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MAIZE MARKETING IN KENYA: FACTORS INFLUENCING  
THE MARKETING EFFICIENCY OF NATIONAL CEREALS  
AND PRODUCE BOARD 1

by

TOM KAKUBA

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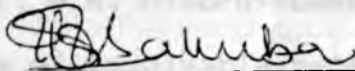
A Thesis submitted in part fulfillment for a degree of  
Master of Science of the University of Nairobi.

1986

DECLARATION

I, Tom Kakuba declare that this Thesis is my original work and has not been presented for a degree in any other University

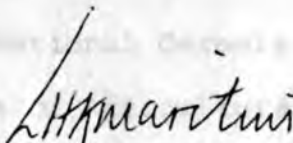
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Dr. H.K. Maritim

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

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ABSTRACT

The National Cereals and Produce Board (NCPB) has a number of objectives in the maize market. To fulfil them it performs many marketing functions.

It is often blamed for being inefficient in internal maize marketing. While various aspects of this inefficiency have been identified, factors underlying it are not clear. Identifying and analysing these factors was the main objective of this study.

Discussions and interviews were held with officials of the board and the Ministry of Agriculture and Finance. Secondary data were obtained mainly from the records of the board.

It was found that since 1976/77 the board has been insolvent and that since 1974/75 it has consistently failed to break-even in internal maize trading. Further it was indicated that its buying centres were under-utilized and costly to operate than buying agents.

Other findings were that in most years its annual maize purchases fell out of the 'optimal' 4 to 6 million bags range; its maize purchases and sales were unstable and foreign trade in maize was undertaken at heavy financial losses.

These problems affected its crop procurement activities and timely payment to farmers in some years. They also increased its marketing costs and made forward planning for resources difficult. Its socio-economic responsibilities were also restricted. (Bias)

It was recommended that the government should resuscitate the board financially and full and prompt subvention of all debts of the board should be a routine procedure. Further the board should be fully involved in the making of all decisions that affect its operations. The board should also retain only economically viable buying centres and replace others with buying agents. Finally it was recommended that the board should be shielded from political influences. ✓

## CHAPTER 1

### INTRODUCTION

#### 1.1 Production and Consumption of Maize in Kenya

Maize is one of the most important crops grown in Kenya. It is a staple food in both rural and urban areas. Most of the maize is produced on small scale farms, mainly for subsistence. The rest is sold through both the formal and informal channels. Large scale farmers produce it mainly for sale through the formal channel.

