 6.6% and 8.2% p.a. According to the model, imports will increase by the same rate -7% p.a. - whether the economy grows at the faster or the relatively slower rate of 6.6% p.a. As mentioned earlier, we are only interested

in imports from outside East Africa. Table II shows the total value as well as the composition of imports in 1970, calculated according to the growth rates for the various categories of imports assumed in the Clark-Van Arkadie growth model. It will be seen that imports as a proportion of monetary G.D.P. fall from 24.7% in 1962 to 22.9% in 1970 if we assume a growth rate of 8.2% p.a.; on the alternative hypothesis of a less ambitious growth rate, imports as a proportion of G.DP. will rise from the 1962 level to 25.5%. Thus, although the relative importance of imports will not change by more than a few points, there will be considerable changes in the composition of imports. Table II shows the changes in the composition of imports between 1962 and 1970. Under the 8.4% growth rate, there is a sharp increase in the share of equipment from 18.6% to 28.2% of total imports, a sharp decline in the share of manufactured consumer foods from 40.7% to 32.5%. Furthermore, imports of goods intermediate goods and construction materials suffer a slight relative decline, while vehicle imports and fuel increase slightly in relative importance. If, on the other hand, we assume a 6.6% growth rate of the economy, the increase in the share of equipment is not so marked nor the decline in the share of manufactured consumer goods so steep. Also, apart from construction materials, all other categories of imports suffer a slight decline in relative importance. These changes in imports are of course a reflection of the structural changes in the economy implied by the alternative growth rates. In particular, the 8.2% growth rate assumes a much higher degree of import substitution.

The next step is to calculate the average rate of import duty on the different categories into which imports are classified. The results of this exercise for 1962 are shown in Table III. It will be noticed that the highest rates of duty are levied on fuel (92%), food (56%) and manufactured consumer goods (50%), while the lowest rates are levied on equipment (4%), and construction materials (7%). On the assumption that these rates are unchanged we can obtain estimates of import tax revenue in 1970 under the alternative hypothesis about the rate of growth of the economy. Our calculations, summarized in Table III, show that import tax revenue TM) as a proportion of G.D.P. will decline from 6.81% in 1962 to 6.76% and 5.91% in 1970, corresponding to 6.6% and 8. % rates of growth of the economy. This decline is due to a combination of two factors: under the more ambitious growth rate, the relative

importance of imports in the economy declines between 1962 and 1970; secondly, the category of imports experiencing the highest growth rate - equipment - is also the one with the lowest rate of import duties. Food and manufactured consumer goods which suffer a relative decline are also among the most heavily taxed imports. Import tax revenue as a proportion of G.D.P. (TM/Y) does not decline as much with a lower growth rate both because the share of equipment does not rise so sharply, and also because the increase in M/Y offsets, to some extent, the decline in the average rate of import taxes (TM/M). With an 8.2% growth rate, the decline in M/Y reinforces the effect of a fall in TM/M to bring down TM/Y.

If we take 1963 as the base year the decline in TM/Y under either of the growth rates is less marked; this is because M/Y in 1963 was lower than in 1962, and also because in 1963, the average rate of import duties on equipment was substantially higher than in 1962. Thus although using 1963 figures reduces the estimated fall in TM/Y, it do not reverse the direction of the change. Our conclusion must, therefore, be that under the existing structure of import taxes, rapid economic growth in Uganda will lead to a decline in the ratio of import tax revenue to G.D.P.; in other words, import taxes have an income elasticity of less than 1.

2. Corporate Tax Revenue: in 1970 is calculated in three steps. First we estimate the expected changes in the structure of the economy between 1962 and 1970 under the two alternative rates of growth. Secondly, we calculate the ratio of "taxable income" to gross product in each sector of the economy in a base year. Finally, given the average rate of taxation (TC/YC), and on the basis of a suitable assumption about the ratio of "taxable income" to gross product in each sector in 1970, we can calculate the total corporate tax revenue in 1970. Table I, which summarizes the structural changes implied by the growth model, shows that under a more ambitious growth rate (8.2%), the share of agriculture falls from 46.9% in 1962 to 40.7% in 1970; the shares of construction, manufacturing and services rise from 3.7%, 8.1% and 23.4% to 6.3%, 9.7% and 24.7% respectively in 1970; while the shares of transport and government fall slightly from 7.3% and 12.8% to 7.1% and 12.5% respectively. In contrast to this, with a 6.6% growth rate, all the sectors of the economy increase their relative shares

with the exception of agriculture and to a lesser extent, of transport.

