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COFFEE INDUSTRY

By

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ABSTRACT

This paper examines the current method of taxation and control of the coffee industry in Kenya and outlines an alternative system aimed at improving the industry's efficiency. Control of the industry has been exercised through a system of acreage quotas which have been fixed since 1963, and taxes have not been made sufficiently sensitive to the wide fluctuations in income in good and bad years. A system of volume control is proposed which incorporates a more flexible system of taxation and should encourage a change in resource allocation to allow production of the desired national coffee output at a lower opportunity cost. The implications of this new system are examined for coffee estates and small-holdings, and the effects on employment and net foreign exchange earnings are discussed.

TAXATION & CONTROL OF THE KENYA COFFEE INDUSTRY

Kenya is a high cost producer of coffee.¹ This paper examines the current method of taxation and control of the coffee industry in Kenya and outlines an alternative system aimed at improving the industry's efficiency.

THE PRESENT SYSTEM OF TAXATION AND OUTPUT CONTROL

Output Control

Output of coffee in Kenya is controlled primarily by controlling the area of land on which coffee may be produced. This control is exercised through a system of acreage quotas which were allocated in 1963, by the simple means of making the acreage under coffee at that time the permitted acreage. As planting is allowed for replacement purposes only, the number of trees per acre cannot be increased, and increases in output can only be achieved by increasing output per tree. Uprooting is permitted, but a grower is discouraged from so doing by the costs involved, and more recently also because loans have been raised on the security of land and coffee trees.

Taxation Policy

Taxes Specific to the Coffee Industry: Taxation of the coffee industry has served primarily as a source of local and central government revenue, and has not been actively used as an instrument for controlling the output of the industry. Two taxes specific to coffee growers are currently levied. The Government Export Levy is a central government tax while the Local Authority Coffee Cess is a source of revenue for most county councils.

1. International comparisons show that during the lower world prices of previous years, many countries were still able to levy very heavy taxes on their coffee industries. For example Columbia - one of Kenya's major competitors - was able to levy over the last decade taxes which reduced Columbian wholesale prices (which are higher than producer prices) to between 39% and 68% of export unit price. If taxes of this magnitude had been levied on Kenya growers over the same period many growers would have been forced to cease production. Arguments that such figures are not valid because Kenyan growers pay much higher rates of taxation on their profits are themselves not valid. There is a great difference between paying at least 39% of gross revenue as tax and paying less than 6% of gross revenue and then a maximum of 40% of net profits as tax, as Kenyan growers have been doing.

The Government Export Levy is levied at a rate of £10 per long ton regardless of quality on all coffee which is exported to International Coffee Organisation quota markets. In 1968/9, this represented for grade two coffee a tax of 2.18% of the f.o.b Mombasa price and 2.51% of receipts by growers for coffee delivered to Nairobi. For grade four coffee these percentages were 2.61 and 3.07, and for grade six coffee 2.98 and 3.58. The levy is deducted on behalf of the Government by the Coffee and Marketing Board before payment is made to growers. It was first introduced on May First, 1964, at a rate of £20 per long ton, and was cut to its present level on July First, 1967. In 1968/9, the revenue from the tax of £407,320 comprised 0.62% of total Central Government gross revenue from taxation.

The Local Authority Cess, based on the value of coffee when purchased by the Coffee and Marketing Board (CMB), is levied by most County Councils. The bulk of the cess is collected centrally on behalf of the County Councils by the CMB. All cesses collected by the Board are levied at a rate of 3% on the net payments the Board makes to growers before deducting milling charges and agency fees. The cess is normally therefore a little more than 3% of the value paid to growers. The total value of the cess collected through the Board in the years 1968/9 was £251,167. No accurate figures exist of the value of the cess collected by County Councils who do not collect through the Board. Estimates can be made however by applying the cess rate to the value of washed coffee delivered to the Board from each of these areas.² This adds a further estimated £77,206 to that collected by the Board to give a total cess value for 1968/9 of £328,373.

Acreage under coffee in Kenya is fairly evenly divided between large estates and smallholdings. In 1970 the estate sector produced 26.7 thousand metric tons compared with 32.0 thousand in the smallholder sector. The smallholdings which are virtually entirely African owned are organised on a co-operative basis.

