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ABSTRACT

This paper examines the effect pricing policies pursued by the Lint Marketing Board have had on the level and stability of cotton farmers' income over time. First, an accounting of the disbursment of total realised export income is used as the basis for determining the extent to which marketing board pricing has depressed and stabilised producer incomes. Secondly, supply elasticity analysis is incorporated in the model to measure the possible full magnitude of the income effect of pricing policy. Then, the income stabilisation role of the board is retested.

The paper concludes that farmers have faced a two stage robbery machinery; firstly through the direct reduction in potentially realisable income with no adjustment in supply and secondly, through the inevitable upward supply adjustment if producer prices were anywhere close to export prices. With either approach, however, the board seems to have lessened the potential instability of producers' income.

## INTRODUCTION

The welfare of farmers must be one of the principle ultimate goals of any pricing and marketing policy. Although the concept of welfare is not very well defined analytically, we can nevertheless say that the welfare of farmers would be affected by the extent to which marketing and pricing policy affects the level as well as the stability of farmers' income. In the context of this paper, the income referred to is aggregate sectoral income of the cotton farmers derived from the production and sale of cotton. If policy is so designed as to facilitate the realisation of all potential income by cotton farmers, clearly, such policy would be boosting the purchasing power and welfare of these farmers. The converse is also true. If policy is so designed as to minimise the instability of these farmers' incomes, then such policy would be minimising the risks associated with the uncertainity of variable income. We can infer, therefore, that such policy would again boost farmers' welfare. Conversely, a policy that accentuates the instability of farmers' incomes would depress their welfare. It is in this context that this paper will use two distinct approaches to assess the direction in which Marketing Board pricing policy has affected the welfare of cotton farmers as well as the magnitude of this effect.

The simple and common way of assessing the effect of a marketing board on the level and stability of producer incomes is to utilize an accounting of the disbursement of total export income received by the Board. This methodology entails a comparative analysis of observed producer income and observed export income without reference to supply analysis. It underlies the existing studies of the income stabilizing role of marketing boards.[1] We shall label this methodology "the Accounting Approach". On the other hand, in this paper, we shall integrate the price theory of resource allocation, supply analysis and output effect in providing an alternative and in my view a better measure of the effect of marketing board policy on the level and stability of farmers' income. We shall label this methodology "the Analytical Approach".

Income Effect of Marketing Policy: The Accounting Approach

In the case of Uganda cotton, an accounting of the disbursement of total export income is provided in the Annual Trading Account presented in the Board's Annual Reports. There are six items on this account detailing the disposal of total reported export receipts.[2] These items are shown in Table 1. They represent the share of growers, the government and marketing middlemen in reported export revenue.

Item (1) shows growers' incomes from each year's crop. This figure is obtained by multiplying producer prices with total output for each season. Item (2) shows the middlemen's income: Item (3) shows the cost to the Marketing Board of transportation and insurance of the cotton up to Mombasa entreport port together with port handling charges. Item (4) shows the local governments' share of the revenue, while item (5) shows the Central Government's share. Item (6) shows the Lint Marketing Board's net retained surplus (deficit) of the export revenue. (It is these annual surpluses that formed the Price Assistance Fund.) The figure in item (7) (Total Income) is based on the reported quantity of cotton sold (exported and sold to the local mills) and F.O.R. Kampala prices (free on rail).

In Table 1, producers' income as a percentage of export income is shown to range from 36.0% to 84.0%. As this percentage approaches 84% one would say that farmers are steadily getting a fair deal for their effort. Yet this statistic is very deceptive. If one compares the percentage producer prices are of export c.i.f. prices (See 2, p.14) with this static, one has to believe that these percentages (item 8, table 1) are grossly overstated. Firstly, even if the F.O.R. Kampala prices used by the board in arriving at export income (item 7, table 1) are adjusted upwards for freight charges to Mombasa and c.i.f. charges between Mombasa and the ports of import, the percentages in table 1 overstate the share of farmers' income in total export income in three important respects. Firstly, production in any one year is not always equal to sales. This is true because the Board holds and carries stocks between any two or more periods. This fact has the effect of over-