Our next problem is to determine the ratio of "taxable income" to gross product (YC/Y) in each sector. This was done with the help of the Income Tax Department Report for th year 1961. Unfortunately this exercise is only possible for 1961, as in the earlier years the sectoral classification used by the income tax authorities is very different from the one employed in G.D.P. tables, and the 1962 report has not been published yet. "Taxable" or "chargeable" income as defined by the Income Tax legislation is net of depreciation and investment allowances, but it includes the dividends paid out to shareholders though not the dividends paid out by one company to another. Furthermore, it excludes the income of partnerships and one-man firms. After a considerable reclassification, we arrived at the results shown in Table IV. It will be noticed that the ratio of corporate taxable income to G.D.P. (YC/Y) was 6.45% in 1961; the corresponding ratios for the different sectors, however, show considerable diversity. At one extreme, we have manufacturing and services sectors where the ratio of taxable income to gross products is of the order of 27.2% and 11.8% respectively. At the other extreme are agricultural and construction sectors with ratios of 2.8% and 2% respectively; the transport sector also has a low ratio of 3.7%. Broadly speaking, the ratio of taxable income to gross product will be determined by the share of the incorporated enterprises in the sector, as well as by the degree of the capital intensity of the sector. It is thus easy to understand the relatively high ratios for the manufacturing and the services sectors, where incorporation is the typical form of business organization; moreover, manufacturing is a highly capital intensive industry. The low ratio for agriculture is due to the organization of agriculture into numerous small peasants. If we study the non-African and public sector contribution to agriculture, the ratio rises to 17.1%. The transport sector has a low ratio because of the existence of many small operators but more importantly because some of the important corporate bodies such as E.A.R.& H and U.E.B. (which is included in the transport sector) owing to their status as parastatal organizations have not been making any substantial profits over the period. Finally, it comes as a surprise to find that the ratio of taxable income to gross product should be so low in the construction

sector. There are several reasons for this. In the first place, a good deal of construction work is undertaken by the Public Sector, which does not make any profits; secondly, construction is a highly labour intensive industry and therefore the share of profits in its gross product is likely to be low; and finally, construction has been a depressed industry during this period, resulting in low profit rates. An additional reason for the low ratio of this sector may be sought in the existence of a large number of relatively small-sized unincorporated operators.

In order to make projections of corporate tax revenue, we have to make an assumption about the value of these sectoral ratios in 1970. It is not easy to determine what might be an appropriate assumption to make. To simplify our task, we shall assume that the 1961 ratios persist into 1970. This assumption implies that (a) the share of profits remains constant in each sector (b) the share of incorporated enterprises in the gross product of each sector remains constant. Although this is a simple assumption, it does not appear to be an unreasonable one. The last step in our analysis is to estimate the average rate of taxation on the "chargeable income" of corporate bodies (TC/YC). As shown in Table IV, the average rate in 1961 tended to vary between 27½% and 33%; this was because in 1961 the tax on "controlled" and public companies was levied at 27½% and 37½% respectively, and owing to the predominance of controlled companies in Uganda, the average for each sector tended to be nearer the lower rather than the higher rate. However, as from 1962, the tax on "controlled" companies has been raised to Shg.7/50 in the £ or 37½%. We shall, therefore, assume that the effective rate of corporate taxation in 1970 will be 37½%.