2. The estimate of cess collections can be determined simply by applying the nominal cess rate to the product of the price paid per tone for each grade of coffee and the tonnage of that grade produced.

On average, the smallholder sector pays an estimated 0.3% more of its gross revenue to local authorities in the form of the cess than does the estate sector. The main reason for this is that more estates than co-operatives are in City Council areas (notably Nairobi City Council) where the cess is not levied. Secondary reasons are firstly that some estates have managed to gain special exemption from the cess, and secondly that, by virtue of their location, all the cess levied on estates is collected through the CMB who for administrative reasons do not levy the cess on buni.

Taxes Not Specific to the Coffee Industry: In addition to the above taxes which are specific to the coffee industry, growers are also subject to the general range of direct and indirect taxes and subsidies in Kenya. We do not intend to discuss this whole range because their economy-wide nature prevents them from being part of an explicit policy to control the coffee industry. We feel, however, that it is relevant to examine the differential impact of direct taxation on the estate and smallholder sectors because as a result of the differences in size and ownership net income in the estate sector is taxed under a completely different system from that of the smallholder sector. This anomaly can only be eliminated by a change in the pattern of ownership of the estates or smallholdings or by a change in the overall system of direct taxation in Kenya, and the anomaly is of sufficient magnitude to be taken into account when such changes are being considered.

Most estates are run as companies and as such pay corporation tax on their net profits. Individuals or partnerships who own estates pay graduated personal tax (GPT), income tax and surtax on their salary from running the estate plus their share of the estate's profits. Smallholders normally pay GPT only. Cooperative societies are exempt from any form of income taxation provided that the gross income of the society divided by the number of members does not exceed Kf150.

GPT is payable by all persons with an annual income in excess of £48 per annum. Amounts payable increase in blocks from shs. 48 annually on incomes of £48 per annum to a maximum of shs. 600 on incomes of £600. As a result of the rate structure GPT varies over this range between 2.5% and 5%. Incomes of over £600 are not subject to further increases in GPT and percentage liability to GPT decreases as incomes increase. A smallholder would normally fall somewhere

within the £48-£600 per annum income range, his actual liability to GPT being assessed by a local committee of chiefs and sub-chiefs. Methods and the accuracy of assessment tend to vary between districts, but the basic method used for coffee smallholders is to assume that income from coffee varies directly with acreage under coffee. Thus, for example, in Kiambu district a smallholder is assumed for GPT purposes to receive annually an income of K£90 from each of his acres of coffee. This method of assessment if closely followed would mean that GPT is a tax on one of the smallholder's inputs rather than his income. However in 'bad' years when growers are making little or no profit on their coffee, the assessment committee is loath to levy the full amount of tax calculated using the acreage method, and tend to levy less than this amount. The tax tends to be in practice therefore, a function of both a smallholder's acreage and his net income, the relationship depending on the current profitability of coffee and the attitudes of the assessors. The central administration of the GPT system has recently moved from the Ministry of Local Government to the Treasury and is attempting to move away from the estimation of income using acreage under coffee to a system where some attempt is made to assess the true net income of smallholders. No equitable system of GPT assessment could be based solely on income from coffee because the tax rate is a function of income aggregated from all sources, and most smallholders also derive income from other crops and often from other (often salaried) employment. However since smallholders market through their cooperative, their gross income from coffee can be determined from the cooperative's accounts. By taking this income into account the assessment committee could make a more accurate estimate of net income from coffee than the present estimate based solely on acreage.

Estates run as companies pay the corporation tax rate of 40% on their net income, while estates run by individuals or partnerships pay GPT and income tax and surtax at progressive rates ranging from 12½% on their first £1000 of taxable income to 77½% on taxable incomes of over £15,000. Taxable income, for income tax and surtax purposes, is a function of family size, with tax allowances varying from £216 for a single man to £960 for a married man with four or more children.