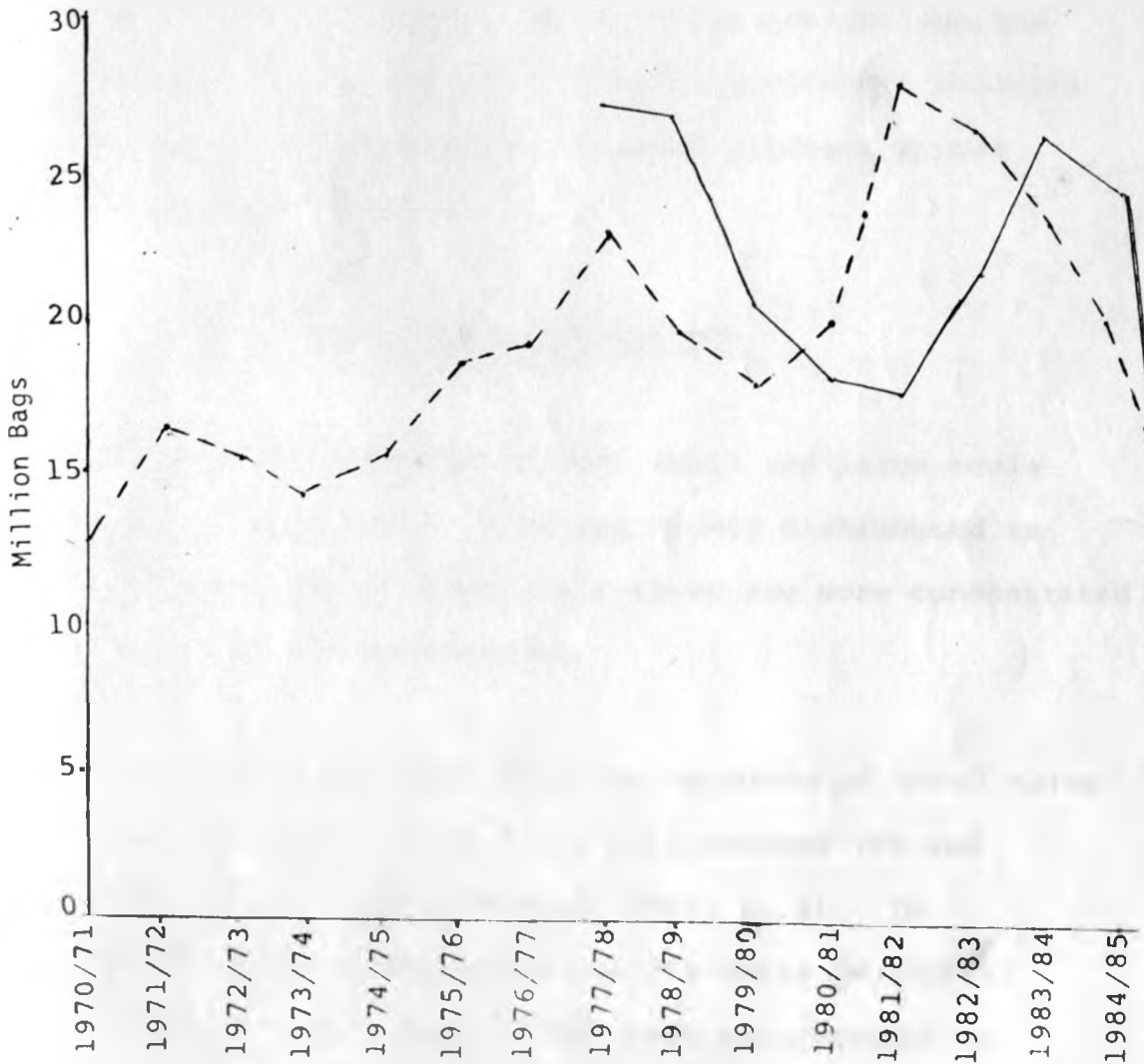
##### 1.1.1 Total Production

There is no single set of statistics on total production of maize in Kenya. The Ministry of Agriculture (MOA) and the Central Bureau of Statistics (CBS) provide differing data on total production (Table A.1). Production figures computed from the maize yield and area estimates of the National Cereals and Produce Board (NCPB) and the CBS also differ from the above.

While the CBS data are more detailed than those of the MOA, the latter has collected them over a longer period of time. This chapter therefore relies on the production figures of both the CBS and the MOA.

Fig. 1: Estimates of Maize Production in Kenya by CBS and MOA: 1970/71 - 1984/85

(Million bags<sup>a</sup>)



<sup>a</sup>1 bag = 90 Kilograms

Source: Table A.1

Between 1970/71 and 1977/78, the total production trend was rising but the period between 1978/79 and 1984/85 was characterised by large fluctuations about a falling trend (Fig. 1). Much of these fluctuations are weather induced as precipitation in Kenya varies across time and space. Other influences include the availability and prices of inputs, government policies and farmers' responses to official producer prices (Buckland, 1981, p. 2).

#### 1.1.2 Maize Production Pattern

Maize is produced on both small and large scale farms<sup>1</sup>. Small scale farms are widely distributed in the country while large scale farms are more concentrated in the Rift Valley Province.

Small scale farms form the backbone of total maize output in Kenya. They contribute between 75% and 90% of total output (Maritim, 1982; p. 6). In 1980/81 their contribution was 70% while in 1981/82 it was 68% (Table A.2). The rest was produced on large scale farms.

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<sup>1</sup> This study considers large and medium scale farms as large scale farms. Small scale farms are 20 hectares or less in size, medium farms are 20 to 50 hectares and large scale farms exceed 50 hectares [Kenya, 1980, p. (ii)].