TABLE 1

SUMMARY OF LINT MARKETING BOARD TRADING ACCOUNTS,

1950-1967 (Trading Years Ending 31st October)

Millions of Shillings

| Distribution of Cotton Income | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1963 | 1964 | 1965 | 1966 | 1967 | . |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Payments to Growers | 146 | 208 | 238 | 208 | 256 | 230 | 250 | 262 | 256 | 234 | 210 | 252 | 122 | 248 | 202 | 296 | 318 | 204 |
| 2. Cost of marketing, ginning & baling for export | 30 | 34 | 50 | 54 | 72 | 50 | 72 | 78 | 74 | 82 | 76 | 84 | 42 | 82 | 112 | 86 | 64 | 68 |
| 3. Expenses to f.o.b. Mombasa/ f.o.r. Uganda | 10 | 12 | 14 | 2 | 4 | 4 | 6 | 6 | 8 | 8 | 8 | 10 | 4 | 10 | 14 | 20 | 22 | 14 |
| 4. Bonus to African Local Governments | 6 | 6 | 8 | 6 | 8 | 6 | 8 | 8 | 8 | 8 | 8 | 8 | 4 | 8 | 8 | 10 | 8 | 8 |
| 5. Cotton Export Duty | 58 | 118 | 120 | 58 | 76 | 60 | 68 | 68 | 46 | 38 | 46 | 46 | 20 | 38 | 44 | 48 | 36 | 36 |
| 6. Lint Marketing Board, Net Surplus/deficit[1] | +82 | +208 | +168 | +8 | +32 | +20 | +12 | +4 | -56 | -50 | +20 | -20 | -36 | -56 | -12 | -38 | -82 | -22 |
| 7. Total Income | 332 | 586 | 598 | 336 | 448 | 370 | 416 | 426 | 336 | 320 | 366 | 380 | 156 | 450 | 364 | 430 | 376 | 356 |
| 8. (I) as % of (7) | 44.0 | 36.0 | 40.0 | 60.0 | 58.0 | 62.0 | 60.0 | 61.0 | 76.0 | 73.0 | 57.0 | 66.0 | 78.0 | 5.0 | 56.0 | 68.0 | 84.0 | 57.0 |
| 9. Income Effect (7) minus (I) | 186 | 378 | 360 | 128 | 192 | 140 | 166 | 164 | 80 | 86 | 156 | 128 | 34 | 202 | 162 | 134 | 58 | 152 |

Source: Lint Marketing Board, Annual Reports.

[1]Any difference between this residual item and total income net of the payments listed in 1 through 5 represents the cost to the Marketing Board of distributing seeds to the growers. Growers receive seeds free of charge.

stating producers' income and understating the Board's income. Its net effect would be to overstate producers' income as a percentage of export income. Secondly, some cotton is purchased from growers but "stolen" before the Board exports it.[3] This also would have the same effect of overstating the share of producers' income. Thirdly, in the quotation of price by the International Cotton Advisory Committee (c.i.f.) and the Lint Marketing Board (F.O.R.) there seems to be such a gap that unless it is all explained by Kampala-Mombasa freight charges and c.i.f. Mombasa-overseas charges, there seems to be what Bauer would call an "underrealization" factor in the realized export price of Uganda cotton.[4] If this is true, then this factor does also cause an understatement of export revenue. This would tend to overstate the share of farmers' income. Therefore item 8, Table 1 is not the correct representation of the share of farmers' remuneration in the earnings of their cotton.

Marketing Board's Stabilizing Effect on Producers' Income: The Accounting Approach

In testing for the income stabilizing role of marketing policy, the Board's export income series and observed producer income series of Table 1 are considered as two samples. The instability index computed will be the average annual percentage deviation of the respective observations in each sample from a five year centered moving average -- the trend.[5]

Table 2 shows the data on actual cotton producers' income under Lint Marketing Board trading and the computed instability index. Table 3 shows the Board's export income for the same period and the corresponding instability. The average instability of actual producer income is 10.9% ($I^P$=10.9 in Table 2) as opposed to an instability of Marketing Board export income (Table 3) which is 16.3%. This suggests that the board has absorbed 33.1% of the total magnitude of income instability. This result very well corroborates the results of previous researchers on this subject in Uganda[6]