The rates of income taxation in the estate sector are therefore much higher than those of the smallholder sector. The highest tax rate on the incomes of smallholders is 5%, compared with the 40% rate of corporation tax paid by company owned estates. For example, consider a co-operative society made up of 250 members each with annual net income of Kf140. Its members will each pay Kf3.6 GPT annually - a rate of 2.6%. In all they will pay Kf900 GPT on a total income of Kf35,000. If a similar net income accrued to five company owned estates, each estate would receive a net income of Kf7,000 and would pay Kf2,800 corporation tax. Together the five estates would pay Kf14,000 corporation tax. In this example the rate of taxation of estate income is 15.6 times that of smallholder income. If the estate were privately owned this ratio would be 16.0, if the estate were owned by a single man, and 13.4 if it were owned by a married man with four children.

This example assumes that smallholder income is determined accurately for GPT assessment, but as we described earlier it is usually assumed to be a direct function of acreage with possibly some subjective modification by the assessor. Thus in 'good' years the average income tax rate difference between estate and smallholder may be even higher. In 'bad' years it will tend to be lower. Rates will be equal at some low overall level of coffee profitability, and in exceptionally bad years when profits on estates fall to near or below zero, the average rate of income taxation on estates will be lower than on smallholdings. The level of profitability at which the rates of taxation are equal cannot be readily calculated but will depend on how close is the income level assumed per acre for GPT purposes to the 'true' net income of an average year, the size distribution of smallholdings and how much the assessment committee lowers the amount of taxable income assessed on coffee acreage in a 'bad' year. However taking good and bad years together over a long period, it is likely that the average effective income tax rate on estate profits will be much higher than that on the profits of smallholdings.

THE ECONOMIC EFFECTS OF THE OUTPUT CONTROL AND TAXATION POLICIES

Throughout the discussion we will assume that it is to Kenya's advantage to produce sufficient coffee to fulfil the ICO quota.³ This assumption is likely to be valid given present world prices, but as Kenya is a high cost producer of coffee it might be preferable for high opportunity cost growers to withdraw from the industry if a lower long-run world price is projected.

The present system of acreage quotas in effect prevents new acreage from being brought into coffee production and also prevents an increase in the number of trees per acre by the ban on new planting. The latter factor is unlikely to be as important as the former because a change in the intensity of trees per acre, even in the absence of any control on planting would probably require complete uprooting and replanting as trees could not be added or subtracted from the present layout in an efficient manner. It is unlikely that any grower who discounts future returns either explicitly or implicitly would consider this worthwhile.⁴

3. This assumption does not imply a single particular level of acreage under coffee, as yield per acre fluctuates greatly from year to year with factors such as disease and rainfall. To be certain of filling the quota every single year, a very much higher acreage would need to be maintained than is necessary to produce the quota in a normal year. Surplus coffee can only be sold to a very limited extent on the domestic market or can be sold to non-quota markets at prices which are normally much lower than those obtainable in quota markets. The actual output goal will therefore be a compromise taking into account the lower prices obtainable in non-quota markets and the disadvantages, such as a reduction in future quotas, of failing to produce the quota output.

4. This however, does not imply that if acreage had been allowed to enter and leave the industry, the resulting intensity of trees per acre would not have changed.

It is very unlikely that the ban on new planting has led to the most efficient allocation of acreage to produce the ICO quota at the lowest opportunity cost. The present allocation will only be efficient if it was efficient in 1963, when planting was banned, and production and demand conditions have not changed, or if it was not efficient at the time of the ban, but conditions have changed so as to make it efficient. The possibility of the latter happening fortuitously throughout the coffee sector can be discounted. On the other hand, it is very unlikely that the distribution was optimal in 1963, because of the rush of planting on any available land which occurred in 1962, just prior to the ban. Furthermore, it is certain that production and demand conditions have changed. For example, the ICO quota quantity and average world price have risen, and the price differentials between coffee of different standards have narrowed; sprays and fertilizers have improved, the incidence of disease has increased, management has changed hands and labour costs have risen. The present rigid system of output control using historically determined acreage quotas is therefore likely to be preventing the development of the optimal distribution of acreage under coffee able to produce the ICO quota output at the lowest opportunity cost.