Table 1.1: The Proportion of Maize Output From Small and Large Scale Farms in Six Provinces of Kenya: 1976/77 - 1981/82

(%)

Province	SMALL SCALE						LARGE SCALE	
	1976/77	1977/78	1978/79	1979/80	1980/81	1981/82	1980/81	1981/82
Rift Valley	37.2	33.4	26.6	30.2	42.9	37.7	87.7	88.2
Western	16.4	13.1	13.4	18.7	16.6	18.0	7.8	7.5
Nyanza	16.2	22.5	18.4	20.1	18.3	17.8	2.2	1.1
Sub-total	69.8	69.0	58.4	69.0	77.8	73.5	97.7	96.8
Central	23.0	14.8	19.3	14.3	10.1	12.9	0.7	1.3
Coast	3.8	5.4	6.0	5.3	2.2	3.4	-	-
Eastern	3.4	10.8	16.3	11.4	9.9	10.2	1.6	1.9
Sub-total	30.2	31.0	41.6	31.0	22.2	26.5	2.3	3.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Computed from Table A.2

Most maize is produced in the western part of the country - Rift Valley, Nyanza and Western Provinces. Between 1976/77 and 1981/82 it produced between 58% and 78% of small scale output and over 96% of large scale output in 1980/81 and 1981/82 (Table 1.1). The eastern part of the country - Central, Coast and Eastern Provinces - contributed only marginally to national output.

The Rift Valley Province is a major maize producer on both small and large scale farms. It produced between 27% and 43% of total small scale output in 1976/77 to 1981/82 and over 85% of large scale farm output in 1980/81 and 1981/82 (Table 1.1). Western and Nyanza Provinces are also important maize producing areas.

Maize production in Kenya has a characteristic of a dual seasonal crop pattern because of the long and short rains. The Rift Valley, however, usually produces only a long rains maize crop. The long rains crop accounts for over 70% of annual output (Table 1.2). In Eastern Province the short rains crop seems to exceed that of the long rains.

Table 1.2: Estimated seasonal output of Maize in six Provinces of Kenya: 1979/80 - 1983/84

(%)

Province	Rainy Season	1979/80	1980/81	1981/82	1982/83	1983/84
Central	Long	64.2	66.7	58.6	63.5	73.8
	Short	35.8	33.3	41.4	36.5	26.2
Coast	Long	56.8	42.9	62.0	53.7	71.6
	Short	43.2	57.1	38.0	46.3	28.4
Eastern	Long	51.3	44.9	53.6	27.3	28.8
	Short	48.7	55.1	46.4	72.7	71.2
Rift Valley	Long	100.0	100.0	100.0	98.2	96.5
	Short	-	-	-	1.8	3.5
Nyanza	Long	64.3	64.3	65.2	54.4	70.5
	Short	35.7	35.7	34.8	45.6	29.5
Western	Long	61.1	74.2	65.5	92.2	86.6
	Short	38.9	25.8	34.5	7.8	13.4
Total	Long	73.6	79.1	76.2	80.9	84.5
	Short	26.4	20.9	23.8	19.1	15.5

Source: Computed from Table A.3



Integrated Rural Survey (IRS) data on maize output collected by the CBS in 13 four-weekly cycles in 1978/79 in six provinces and presented in Figure 2 shed more light on the seasonality of maize output in Kenya.

It is indicated that a similar pattern of output occurred in Central, Coast and Nyanza Provinces, with harvesting taking place between August and October and between January and March. In Eastern province harvesting took place between June and September and in March and April.

The Rift Valley and Western Provinces displayed a single pattern of maize output. Maize was harvested between October and February in the Rift Valley and between August and November in Western.