Having made assumptions about the tax rate and the tax base in 1970, it is a simple matter to calculate the corporate tax revenue in 1970. This is done in Table IV. It will be seen that the ratio of corporate tax revenue to G.D.P. rises from 1.64% in 1961 to 2.19% and 2.32% in 1970, corresponding to the 6.6% and 8.4% growth rate. This rise is due to a conbination of an increase in average tax rate (TC/YC) from 29.2% in 1961 to 37.5% in 1970 and to a relative increase in the tax base (YC/Y). It will be noticed that the increase in YC/Y is greater for the more ambitious growth rate than for

less ambitious rate. However, in both cases increase in YC/Y is due to an increase in the share of manufacturing and services sectors in the economy, and to a sharp decline in the agricultural sector. We saw earlier that the manufacturing and the services sectors had the highest ratios of taxable income to gross products, while the agricultural sector had a very low ratio. The increase in YC/Y in 1970 would have been even greater but for the fact that the relative importance of the construction sector, which had the lowest ratio of taxable income to gross product in 1961, is assumed to increase very considerably between 1961 and 1970; in fact from 3.2% to 6.3% under the more ambitious growth rate.

In conclusion we may remark that according to our projections, corporate tax emerges as an income elastic tax, despite the fact that the corporate tax is a proportionate one. As we have seen this built-in flexibility is due to an increase in the share of corporate taxable income in G.D.P.

3. Individual Income Tax Revenue

The first step in our analysis, the calculation of shifts in the relative importance of different sectors as a result of economic growth, was attempted in the last section and there is no need to go over it again. By using similar methods as for the corporate tax, we can determine the ratio of "personal taxable income" to gross product in each sector. The results are shown in Table V for the year 1961. It will be noticed that for most sectors these ratios are substantially above those for the corporate tax. Taxable income forms well over 14% of monetary G.D.P. The sectors with the highest ratios are government (59.3%), construction (28%), and services (26.7%); while those with relatively low ratios are manufacturing (14.7%), transport (11.1%) and agriculture (2.3%). However, non-African and "public" agriculture has a much higher ratio (13.9%). Individual income tax is levied on the incomes of non-corporate bodies, including partnerships and one-man firms. By far the largest element in "personal taxable income" consists, however, of wages and salaries. The ratio of personal taxable income to gross product in each sector is a function of the "labour intensity" of the industry, the share of unincorporated enterprises, and finally the relative proportion of "high income" to "low income"

persons among its labour force. The high ratios for government, construction and the services sectors are undoubtedly mainly due to the labour-intensive nature of these sectors, while the relatively low ratios for manufacturing and transport reflect a high degree of capital intensity in these sectors and to a smaller extent, a larger proportion of persons in low income groups among its labour force. Agriculture is in a class by itself. Although it is highly labour-intensive and largely unincorporated, it has a very low ratio of taxable income to gross product primarily because of the low per capita income in this sector, which results in an exemption of an overwhelming proportion of farmers from income tax assessment.

We next have to consider the value of these ratios in 1970. As with the corporate tax, it is not easy to tell what is the right assumption to make here. Clearly there are forces working in opposite directions. There will be a tendency for the ratio to rise for two reasons: firstly, because of an upward shift in all incomes due to rapid economic growth assumed in these projections; secondly, money incomes would rise even faster then real incomes: For both these reasons, tax-payers would tend to be shifted into higherincome brackets, thereby increasing the number of persons subject to income tax. Furthermore, 1961 was the first year when Africans were subjected to income tax and it is likely that there was considerable underassessment of African taxable incomes. With the passage of time there should be an improvement in the assessment of African incomes and hence an increase in the ratio of taxable income to gross product, especially in the agricultural and services sectors. There are, however, a number of considerations which would suggest a tendency for Yp/Y to fall. The most important of these relate to the position of non-Africans, especially Europeans, in the Uganda economy. In the past, the whole of income tax in Uganda had been paid by non-Africans, since Africans were exempted from income tax until 1961. With an expected decline in the share of non-Africans incomes, it is likely that Yp/Y will tend to fall. Furthermore, to the extent that the government is committed to pursuing policies designed to reduce inequalities in income and wealth, the proportion of persons with "taxable incomes" will tend to fall. It is of course impossible to state with any degree of confidence whether these factors will offset the ones noted earlier which have the effect of raising Yp/Y. There is the additional complication of uncertainty regarding the share of the incomes of unincorporated