The fixed rates of export tax and local authority cess are likely to have led to further inefficiencies. Despite many changes in both world price and average production costs caused mainly by changes in the incidence of disease, the rate of export tax has been changed only once in eight years. The result has been that in years of high costs and/or low world prices, when the average grower has had small profits or even losses, the two taxes have reduced his net income by a further 5.6% of gross income. This may reduce his cash reserves to a level which prevents him from spending the optimum amount on field maintenance and leads to a

reduction in efficiency and future net returns.⁵ In good years the fixed rates of taxation allow net income to increase sharply and leave an important source of Government revenue untapped. These adverse effects are exaggerated by the fact that the export levy is not an ad valorem tax, but is levied per ton of coffee, with the result that the rate of tax expressed as a percentage of gross income falls as world price increases.

Thus, neither the taxation nor output control policies are consistent with an efficient coffee industry. We now examine an alternative system of volume control which incorporates a more flexible system of taxation, and should encourage a change in resource allocation to allow the production of the desired national coffee output at a lower opportunity cost.

A NEW SYSTEM OF OUTPUT CONTROL.

We will assume in the initial discussion that the main aim of the new system is to encourage the production of Kenya's ICO quota quantity of coffee at the lowest possible opportunity cost. We subsequently examine its likely impact on employment levels and net foreign exchange earnings.

5. As with all types of production it is impossible to divide the costs of coffee growing into fixed and variable elements, because the division varies according to the time period being considered. In the industry, a traditional accounting division is made between 'picking cost' which vary with the size of each crop and 'field maintenance expenditures' which include such items as weeding, mulching, pruning and disease control. The latter includes expenditures which determine the size of both current and future crops, the most important of which is the expenditure on disease control. There appears however, to be a minimum level of field maintenance expenditure, which varies from year to year depending primarily on the incidence of disease, and which, if not met, causes future yields to fall sharply. Field maintenance costs are fixed only in the very limited sense that growers try to maintain at least this minimum level. The optimum level of field maintenance for each grower would be that level which maximises his discounted present and future net returns. This level is likely to be at least equal to the level below which future yields fall sharply.

To encourage the efficient allocation of resources, which is necessary to encourage production at the lowest possible opportunity cost, the new system must have two features which are absent from the present system. Firstly it should allow a flexible composition of land under coffee, so that the composition of capacity can adjust to meet changing conditions, and secondly it should prevent violent fluctuations in the growers' net incomes. This latter feature is vital for the long - run efficiency of the industry, because of the need to maintain levels of husbandry above certain minimum levels.⁶ Planning and cash reserves are limited, particularly in the smallholder sector, and a regular income is therefore a pre-requisite of efficiency. In addition, a more regular income would reduce the riskiness of coffee growing and would make a lower level of return acceptable to growers, thus increasing the tax capacity of the industry.

The level of demand to enter or leave the industry is mainly determined by the potential net revenue which can be earned from coffee growing. If this could be maintained at a level which encourages a net flow of capacity into or out of the industry just sufficient to maintain the capacity necessary to produce the ICO quota, acreage quotas could be abolished. Thus, if a flexible tax, similar to the present export tax,⁷ could be used not only to stabilise net returns to growers, but to stabilise them accurately at this desired level, capacity could be controlled by the tax alone. However, empirical knowledge of the way costs fluctuate from year to year with changing yields, disease levels and climatic conditions is still very limited, and a tax of the required sensitivity could

6. See footnote 5.

7. The tax at present is levied only on exports to quota markets. Since growers market their coffee through the Coffee Marketing Board which then sells to domestic, quota and non-quota markets, the tax does not encourage sales to domestic or non-quota markets. Ideally the tax would be levied on all output, and would also replace the Local Authority Cess. The latter change would reduce collection costs, would widen the possible range of fluctuation of the tax and would enable the Government, if it so desired, to redistribute income on a geographical basis. At present the largest amounts of cess are levied and spent in Kenya's most prosperous areas.

not be introduced at present. An efficient output control, given present knowledge of the industry, will therefore still require some direct control of capacity, but this does not need to be a system like the present one where the composition of capacity cannot be changed. The simplest way to ensure that national capacity remains at the desired level, while enabling growers to enter and leave the industry, is to provide a number of new acreage quotas in every period just sufficient to maintain total capacity at the desired level. To maximize the industry's efficiency it is essential that these quotas go to the potential growers with the lowest opportunity costs. This would tend to occur automatically if the tax level were set to equate the desired capacity of current and potential growers with the capacity necessary to produce the ICO quota output. Yet it would be impossible to maintain the tax at precisely the correct level, and furthermore a tax at this level would most likely lead to a less efficient industry than a tax level which generates an excess demand for new acreage quotas. This becomes evident if we examine the qualitatively alternative levels of tax where the supply of new quotas necessary to maintain the production of the ICO quota exceeds or is equal to their demand.