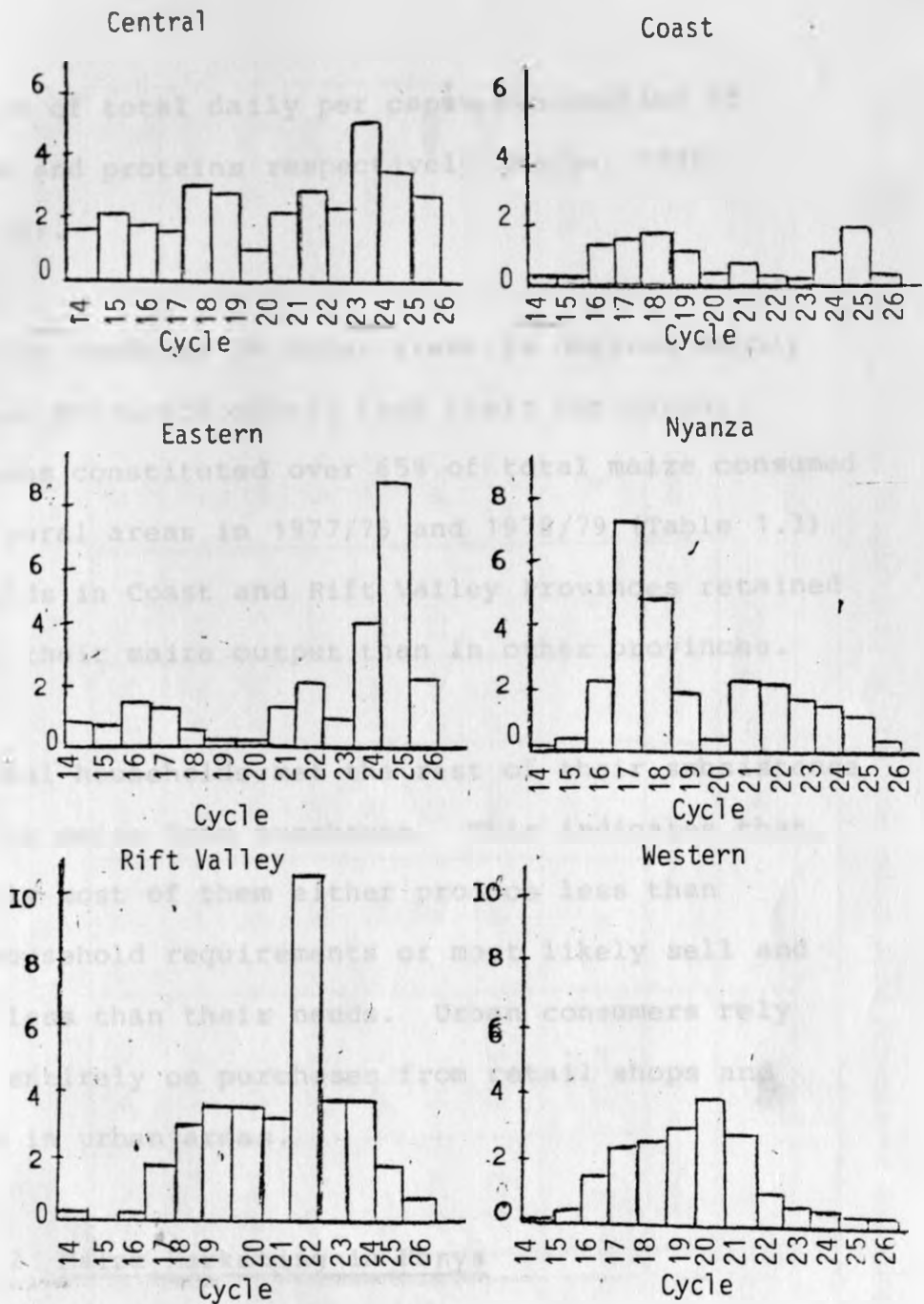
This means that between April and June, there was little harvesting taking place in the country. This appears to be the annual pattern (Hesselmark et al 1976; p. 162).