enterprises in the gross incomes of the different sectors. The aggregate ratios of taxable income to G.D.P.(Yp/Y) for the years 1958 to 1961, a period when there were no major changes in the structure of income tax, are fairly stable; but then many of the factors which we have discussed above were not operative during that period. It is, therefore, not clear as to what extent the evidence of the past years may be taken as pointers to the future. Here once again, in the interests of simplicity, we shall assume that the sectoral ratios remain unchanged. However, even if the sectoral ratios remain constant there will be a tendency for the over-all ratio to rise, because of the structural changes in the economy. Except for the agricultural and to a much lesser extent transport sector, all the other sectors are expected to increase their relative importance in the economy. We saw above that the taxable income ratios are the lowest for both these sectors, especially for agriculture. Furthermore, government, construction and services with the highest taxable income ratios are also among the most rapidly growing sectors of the economy. Table V shows that the result of these structural shifts in the economy is to raise the overall Yp/Y ratio from 14.5% in 1961 to 17.0% in 1970 with an 8.2% p.a. growth rate and to 17.1% with a 6.6% growth rate.

The next step is to estimate the average rate of taxation on taxable income (Tp/Yp) in 1970. Even if the sectoral Yp/Y ratios remain constant, there are good reasons to believe that because of the progressive nature of individual income tax, the average tax rate will show an upward trend. If the pattern of income distribution among tax-payers does not change, rapid economic growth may be expected to shift all tax-payers on to higher income groups, thereby pushing them into higher marginal tax brackets. Empirical evidence bears this out; the average rate of individual income taxation has tended to rise every year since 1958 when the last important change in tax rates took place. In 1961 the average rate was 9.3%. On the basis of the trend in recent years, it is not unreasonable to assume that with the economy growing at 8.2% p.a., the average tax rate may rise to 12.0% by 1970. We make the further assumption that the average rate rises by a similar proportion (29%) in all the sectors of the economy. The average tax rate in 1961 differed somewhat from sector to sector, being

slightly above average in agriculture and transport, and slightly below average in services. We assume that the same relative pattern of sectoral tax rates will persist in 1970.

Once we have obtained estimates of taxable income and tax rates in 1970, it is easy to calculate the individual income tax revenue in 1970. Table V shows that the ratio of individual income tax revenue to G.D.P. (Tp/Y) is estimated to rise from 1.34% in 1961 to 2.04% in 1970. This increase is due to a combination of an increase in Yp/Y, owing to structural shifts in the economy, and to an increase in Tp/Yp, the latter making the greater contribution. With a lower growth rate of 6.6% p.a., we assume that the average tax rates will only rise by 20%, instead of 29% as in the case of a more ambitious growth rate. Our conclusions, shown in Table V, indicate that with a 6.6% p.a. growth rate, the ratio of individual income tax revenue to G.D.P. will rise from 1.34% to 1.91% in 1970. This increase is again a result of the relative increase in the tax base and the average tax rate. Thus we may conclude that the individual income tax is likely to be income elastic, whether the economy grows at 6.6% or 8.2% p.a.

Before concluding this section, it may be of interest to calculate the combined ratio of individual income and corporate tax revenue to sectoral gross products. This is done in Table VI, which shows that this ratio is highest for manufacturing (11.6%), followed by services (6.7%), government (3.7%), construction (3.5%), transport (2.5%) and finally agriculture (1.3%). To the extent that economic development results in a relatively more rapid growth for manufacturing and services and relatively slow growth for transport and agriculture, the relative importance of income tax will show an upward trend. We have seen above that the structural shifts implied by the Clark-Van Arkadie growth model are such as to enhance the income elasticity of the Uganda tax structure.