TABLE 2
INSTABILITY OF COTTON PRODUCERS' INCOME UNDER LINT MARKETING BOARD TRADING; 1950-1967

Millions of Shillings

| | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 |
|---|---|---|---|---|---|---|---|---|---|---|
| Value of Cotton Crop[1] to Producers ($X_t$) | 146 | 208 | 238 | 208 | 256 | 230 | 251 | 262 | 256 | 234 |
| Trend of Producer Income ($A_t$) | - | - | 211.2 | 228.0 | 236.6 | 241.4 | 251.0 | 246.6 | 242.6 | 242.6 |
| Annual Percentage Deviations from Trend ($Y_t$) | - | - | +12.7 | -8.8 | +8.3 | -4.7 | 0 | +6.2 | +5.5 | -3.6 |

| 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | Average |
|---|---|---|---|---|---|---|---|---|
| 210 | 251 | 122 | 249 | 202 | 294 | 317 | 203 | - |
| 214.6 | 213.2 | 206.8 | 223.6 | 236.8 | 253.0 | - | - | - |
| -2.1 | +17.7 | -41.0 | +11.4 | -14.7 | +16.2 | - | - | $I^p$ = 10.9 |

Source: 1. Uganda. Ministry of Agriculture. Annual Reports (Various Issues). Entebbe. The Government Printer.

2. Lint Marketing Board. Annual Reports (Various Issues). Kampala.

TABLE 3

INSTABILITY OF EXPORT INCOMES UNDER
MARKETING BOARD TRADING, 1950-1967

Millions of Shillings

| | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 |
|---|---|---|---|---|---|---|---|---|---|---|
| Export Receipts by the Board ($X_t$) | 332 | 586 | 598 | 336 | 448 | 370 | 416 | 426 | 336 | 320 |
| Trend of Export Income (5-year Centered Moving Average) ($A_t$) | - | - | 460.0 | 467.0 | 434.0 | 399.0 | 399.0 | 376.0 | 373.0 | 366.0 |
| Annual Percentage Deviations from Trend ($Y_t$) | - | - | +30.0 | -28.0 | +3.2 | -7.3 | +4.5 | +13.3 | -9.9 | -12.6 |

| 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | Average |
|---|---|---|---|---|---|---|---|---|
| 366 | 380 | 156 | 450 | 364 | 430 | 376 | 356 | - |
| 312.0 | 335.0 | 343.0 | 356.0 | 355.0 | 395.0 | - | - | - |
| +14.1 | +13.4 | -54.5 | +26.4 | +2.6 | +8.9 | - | - | $1^W$ = 16.3% |

Source : See table 2.

Income Effect of Marketing Policy: An Analytical Approach

An accounting of the disbursement of export revenue is an unsatisfactory way of assessing the income effect of the Marketing Board's interference in the cotton industry. Because it does not embody any supply theory, it understates the income effect. A more satisfactory approach should integrate resource allocation, supply response and output effect analysis in the measure of total income effect of pricing policy.

Income effect will be defined as the potential change in income of cotton farmers had they obtained export prices for their cotton (rather than the producer prices fixed by the Lint Marketing Board) and adjusted their production plans in response to these higher prices.
Denote this quantity by $\Delta X_t$; t = 1945, 1946, --, 1966. If $\Delta Q_t$ is the output effect of the marketing Board's interference in the setting of price, then

(1) $\Delta X_t = PC'_t (\Delta Q_t)$; t = 1945, 1946, --, 1966.

Where $PC'_t$ is export price of cotton. With $PC'_t$ known (see table 4) in order to compute the $\Delta X_t$ series, we need an estimate of the $\Delta Q_t$ series. We can easily obtain these from an analysis of elasticity measures which we shall undertake presently.