↓  
1.1.3 Consumption of Maize

Maize is the most important staple food in rural and urban areas of Kenya. It is a pre-eminent source of calories and proteins. In 1976 it contributed 44%

Fig. 2: Seasonal Maize Output in Six Provinces of Kenya: 1978/79

('00000 bags)



The cycle dates were as follows:

Cycle: 14	16 May - 12 June	21	28 November - 25 December
15	13 June - 10 July	22	26 December - 22 January
16	11 July - 7 August	23	23 January - 19 February
17	8 August - 4 September	24	20 February - 19 March
18	5 September - 2 October	25	20 March - 16 April
19	3 October - 30 October	26	17 April - 15 May
20	31 October - 27 November		

and 41.5% of total daily per capita consumption of calories and proteins respectively (Kenya, 1979; Table 6.8).

Maize consumed in rural areas is derived mainly from what producers retain from their own output. Retentions constituted over 65% of total maize consumed in the rural areas in 1977/78 and 1978/79 (Table 1.3). Households in Coast and Rift Valley Provinces retained most of their maize output than in other provinces.

Rural households met the rest of their subsistence needs for maize from purchases. This indicates that, generally most of them either produce less than their household requirements or most likely sell and retain less than their needs. Urban consumers rely almost entirely on purchases from retail shops and markets in urban areas.

## 1.2 Maize Marketing in Kenya

### 1.2.1 Marketed Output

To a large extent, the pattern of marketed output reflects the pattern of production. Between 1979/80 and 1981/82, all maize producers marketed less than 35% of

Table 1.3: Quantities and Proportions of Consumed Maize from Retentions and Purchases in Six Provinces of Kenya: 1977/78 and 1978/79

Province	1977/78						1978/79					
	Retentions		Purchases		Total		Retentions		Purchases		Total	
	Mill. bags	%	Mill. bags	%	Mill. bags	%	Mill. bags	%	Mill. bags	%	Mill. bags	%
Coast	0.48	82.7	0.10	17.3	0.58	100	0.73	89.0	0.09	11.0	0.82	100
Eastern	1.21	59.6	0.82	40.4	2.03	100	1.75	68.2	0.82	31.8	2.57	100
Central	1.29	65.2	0.69	34.8	1.98	100	1.29	70.9	0.53	29.1	1.82	100
Rift Valley	3.51	86.9	0.53	13.1	4.04	100	2.99	77.9	0.85	22.1	3.84	100
Nyanza	2.57	73.9	0.91	26.1	3.48	100	2.19	66.8	1.09	33.2	3.28	100
Western	1.33	61.0	0.85	39.0	2.18	100	1.44	64.0	0.81	36.0	2.25	100
Total	10.39	67.3	3.90	32.7	14.29	100	10.39	71.3	4.19	28.7	14.58	100

Source: Republic of Kenya, 1981. Integrated Rural Survey 1976 - 1979 Basic Report. CBS Ministry of Planning and Economic Development, Nairobi, Table 11.1

their total output (Table 1.4). Small scale farmers, however, marketed less than 23% of their total output and large scale farmers marketed over 55% of their output.

Table 1.4 also indicates that there is a regional pattern in the maize marketed by small scale farmers. Between 1979/80 and 1981/82 small scale farmers in the Rift Valley and Western Provinces marketed higher proportions of their maize output than those in other provinces. In addition, if marketed output of large scale farmers is considered, the western part of the country becomes a surplus area, compared to the eastern part.

### 1.2.2 Maize Marketing Channels

In theory, the board (NCPB) handles all maize entering the maize marketing system in Kenya. In practice, however, two channels exist: The formal and the informal channels.

The formal channel consists of the board and its appointed agents - the co-operatives and licensed buying traders,- who act on its behalf especially in the small scale farming areas. In this channel, prices are fixed

officially at every stage in the marketing chain. Recently, the Kenya Grain Growers Co-operative Union (KGGCU) was formed as another participant in this channel.

Table 1.4: Maize Sales as a Proportion of Maize Output by Small and Large Scale Farmers in Six Provinces of Kenya: 1979/80 - 1981/82

% of total output

	Coast	Central	Eastern	Rift Valley
<b>Small Scale</b>				
1979/80	6.8	15.4	1.3	43.1
1980/81	-	8.4	13.4	27.5
1981/82	-	10.5	16.6	32.1
<b>Large Scale</b>				
1979/80	-	-	-	-
1980/81	-	-	-	-
1981/82	-	-	-	-
<b>Total</b>				
1979/80	-	-	-	-
1980/81	-	-	-	-
1981/82	-	-	-	-

Source: Tables A.2 and A.4

The informal channel consists of a large number of intermediaries - traders and farmers - trading in small quantities essentially in local markets and at the farm gate. Also included in this channel is the smaller number of entrepreneurs who move and trade maize in large quantities across district and provincial boundaries. Prices and transactions are guided by the market forces of demand and supply.