4. Export Tax Revenue

The Clark-Van Arkadie model projects agricultural export earnings to 1981 on the basis of a 4% p.a. growth rate since 1963. With the less ambitious growth rate, agricultural export earnings are estimated to increase

by 3.1% p.a. The growth in real agricultural exports is higher, as these projections assume a downward price trend of 1% p.a. In order to enable us to make projections of cotton and coffee export taxes separately, we have to make specific assumptions not only about overall growth rate of agricultural exports but also about its cotton and coffee components. The details of these calculations are shown in Table VII. Some of the important assumptions must, however, be mentioned here. We assume that coffee prices, both Robusta and Arabica, in 1970 will be the same as in 1962-63; but that the quantity of coffee exported will increase at the rate of 2% p.a. under both alternative rates of growth. In the case of cotton, we assume that the quantity exported will increase at the rate of 6% or 5% p.a., depending on the overall rate of growth of the economy. With regard to cotton price, we assume a 10% decline between 1962-63 and 1970. Our estimates show that, on the basis of these assumptions, the share of cotton in monetary G.D.P. will decline from just over 11.1% in 1963 to 10.5% in 1970 under the less ambitious growth rate and to 10.0% under the 8.2% growth rate. Likewise, the share of coffee will decline from 21.1% in 1963 to 17.4% and 15.4% in 1970.

On the basis of the above projections of the prices and quantities of cotton and coffee exported in 1970, it is a simple matter to calculate export tax revenue. This is done in Table VII, which shows that the ratio of cotton export tax revenue to G.D.P. falls from 1.50% in 1963 to 1.45% in 1970, and that of coffee export tax revenue from 3.0% in 1963 to 2.5% in 1970. The decline in the relative importance of coffee export tax is less under a lower growth rate of the economy: it declines from 3% to 2.82%. On the other hand, cotton, export tax increases in relative importance from 1.5% to 1.52% under a 6.6% growth rate of the economy. This increase is due to an increase in the average tax rate for cotton.

Excise Tax Revenue

In order to make projections of excise tax revenue, we attempted a regression of the consumption of excisable goods on disposable income and a time variable. This was done on the basis of the data available for the period 1954-63. Having obtained the linear regression equations for the three excisable commodities - beer, sugar and cigaretts - it was a simple matter to project the consumption of these commodities in 1970, and hence to calculate the excise tax revenue in 1970. Tobacco is in a special poritum as its consumption is apparently

completely unrelated to disposable income. On the basis of the past trends in the consumption of tobacco, it was considered reasonable to project a consumption of 450,000 lbs. for the year 1970. The results of these calculations are shown in Tables IX(a) and (b). These tables show that the relative importance of excise tax revenue (TX/Y) declines somewhat under an 8.2% growth rate from 2.89% in 1963 to 2.74% in 1970; TX/Y rises slightly to 2.92% if we assume a lower rate of growth of the economy. The main reason for this, as shown by the regression equations, is that consumption of all these commodities, but especially of beer and sugar, is strongly influenced by non-income factors such as the trend and "autonomous" factors. The retail prices of most excisable commodities changed relatively little during this period, except perhaps for the last year; so it is unlikely that price changes could have significantly affected the consumption of these commodities. Our conclusions are rather surprising as beer, cigarettes and to a lesser extent sugar, are generally considered to have a high income elasticity of demand.

Other Taxes

Our last category consists of revenue from licences etc. Revenue from this source, which is relatively unimportant, was projected on the basis that it forms a same proportion of monetery G.D.P. as in 1962.

Conclusion:

We can now summarize some of our main conclusions. On the assumption that the economy follows the growth path outlined in the Clark-Van Arkadie model, the relative importance of import tax revenue is likely to decline mainly because of the increased importance in imports of equipment, and intermediate goods, which have very low import duties; corporate tax and individual income tax are likely to be income elastic, the former because of the relatively faster expansion of sectors with higher taxable income to gross product ratios and the latter due to the progressive tax rates. The relative importance of export tax revenue; as compared with 1963, is likely todecline owing to a likely fall in the relative importance of cotton and coffee exports in the economy. Lastly, excise tax revenue is also likely to show a gradual relative decline These results were obtained on the assumption that the economy grows at a fast rate of 8.2% p.a. They need to be modificd slightly when the rate of growth is 6.6% p.a.