Supply Responsiveness and the Output Effect of the Board's Interference in Price Determination

As long as supply elasticity is non zero, the Marketing Board's interference in the pricing mechanism will have an output effect via resource allocation, especially in the long run. If the deductions on unit export revenue in the form of export duty, marketing board surplus, marketing board operating costs etc. were not made, cotton producer prices would rise; though not by the full magnitude of these deductions as some marketing costs would still be incurred by any other alternative marketing arrangement. Such cost data for a hypothetical alternative marketing arrangement is not available and any attempt to devise them would be speculation. Therefore, we shall consider the full difference between producer price and export price as the "producer price effect"

of the existing marketing arrangement. Since this "producer price effect" is negative (producer prices are lower than export prices), if the estimated supply elasticity is positive, then output effect will be negative. For the sake of completeness, we shall give further theoretical justification for the existence of a negative output effect by analysing the intermediate processes between producer price as a decision signal and observed output.

The Resource Allocation Decision as a Prelude to Changes in Output

Because of the relatively low use of capital, chemical fertilizer, sophisticated management etc., land and labor remain by far the most important factor inputs in Uganda's cotton industry. However, for analytical purposes, we shall accept that the cotton farmer is free to employ as many inputs as he feels it is economically prudent to utilise.

Let V be a vector of i inputs, P a corresponding vector of i input prices, PC the producer price of cotton, PC' the export price of cotton and f the farmer's production function. A profit maximising farmer will utlise the vector V in such a way that

$$(2) \qquad P_i = PC.f_i\,(V) \text{ for all } i.$$

From equation (1), the demand for the i-th input can be derived as a function of its own price and the producer price of cotton. The function possesses the following properties:

$$(i) \quad \frac{\partial Vi}{\partial P_i} < 0 \text{ for all } i\ ;$$

$$(ii) \quad \frac{\partial Vi}{\partial PC} > 0 \text{ for all } i.$$

From property (ii) of the input demand function, it follows that since $PC'_t > PC_\tau$ for the entire sample period 1945 to 1966, the Marketing Board's interference in the cotton industry has led to an underutilization of resources in that industry. This gives us the analytical justification for the negative output effect which we can now compute from long run elasticity measures.[8]

Computation of Output Effect from Supply Elasticity Measures

Let $Q_t$ be the total output of cotton in thousands of 400 lb. bales at time t; t = 1945, 1946, --, 1966. The $Q_t$ series are the observed output associated with the higher potential producer price $PC'_t$ (export price). Let e be the mean of the estimated four long run regional supply elasticities. This "average" long run supply elasticity is equal to 0.4412.[9] From the elasticity definition, we derive the following expression for output effect:

$$(3) \quad \Delta Q_t = e.Q_t \frac{(PC_t - PC'_t)}{PC_t}$$

The output effect, therefore, can be given by a computation of $\Delta Q_t$ for the 1945 - 1966 period. Since $PC_t < PC'_t$, the $\Delta Q_t$ series will all be negative.

The Data For data on producer prices, Export prices and output, See table 4.

The Estimates

The estimates of $\Delta Q_t$ in table 5 obviously over estimate the output effect because the export prices are c.i.f. prices and therefore include an element of freight charges (Kampala - Ports of Import). Where as it is not possible that farmers could have realised export prices without incurring marketing and Distribution costs, nevertheless, the Board's non marketing cost levies that fall on farmer prices mean that had producer prices "tended" to export prices, output would have risen; the quantities shown in table 5 would be the limits of this additional production.

Having obtained the $\Delta Q_t$ series, the computation of $\Delta X_t$ then becomes a matter of simple arithmetic. Estimates of $\Delta X_t$ which are all negative (due to the output effect of pricing policy being negative) are shown in table 6.

Comparing Table 6 with item 9 of Table 1, it is evident that the methodology employed by previous studies grossly understates the income effect of the marketing board's activities (see 5 in particular). However, strictly speaking, from the point of view of the welfare of farmers, the income effect measured in Table 6 overstates the potential producers'