The origins of this dual maize marketing system can be traced to the Great Depression of the early 1930s. By that time, Africans were producing maize mainly for subsistence, with a smaller proportion coming onto the internal market while European farmers were producing it mainly as an export crop. Europeans had also formed the Kenya Farmers' Association (KFA) in 1923 to handle their marketed maize. It also paid a pool producer price to its members (Yoshida, 1969, p. 92).

During the depression, agricultural commodity prices on the export market collapsed, and with them the price paid by KFA to its members. KFA pressed for the pooling of all marketed maize in the country so that all maize producers would share pro-rata the low export prices and the relatively higher prices on the internal market (Yoshida, 1969; p. 94). Other arguments were also used to call for control.

It was argued that if domestic producer prices were allowed to fluctuate with export market prices, the economy would be adversely affected. High export market prices would lead to high producer prices and high production costs while low export prices would depress domestic prices, discourage production and probably lead to shortages (Kenya; 1952, p. 4). It was therefore envisaged that control over collection and distribution of maize was essential.

These ideas failed owing to the opposition of maize consuming interests: Africans for whom maize was a staple food and European plantation owners whose African labour costs were a major proportion of their total production costs (Yoshida, 1969, p. 94).

Control was finally implemented as a direct consequence of the second World War. Kenya was called upon to produce all possible amounts of maize it could to support the British war effort. As an incentive and for the first time, European maize producers were guaranteed a minimum producer price (Kenya, 1952, p. 4). It was this guarantee which ultimately led to controlled marketing. A price guarantee implies that the guarantor must undertake to purchase all the marketed quantities at that price. In turn, this calls for an institution to handle them.



Consequently a Maize Control board was established in 1942 with a monopoly over internal maize purchases. It was to buy, collect and store maize in order to balance the demand for, and the supply of maize and to ensure food security by maintaining a maize reserve (Kenya, 1952, P. 5). It was empowered to appoint its buying agents and to prohibit or direct internal maize movements. All its activities were directed at ensuring domestic maize supplies and paying farmers satisfactory producer prices (Jones, 1972, p. 202).

Controlled maize marketing was continued into the post-war era with virtually the same objectives and methods of control. In the 1950s Africans were not considered reliable suppliers of food to the Colony and Europeans were therefore provided with an economic sinecure in form of higher producer prices than Africans (Jones, 1972, p. 202). This policy apparently continued into early post-independence years because, until mid-1960s, Africans were paid a little more than half the price paid to Europeans (Leys, 1975; p. 106). Not surprisingly, Africans relied on the 'free' market rather than on the formal channel because only 5-10% of their marketed maize went to the board during this period (van Zwanenberg, et al 1975; p. 220).

In 1959 the Maize Control Board was replaced by the Maize Marketing Board and two provincial marketing boards: Nyanza Provincial Marketing Board in Nyanza and later in Rift Valley as well and the Central Province Marketing Board in Southern Province (Kenya, 1960; p. 75). These provincial boards were subsequently replaced in 1964 by the West Kenya Marketing Board in Nyanza and Rift Valley Provinces and the Kenya Agricultural Produce Marketing Board in Central, Eastern and Coast Provinces (Karani, 1965, p.11).

In 1966 the above marketing boards merged into a single Maize and Produce Board (MPB) with similar functions and marketing control methods as the MCB. In addition to maize, the MPB handled over 40 varieties of other produce.