If supply exceeds demand, this indicates a low estimated level of net profitability, and insufficient capacity will be drawn into the industry to satisfy the basic objective of producing the ICO quota. In addition this may indicate that returns to some of the present marginal growers are insufficient to enable them to maintain the necessary basic expenditure on field maintenance. As a result these marginal growers would become progressively less efficient, causing the industry as a whole to become less efficient and pushing its output further below the desired level. An excess supply of quotas would thus indicate that the rate of tax was too high.

A similar argument applies when the demand for and supply of quotas is equal. Assuming a wide range of efficiency levels among growers, there will be some of marginal efficiency who, although not leaving the industry in the short - run, will be unable to maintain the necessary expenditure on field maintenance and as a result of the subsequent loss in efficiency, will eventually be forced to withdraw. The resulting loss in output would require a reduction in the tax rate to attract new acreage into the industry to bring capacity back up to the desired level. As this acreage was not attracted to the industry at the previous higher tax rate, some of it may

be less efficient (taking present and future discounted opportunity costs) than the marginal acreage which was forced to withdraw because of the old rate. The acreage which withdrew was marginal only in the sense that growers could not afford to maintain an adequate level of expenditure on field maintenance. Even if their expenditure on field maintenance was originally only slightly below the adequate level, the cumulative loss of efficiency resulting from the cycle of lower returns followed by a lower level of field maintenance and even lower returns would have forced eventual withdrawal. It is likely therefore that some new entrants able to survive at the new lower rate of tax may be less efficient than those forced in the long-run to withdraw under the old high rate. A tax rate set at the level which equates the short-run supply and demand for new quotas is therefore likely to lead to a sub-optimal allocation of acreage under coffee.

The tax level needs therefore to be below the level at which the quotas are just taken up. Growers who are less efficient than potential growers should be encouraged to leave the industry, but the long-run efficiency of growers who, although less efficient than the average, are more efficient than potential entrants must be reduced as little as possible. Precise specification of the tax would require much more research, particularly on the opportunity costs of the less efficient grower.⁸ However, a tax set below the rate at which all new quotas are taken up would be a substantial improvement upon the present arbitrary and rigid system. Comparatively small and cheap samples of the costs of growers who are considering up-rooting at any particular time should give a much clearer guide to the appropriate tax level.⁹

8. Existing cost data is almost entirely for experimental or 'ideal' estates and smallholdings.

9. For example, Kf20,000 spent in 1970 on the collection of such data would have been equal to only 0.1% of the marketed value of the 1970 coffee crop.

If for maximum efficiency the demand for new quotas is kept higher than the supply, some method must be found to allocate the quotas to those with the potentially lowest opportunity costs. Since the potential growers with the lowest opportunity costs should be prepared to pay the highest prices for permission to grow coffee, a method which allocates the new quotas to those prepared to pay the highest price should ensure that the quotas go to those with the lowest opportunity costs. It is unlikely that an auction system could achieve this. There seems to be no rational grounds for allocating the quotas on a regional basis, and it is unlikely that a single national auction would be feasible due to the wide geographical dispersion of growers. The alternative is a system of tendering.