Table 4 Output and Prices

| t | Producer Price (PC) cts/lb. | Export Price (c.i.f.) (PC') cts/lb | Output (Bales of 400 lbs) |
|---|---|---|---|
| 1950 | 33 | 270 | 339,000 |
| 1951 | 45 | 416 | 346,000 |
| 1952 | 50 | 403 | 380,000 |
| 1953 | 50 | 300 | 320,000 |
| 1954 | 51 | 304 | 309,000 |
| 1955 | 61 | 308 | 300,000 |
| 1956 | 55 | 298 | 364,000 |
| 1957 | 56 | 305 | 372,000 |
| 1958 | 58 | 260 | 351,000 |
| 1959 | 47 | 258 | 401,000 |
| 1960 | 48 | 272 | 360,000 |
| 1961 | 55 | 258 | 371,000 |
| 1962 | 57 | n.a. | n. a. |
| 1963 | 57 | 238 | 181,000 |
| 1964 | 51 | 252 | 359,000 |
| 1965 | 56 | 252 | 379,000 |
| 1966 | 40 | 223 | 438,000 |
| 1967 | 45 | 224 | 445,000 |

Source: 1. Uganda. Ministry of Agriculture, Annual Reports, 1950, 1967. Entebbe: The Government Printer 1950,.., 1967.

2. Lint Marketing Board, Annual Reports, Kampala.

TABLE 5

ESTIMATED OUTPUT EFFECT OF THE MARKETING BOARD'S
INTERFERENCE IN THE COTTON INDUSTRY (BALES OF 400 LBS.)
1945 - 1966

| Year t | ΔQ | Year | ΔQ |
|---|---|---|---|
| 1950 | -1,074,162 | 1956 | -709,546 |
| 1951 | -1,258,557 | 1957 | -729,776 |
| 1952 | -1,183,651 | 1958 | -539,344 |
| 1953 | -705,920 | 1959 | -794,263 |
| 1954 | -871,102 | 1960 | -741,216 |
| 1955 | -535,950 | 1961 | -604,147 |
| | | 1962 | - n.a. |
| | | 1963 | -267,592 |
| | | 1964 | -502,960 |
| | | 1965 | -659,023 |
| | | 1966 | -676,360 |
| | | 1967 | -533,374 |

TABLE 6

MONEY INCOME EFFECT OF THE MARKETING BOARD

INTERFERENCE IN UGANDA'S COTTON INDUSTRY[1]

Millions of Shillings

| Year | ΔX | | Year | ΔX | |
|---|---|---|---|---|---|
| 1950 | -1,160 | (-186) | 1957 | -890 | (-164) |
| 1951 | -2,094 | (-378) | 1958 | -561 | (-80) |
| 1952 | -1,908 | (-360) | 1959 | -820 | (-86) |
| 1953 | -847 | (-128) | 1960 | -806 | (-156) |
| 1954 | -1,059 | (-192) | 1961 | -623 | (-128) |
| 1955 | 660 | (-140) | 1962 | n.a. | n.a. |
| 1956 | -846 | (-166) | 1963 | -265 | (-34) |
| | | | 1964 | -479 | (-202) |
| | | | 1965 | -664 | (-162) |
| | | | 1966 | -682 | (-134) |
| | | | 1967 | -476 | ( -58) |

[1]The figures are rounded to the nearest million to make them comparable with the income effect as measured by the traditional "Accounting Approach", which yielded the figures in table 1 (reproduced in parentheses here for easy contrast).

gain from increased cotton export earnings. From this money income gain, we must subtract the value of the production opportunity cost to cotton farmers if they reallocated resources out of the production of non-cotton commodities to the production of cotton. The closer to full employment the economy is, the more important this opportunity cost would be.