TABLE I

STRUCTURE OF THE UGANDA ECONOMY: 1962 and 1970

Sector	1962: £m	% of G.D.P.	Growth rate 1962-70	1970 £m	% of G.D.P.
Monetary Gross Domestic Product	106.4		8.2	199.9	
			6.6	177.4	
Agricultural Product	49.9	46.9	6.7	81.3	40.7
			5.3	75.4	42.5
Construction Product	3.9	3.7	15.7	12.5	6.3
			11.5	9.3	5.2
Manufacturing Product	8.6	8.1	10.6	19.3	9.7
			6.9	14.7	8.3
Services Product	24.9	23.4	8.9	49.3	24.7
			7.2	43.4	24.5
Government Product	12.4	13.6	8.1	24.9	12.5
			8.1	24.9	14.0
Transport Product	7.8	7.3	7.7	14.1	7.1
			5.8	12.3	6.9

TABLE II

COMPOSITION OF FOREIGN IMPORTS: 1962 AND 1970

Category of Imports	1962 £m	% of Imports	Growth rate 1962-70	1970 £m	% of Imports
Food imports (Ma)	1.8	6.8	4.2	2.55	5.6
			5.8	2.88	6.4
Manufactured Consumer imports (Mm)	10.7	40.7	4.2	14.88	32.5
			5.7	16.68	36.8
Vehicle Imports (Mv)	2.6	9.9	8.0	4.87	10.6
			6.3	4.29	9.4
Intermediate imports (Mi)	2.6	9.9	6.0	4.08	8.9
			6.8	4.31	9.5
Fuel imports (Mf)	2.3	8.7	8.5	4.34	9.5
			6.9	3.86	8.5
Construction Material imports (Mk)	1.4	5.3	5.8	2.15	4.7
			10.1	2.95	6.5
Equipment imports (Mq)	4.9	18.6	12.3	12.89	28.2
			9.9	10.32	22.8
Total imports (M)	26.3	100.0		45.76	
				45	

TABLE III

IMPORT TAX RATES AND IMPORT TAX REVENUE: 1962 AND 1970

Category of Imports	Tax Rates	Tax Revenue 1962 £m	Tax Revenue 1970 £m
Food imports	0.56	1.03	1.43 1.61
Manufactured Consumer Imports	0.30	3.21	4.46 5.00
Vehicle imports	0.16	0.43	0.78 0.69
Intermediate imports	0.12	0.31	0.49 0.52
Fuel imports	0.92	2.08	3.99 3.55
Construction Material imports	0.07	0.10	0.15 0.21
Equipment imports	0.04	0.19	0.52 0.41
TOTAP IMPORTS		7.34	11.82 11.99

Year	M/Y	TM/M	TM/Y
1962	0.25	0.28	0.068
1970: 8.2% growth rate	0.23	0.26	0.059
1970 = 6.6% growth rate	0.26	0.27	0.068

Table IV

Corporate tax revenue : 1961 and 1970

Tax base, tax rates and revenue

1961

Sector	Taxable Income /Gross Product	Taxable Income £m	Tax Rate	Tax Revenue £m
Agricultural Product	0.028	1.576	0.294	0.464
Manufacturing Product	0.272	2.287	0.292	0.667
Construction Product	0.020	0.072	0.278	0.020
Transport Product	0.037	0.289	0.322	0.093
Services Product	0.118	2.985	0.287	0.858
Government Product	-	-	-	-
Deduct (1)		0.915		0.275
Total G.D.P.				
1970 at 8.2% and 6.6% p.a. growth rates				
Agricultural Product	0.028	2.301	0.375	0.865
	0.028	2.134	0.375	0.800
Manufacturing Product	0.272	5.273	0.375	1.977
	0.272	4.003	0.375	1.501
Construction Product	0.020	0.254	0.375	0.095
	0.020	0.186	0.375	0.070
Transport Product	0.037	0.515	0.375	0.193
	0.037	0.450	0.375	0.169
Services Product	0.118	5.822	0.375	2.185
	0.118	5.121	0.375	1.920
Government Product	-	-	-	-
	-	-	-	-
Deduction (1)		1.799	0.375	0.675
		1.511	0.375	0.567
G.D.P.	0.0619	12.366	0.375	4.636
	0.0585	10.383	0.375	3.894
Year	Y_c/Y	T_c/Y_c	T_c/Y	
1961	0.0563	0.292	0.0164	
1970 (8.2%)	0.0619	0.375	0.0232	
1970 (6.6%)	0.0585	0.375	0.0219	

Notes: (1) Deduction is due to losses suffered by the companies.