The simplest system of tendering for new quotas would be for the Coffee Marketing Board to announce a price for new quotas and invite applications for them. The disadvantage of this method is that the offer will be either over or under subscribed unless the Board is able to estimate the exact price at which all the quotas will be taken up. If the offer is under subscribed, a new offer must be made for total acreage to be maintained at the desired level. If the original offer is oversubscribed, the new acreage must be rationed, and it is unlikely that all the acreage would go to the most efficient potential growers. An alternative would be for each interested grower to send a bid to the Board giving a price per acre for a specific number of acres. The Board would allocate the acreage to the highest bidders charging them the price which they bid. Such a system would also have serious disadvantages. Firstly, it introduces a gambling element into the bidding process since each grower must weigh the risk of not receiving any new acreage against the benefits of receiving it at a lower price. Secondly, by allowing only a single bid, a grower must decide on one price and acreage instead of stating the acreages which he would like at different prices. Growers may therefore have preferred a larger acreage at the lowest bid price accepted by the Board, or conversely, having bid too low for a large acreage, may have been prepared to bid the accepted price for a smaller acreage. Thirdly, growers may well be disturbed to find that they paid more for their new acreage than their neighbour. A multiple bid system would eliminate these disadvantages. Instead of tendering with a single bid, the Board could quote a range of prices and invite growers to state the number of additional acres they would be willing to purchase at each price. The Board could

then add up the acreage bid for at each price and choose the price at which the total acreage bid for equals the desired increases. Each grower would be allocated the quota for which he bid at this price. This system would eliminate all the disadvantages of single bid tendering. Tenders could be made on an annual basis or at times considered to be most convenient by the Board. This system should not be difficult for estates, and tendering by smallholders could be organised through their co-operative, which would collect and submit their bids.

This system, based on multiple-bid tendering for new acreage quotas and a flexible tax on output adjusted to keep growers' profitability as stable as possible from year to year, should bring about a more efficient allocation of acreage under coffee and a more efficient use of this acreage, resulting in the production of the desired national coffee output at a lower opportunity cost.

THE EFFECTS OF THE PROPOSED SYSTEM ON EMPLOYMENT AND NET FOREIGN EXCHANGE EARNINGS

Our discussion of the effects of the proposed system has been centred on changes in efficiency measured in terms of changes in growers' opportunity costs, and these are likely to differ from opportunity costs considered in national terms. An evaluation of the impact of the new system on the national economy requires qualitative data on the divergence between the private and social costs and benefits of coffee growing, which in turn, requires empirical data on the extent of market imperfections and a weighted set of national economic objectives. As neither of these is available, no such comprehensive evaluation can be made. We can, however, move towards such an evaluation by considering the impact of the proposed system on those variables with the greatest likely divergence between private and social costs. As coffee is Kenya's largest single export and a major source of employment we choose to examine the impact on net foreign exchange earnings and on the national level of employment opportunities. The value of foreign exchange will not be the same for the grower and for the nation when, at the ruling exchange rate, shortage of foreign exchange is a constraint on national economic growth. The cost of labour will not be the same for the nation when wage rates do not reflect opportunity costs and when employment is valued by the nation as an end in itself.

The impact of the proposed system on both employment and net foreign exchange earnings depends essentially on which acreage from which sector of the industry is withdrawn and which new acreage is introduced. We showed earlier, that the present acreage quota system tends to protect inefficient growers who have quotas while frustrating the entry of those potentially more efficient. Under the suggested system, those with the highest opportunity costs will tend to leave the industry and be replaced by those with lower opportunity costs.

More estate coffee is grown in areas which for reasons of climate and soil type are not particularly suited to coffee, but these areas also tend to be less suitable for other crops, whereas in most of the smallholder coffee areas attractive alternative crops exist. For other reasons, however, it is likely that there would be a net move of acreage from the estate to the smallholder sector. Firstly, smallholders who use a large element of family labour and grow mixed crops have a different cost structure from estates who use hired labour and normally concentrate on the production of coffee. For example, smallholder supplementary family labour resulting from troughs in the aggregate labour demand pattern will be valued at a much lower level than the rate which estates must pay for their unionised labour. In addition, labour employed by smallholders on a wage basis is normally paid at a lower rate than labour employed by estates. For example, unionised labour (taking a mix of 50 men and 30 women) was paid an average of shs.3.15 per day in 1968,¹⁰ whereas the most frequent rate of remuneration on smallholdings was between shs. 1.50 and shs. 2.00 per day.¹¹

10. Kenya Coffee Growers Association, "Coffee Growing Expenses - General Information", October 1968, Nairobi. Figures based on the rates of the Industrial Court Award, Dec. 1965.