Marketing Board's Stabilizing Effect on Cotton Farmers' Income Revisited

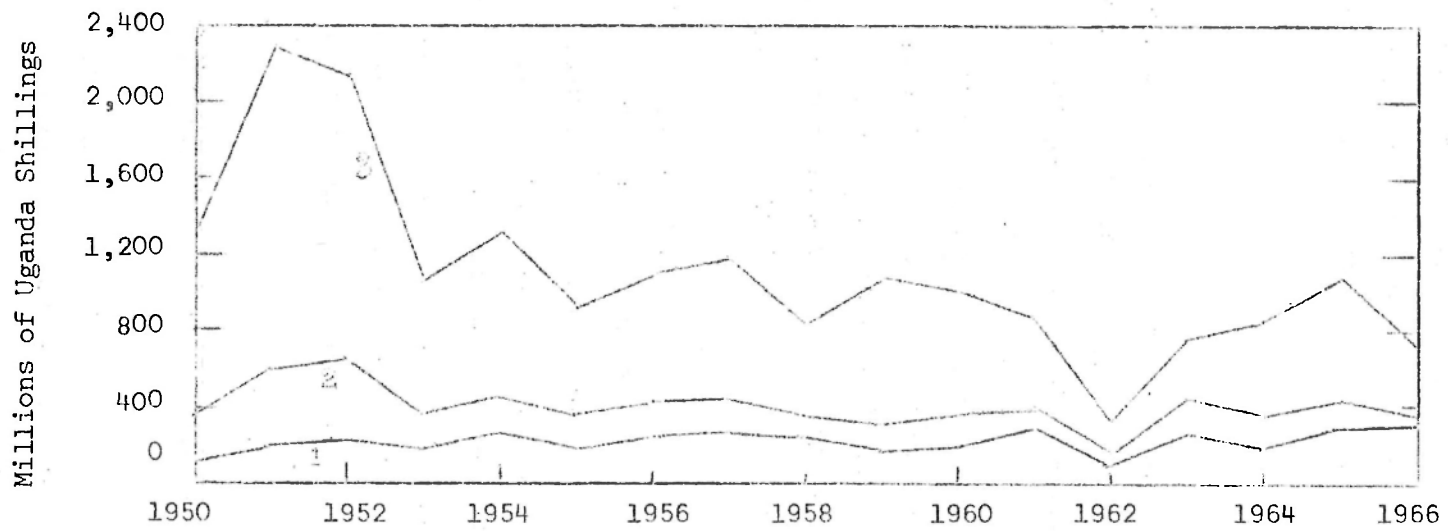
Using the Accounting Approach to the analysis of income effect of Marketing Board operation, we concluded that the Lint Marketing Board had absorbed 33.1% of the total instability of farmers' incomes. We shall now show on a chart (Fig 1) the income levels and income effects obtained under the two approaches and finally re-estimate the Marketing Board's income stabilizing role using the potential export income based on the estimated income effect shown in Table 6.[10]

In Table 7, the full level of potential producer income is equal to actual farmers' income plus the modulus of the income effect. It exhibits an average annual percentage deviation from a five-year centered moving average of 17.8%. This instability index is greater than 16.3%, the instability index of observed export receipts estimated by the "Accounting Approach". Therefore, in totality, the Lint Marketing Board has stabilized producers' incomes more than would be indicated by the Accounting Approach that has been deployed in previous studies (see 5, 6 & 9)

CONCLUSION

By any standards, when producers receive total income sometimes as low as 36% of total export income, they are victims of robbery without violence. When you add the fact that had these farmers faced prices related to world market prices they would have increased their output (table 5), then one can't help but conclude that the farmers have faced a two stage robbery system. From the analysis however, one reason for qualifying this conclusion is that if cotton output were to increase due to higher producer prices, the output of alternative crops

Fig. I. THE LEVEL AND FLUCTUATIONS IN ACTUAL AND POTENTIAL PRODUCER INCOMES UNDER MARKETING BOARD TRADING, 1950-1966.




1 = Actual Producers' Income
2 = Actual Export Income (Marketing Board Receipts)
3 = Potential Export Income
(Producers' Income if farmers had received c.i.f. export prices)

Table 7

INSTABILITY OF POTENTIAL PRODUCER INCOME[1]

| | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 |
|---|---|---|---|---|---|---|---|---|---|---|
| Potential Producer Income ($X'_t$) (Millions of shillings) | 1306 | 2302 | 2146 | 1055 | 1315 | 890 | 1096 | 1152 | 817 | 1054 |
| Trend of Potential Producer Income (5-year Centered Moving Average) ($A'_t$) | - | - | 1625 | 1542 | 1300 | 1102 | 1054 | 1002 | 1026 | 983 |
| Annual Percentage Deviations from Trend ($Y'_t$) | - | - | +32.1 | -31.5 | +1.2 | -19.2 | +4.3 | +15.0 | -20.3 | +7.2 |

| 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | Average |
|---|---|---|---|---|---|---|---|---|
| 1016 | 875 | 387 | 727 | 866 | 978 | 794 | n.a. | |
| 830 | 812 | 776 | 767 | 751 | - | - | - | |
| +22.4 | +7.7 | -50.1 | -5.2 | +15.3 | - | - | - | $I^{W'}$ = 17.8% |