TABLE V

Corporate tax revenue: 1961 and 1970

Tax base, tax rates and revenue

1961

Sector	Taxable Income /Gross Product	Taxable Income £m	Tax Rate	Tax Revenue £m
Agricultural Product	0.023	1.286	10.8	0.139
Manufacturing Product	0.147	1.227[2]	9.2	0.113
Construction Product	0.280	0.994	9.8	0.097
Transport Product	0.111	0.877	10.3	0.090
Services Product	0.267	6.741[2]	8.6	0.576
Government Product	0.393	4.307	9.5	0.411
Pensions, interest untaxed		0.721	10.3	0.074
G.D.P.	0.145	16.153	9.3	1.500
	1970 at 8.2% and 6.6% p.a. growth rates			
Agricultural Product	0.023	1.877	13.9	0.261
	0.023	1.741	13.0	0.226
Manufacturing Product	0.147	2.829	11.9	0.337
	0.147	2.155	11.0	0.237
Construction Product	0.280	3.500	12.6	0.441
	0.280	2.604	11.8	0.307
Transport Product	0.111	1.562	13.3	0.208
	0.111	1.363	12.4	0.169
Services Product	0.267	13.153	11.1	0.460
	0.267	11.579	10.3	1.193
Government Product	0.393	9.796	12.3	1.2051
	0.393	9.796	11.4	1.117
Pensions, interest untaxed etc.		1.289	13.3	0.172
		1.144	12.4	0.142
Total G.D.P.	0.1701	34.007	12.0	4.084
	0.1713	30.382	11.2	3.391
Year	Y_p/Y	T_p/Y_p	T_p/Y	
1961	0.147	0.093	0.0134	
1970(8.2%growth rate)	0.170	0.120	0.0206	
1970(6.4%growth rate)	0.171	0.112	0.0191	

Notes: (1) Excluding dividends

(2) Income from employment of individuals (i.e. self-employees) is distributed proportionately between Manufacturing and Services.

TABLE VI

Personal and Corporate Income Tax:

Sector	Y_c/Y	T_c/Y_c	Y_p/Y	Y_p/Y_p	Y_c+Y_p/Y	$\frac{T_p+T_c}{Y_p+Y_c}$	$\frac{T_p+T_c}{Y}$
Agricultural Product	0.028	0.375	0.023	0.108	0.051	0.255	0.0130
Manufacturing Product	0.272	0.375	0.147	0.092	0.419	0.276	0.1155
Construction Product	0.020	0.375	0.280	0.098	0.300	0.117	0.0350
Transport Product	0.037	0.375	0.111	0.103	0.148	0.171	0.0253
Services Product	0.118	0.375	0.267	0.086	0.385	0.175	0.0672
Government Product	-	0.375	0.393	0.095	0.393	0.095	0.0373
G.D.P.	0.065	0.375	0.145	0.093	0.209		

Table VII: Export Tax Revenue

	1963	1970 at 8.2% growth rate	1970 at 6.6% growth rate
Cotton:			
Quantity exported (cent	1,316,905	1,980,098(1)	1,853,149(2)
Projected Price (cts per lb)		200.7(3)	200.7(3)
Value of Cotton exports	£14.3m	£20.0m.	£18.7m
Export tax rate at the existing tax schedule		0.145	0.145
Total tax revenue		£2.9m	£2.7m.
Robusta Coffee			
Quantity exported (tons)	136,460	156,752(4)	156,752(4)
Projected price (£ per ton)	182.3	182.3	182.3
Value of robusta Coffee exports	£24.9m	£28.2m	£28.2m
Export tax rate		0.169	0.169
Tax revenue		£4.8m	£4.8m
Arabica Coffee			
Quantity exported (tons)	8,617	9,898(4)	9,898(4)
Projected price (£ per ton)	265	265	265
Value of Arabica coffee exports	£2.3m	£2.6m	£2.6m
Export tax rate		0.0879	0.0879
tax revenue		£0.2m	£0.2m.
Total Coffee export tax revenue		£5m.	£5m.
∴ Total export tax revenue		£7.9m	£7.7m.