11. J. Heyer, D. Ireri, J. Morris, "Rural Development in Kenya - a Survey of Fourteen Districts with Recommendations for Intensified Development", Institute for Development Studies, University College, Nairobi, Oct. 1969. The survey was carried out in mid 1968.

Many inputs, such as mulching material, which have to be produced or brought in specifically for coffee growing on estates may be by-products of one of the other activities of the smallholder. In effect, estates must pay more for labour than its opportunity cost and lose by being over specialised.¹² The second reason for a likely net move from the estate to the smallholder sector is that there is a greater potential for smallholder expansion than estate due to the present structure of land ownership and use. There are few large areas of suitable land which could be conveniently converted into estates, but there are many small pockets of land already owned and cultivated by smallholders in areas suitable for coffee. Under the suggested system, therefore, it is likely that there would be a net drift of production capacity from estates to smallholdings.

The effect of this drift on employment levels depends on the relative labour intensiveness of coffee growing in the estate and smallholder sectors, and on what activities would replace or be replaced by coffee growing. Although smallholders tend to use their labour less efficiently and as a result tend to employ more labour per acre of coffee, the effect of the drift may not increase overall employment. This is because the alternative food crops which can be grown in much of the smallholder coffee areas tend to be slightly more labour intensive than coffee,¹³ whereas the alternative to coffee in some of the drier estate areas may be rancing which is

12. Belshaw and Hall point out these differences in cost structure and show how the comparatively low level of purchased inputs makes coffee output very attractive to the smallholder by giving him a large cash surplus derived from coffee sales over purchased inputs. It is possible that the smallholder may be affected to a certain extent by some kind of 'money illusion', but it would seem more apt to look at coffee as an integral part of smallholder production. Coffee can then be viewed as being attractive because it forms part of an overall production package in which coffee and the other outputs are all more attractive when produced together than when produced singly, because the by-products of the other outputs have an enhanced value as inputs into coffee. Because these by-product inputs of coffee (e.g. surplus family labour, manure and maize stover) are produced within the smallholding, the smallholder experiences their true low opportunity cost and coffee becomes an attractive element in the package of crops.

13. A.R. Water, "The Cost Structure of the Kenya Coffee Industry", PhD Thesis, Rice University, Houston, 1969, p 128

considerably less labour intensive. The effect of the suggested system on employment levels cannot be determined any further without more detailed empirical evidence.

The likely effect on net foreign exchange earnings of the drift of acreage under coffee from the estate to the small sector can be described with more certainty. This will be a function of the quantity and quality of coffee exported and the value of imported inputs. As a result of the International Coffee Organisation quota system, the quantity of exports tends to be fixed in any particular year apart from a small element of sales to non-quota markets. The value of sales to non-quota markets depends on both the quantity and quality of coffee exported, whereas the value of sales to the more important quota markets depends on the quality of coffee only, as the quota is expressed in terms of quantity. As smallholders consistently produce better quality coffee than estates, the drift to smallholder production would increase gross foreign exchange earnings. Estates tend to use more imported inputs per acre than smallholders, the most important of which are chemical fertilisers, sprays and machinery. The drift should therefore lead to an improvement in net foreign exchange earnings.¹⁴

CONCLUSION

The present system of taxation and control of the Kenyan coffee industry is likely to be perpetuating a sub-optimal allocation of acreage under coffee. A reallocation of this acreage would allow production of the total coffee output at a lower opportunity cost. The necessary reallocation could be achieved at a comparatively low administrative cost using a flexible output tax and a system under which growers could tender for the right to plant new coffee. Although the effect on employment levels of the resulting more efficient allocation of acreage is indeterminate, it should result in an increase in net foreign exchange earnings.

14. For this not to happen, the new smallholdings and the estates going out of production must behave very differently from other growers in their sector with regards to both imported inputs and the quality of their output. Even if they do behave differently there is likely to be a compensating effect. Thus, if estates going out of production used fewer imported inputs than the average estate as is likely, it is also likely that the quality of their output was correspondingly lower. Conversely, new smallholders, who may spend more on imported sprays etc. than average, are likely to produce coffee of even higher quality than the average smallholder.