[1]This figure is computed by adding the full income effect of Marketing Board interference in cotton to actual producer income received.

currently grown in the same area that grows cotton (including food crops) might have declined especially in Buganda where due to the high population density, there is little uncultivated land. Therefore the monetary opportunity cost of additional cotton output in the absence of the board would have to be deducted from the potential cotton income forgone by cotton farmers under the present marketing set up in order to arrive at a net result. A second reason for qualifying this conclusion relates to the use made of funds collected by the Board that would otherwise have accrued to the farmers. One clear thing is that the subsidisation of farmer prices (if any) has been minimal in the disposal of these funds. The more important outlets of these funds have been the board's investments in the stock of the Uganda Electricity Board (a parastatal body) and direct transfers to the ministry of finance to subsidize the government's fiscal programs. It is beyond the scope of this paper to undertake a far reaching benefit-cost analysis of the use of these funds from the point of view of the farmers. However, we know that the operations of the Uganda Electricity Board do not entail any rural electrification program so that the benefits of their activities to the farmers must be more indirect than anything else. In any case, it is deducible from this analysis that marketing board operation has accenturated the widening income gap between the Urban and rural sectors of the economy.

Because of uncertainity, in trade, export instability has been generally considered as destructive to the development process especially in the so-called "export led", dependent developing economies. This view of the instability-growth relationship is nurtured by theoretical arguments firmly grounded in traditional macroeconomic theory and multiplier analysis and a conception of growth dynamics in which capital accumulation and especially imported capital goods and foreign exchange play a fundamental role (see 12) The same rationale underlies international and national efforts aimed at "ironing out" the instability factor in trade through appropriate commodity price stabilization and compensatory financing schemes. Stabilization schemes seem more imperative the smaller the range of alternative export commodities in the economy. Such is the case with Uganda,

whose export trade is dominated by coffee and cotton. The instability factor was a major consideration in the establishment of the Uganda Lint Marketing Board to "cushion" the cotton farmer from the undesirable effects of international commodity market fluctuations.

From the stabilization point of views existing methodology for analyzing and testing income stabilizing effects of Marketing Bord policies has been inadequate. Instability of actual producer incomes is simply compared with instability of potential producer income, as measured by export receipts of the Boards. Implicit in this definition of potential producer income is the assumption that world market prices of cotton do not vary with the level of domestic output. It may be reasonable to assume that the elasticity of demand for many export commodities of small countries such as Uganda's cotton is infinite along the relevant range on the demand curve. But this definition also assumes that domestic production level is invariant with alternative producer prices, notwithstanding the empirical evidence to the contrary. It assumes a zero output effect of Marketing Board pricing policies. To the extent that this assumption is not true, (See 3 & 10) the instability measure of potential producer income deployed in existing literature has been misleading. We must, therefore, concede that the Lint Marketing Board in Uganda has stabilised farmers' incomes more than has been realised.

FOOTNOTES

1. See 5, 6 and 9.
2. The word "reported" is used here to signify that export income as recorded in the Lint Marketing Board's Annual Report is different from potential export income as shown by the yearly level of output and the level of world market prices. The causes of this dissimilarity are discussed later in this section.
3. One such case when some cotton bought from farmers was stollen from the Lint Marketing Board is documented in the 1967 Lint Marketing Board Annual Report, p. 12.
4. See 4, p. 340.
5. For a justification of this choice, See 2, p. 15.
6. See 9.
7. The production function is assumed to be of the Neoclassical type.
8. For the analytical and empirical exercises undertaken to derive the elasticity measure of 0.4 used in this analysis, See 3
9. See 3, p. 21. 0.4412 is the mean of 0.6217, 0.4439, 0.0684 and 0.6306, the long run supply elasticities estimated for the four regions of Uganda (i.e. Western, Eastern, Northern and Buganda).
10. The Instability Index calculated is the same as used previously.

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