	Cotton:			Coffee		
Year	$E_{c/Y}$	$T_{Ec/Ec}$	$T_{Ec/Y}$	$E_{cof./Y}$	$T_{Ecof/Ecof}$	$T_{Ecof/Y}$
1963	0.1111	0.135	0.015	0.2113	0.1423	0.030
1970(8.2% growth rate)	0.10	0.1445	0.0145	0.1541	0.1690	0.025
1970(6.6%)	0.1054	0.1445	0.0152	0.1736	0.1690	0.0282

Notes: (1) Assumes a 6% p.a. growth rate.

(2) Assumes a 5% p.a. growth rate

(3) Assumes a 10% price decline between 1962-63 and 1970.

(4) Assumes a 2% p.a. growth rate.

TABLE IX (a)

Excise Tax Revenue under 8.2% Growth Rate

(a) Beer Consumption: $C = a_o + a_1 Y_D + a_2 t$ where Y_D stands for disposable income and t for a trend factor. For 1970 the values are t = 16, and Y_D = £162.6m. On the basis of data for the period 1954-63, we obtained the following equation:

C('000 Standard gallons) = $531.56+6.1232Y_D+90.595t$
= 2976.712

Tax rate in 1963 = £0.394 per standard gallon.

∴ Tax revenue from beer consumption in 1970 = £1.173m.

(b) Sugar: C('000cwt) = $159.31 + 9.9489Y_D + 41.148t$
= 2435.369

Tax rate in 1963 = S hs.15 cts.71 per Cwt or £0.7855

∴ Tax revenue from sugar consumption in 1970 = £1.914m.

(c) Cigaretts: C('000 lbs) = $880.98 + 13.362Y_D + 2.0411t$
= 3086.299

Tax rate in 1963 = S hs. 13 Cts.38 per lb.

∴ Tax revenue from cigaretts in 1970 = £2.065m.

(d) Tobacco consumption in 1970 = 450,000 lbs

Duty on Tobacco = Shs.11 per lb.

∴ Excise tax revenue = £247,000

(e) Excise tax revenue in 1970 on other goods (matches, spirits etc) = £ 75,000

∴ Total excise tax revenue = £5.475m.

Year	TM/Y
1962	0.0268
1965	0.0289
1970	0.0274

TABLE IX (b)

Excise Tax Revenue under 6.6% p.a. Growth Rate

(a) Beer: $C = a_0+a_1Y_D+a_2t$

('000 Standard galls.) = 531.56 + 6.1252 (148.214) +90.595(16)

= 531.56 + 907.544 + 1449.52

= 2888.624

Tax rate in 1963 = £0.394 per standard gallon

Therefore revenue from beer consumption in 1970 = £1.138m.

(b) Sugar: $C = 159.31+9.9489\ Y_D+41.148t$

('000 Cwt) = 159.31+1474.566+658.368

= 2292.244

Tax rate in 1963 = £0.7855 per cwt

Therefore revenue from sugar in 1970 = £1.801m.

(c) Cigaretts: $= 880.98+13.562\ Y_D+2.0411t$

('000 lbs) = 880.98+1980.435+32.6586

= 2894.073

Tax rate in 1963 = £0.669 per lb.

Therefore revenue from cigaretts in 1970 = £1.936m.

(d) Tobacco: Consumption in 1970

= 450.000 lbs.

Duty on Tobacco = Shs. 11 per lb.

Therefore Excise tax revenue = £247,000

(e) Excise Tax Revenue on other goods (mathes, spirits, etc.) = £65,000

Therefore excise tax revenue = £5.187m.

TABLE IX (b) continued

Year	TM/Y
1962	0.0268
1963	0.0289
1970	0.029

Note: Disposable income for both these cases was calculated on the basis of a given relationship between disposable income and revenue from import, export, corporate and personal taxes.

TABLE X

Other Central Government Taxes (Licences)

Year	TL/Y	Tax Revenue
1961	0.006	£0.654m.
1970(8.2%)	0.006	£1.199m.
1970(6.6%)	0.006	£1.064m.