In its first year of operation the MPB expanded its crop procurement operations throughout the country and especially in the small scale farming areas by establishing a storage capacity of upto 0.6 million bags in 14 places mainly in Nyanza, Western and Eastern Provinces (MPB, 1966/67 Annual Report, p.4). This did not, however, solve its storage problems and besides failing to purchase all commodities offered for sale by the farmers, it stored maize outside the stores,

exposed to weather. Large quantities deteriorated resulting in a financial loss to the board. On the outset the board become an insecure producer outlet.

A county council cess was levied on each bag of maize delivered to the board stores in the African areas during this period (Karani, 1965, p. 15). This continued even into the late 1960s (MPB Annual Reports). To avoid this tax, Africans sold most of their maize on the 'free' market rather than to the board.

The law in Kenya also allows free trade in maize in limited volumes and areas. Inter- and intradistrict maize movements and trade in volumes not exceeding two and ten bags respectively are legal (Kenya, 1959; p. 11). Larger consignments are legally moved if the consignee has a movement permit usually issued by the board or the district commissioner. However illegal trade also takes place in Kenya (Ireru, 1976; p. 50-54). This trade is usually tolerated and sometimes quietly encouraged (Hesselmark et al 1976; p. 166).

In 1979, the MPB merged with the Wheat Board of Kenya to form the NCPB. Its responsibilities are similar to those of the MPB and the Wheat Board.

The NCPB has been beset with many problems which include finance; storage and decision-making. These have limited its effectiveness in achieving its objectives and carrying out its marketing activities. Some farmers and consumers have therefore tended to rely on the informal channel instead of the formal channel.

### 1.3 The Problem and Objectives of the Study

The NCPB is a parastatal marketing institution with several product lines. It handles maize and wheat and over 40 varieties of other agricultural commodities such as beans, millet and sorghum, some of these in uneconomically small quantities. Of these, maize is its main product line. Between 1973/74 and 1984/85 maize was between 58% and 85% of the total volume of its commodity purchases within Kenya (Table 1.5).

Table 1.5: Share of Maize in Total Commodity Purchases of the Board in Kenya: 1973/74 - 1984/85

Year	%
1973/74	81.0
1974/75	84.2
1975/76	84.5
1976/77	84.6
1977/78	80.9
1978/79	78.1
1979/80	60.2
1980/81	57.9
1981/82	64.5
1982/83	61.6
1983/84	64.4
1984/85	75.2

Source: MPB/NCPB Files

The dominance of maize in its commodity purchases implies that the board's activities are directed principally at maize marketing.

In the maize market the board has several objectives. These include:

- (i) guaranteeing a market at <sup>remunerative</sup> prices to producers.
- (ii) guaranteeing sufficient maize supplies to consumers at 'fair' prices.
- (iii) preventing the exploitation of producers (especially small scale farmers) and consumers by traders.
- (iv) performing its marketing functions at lowest possible costs.

To fulfil these objectives, the board performs a number of marketing functions. It assembles maize, either through its agents or buying centres and is delivered in bulk to the depots. After receiving instructions from the board, agents buy maize from farmers. Occassionally these instructions are received late when the maize buying season has began.

In 1980 buying centres replaced agents mainly in the western part of the country. Farmers deliver any quantity of maize to these collection points. Large scale farmers deliver maize in bulk directly to the depots. During a heavy intake of maize, there is always congestion at the buying centres and depots.

Maize procured at the buying centres is transported by the board to its depots using hired transport after bulking. A licensing system is used to control transportation of maize by agents and farmers to the depots and within or outside a district. A movement permit must be obtained from the board or district commissioner in areas far from the board depots.

The board has a storage capacity equivalent to 9.092 million bags distributed through 46 depots and silos located mainly in the main maize producing areas. The western part of the country has 68.7% of the total storage capacity, with the Rift Valley Province having 42.9% (Table 1.6).

Almost all this capacity is used for maize storage. Discussions with board officials indicated that in theory 80% of the storage space is reserved for maize. In some years, however, the proportion is larger and in others it is smaller.

Table 1.6: NCPB Storage Capacity in Seven Provinces of Kenya: 1985

Province	No. of Depots	Capacity (million bags)	%
Rift Valley	16	3.903	42.9
Western	9	1.525	16.8
Nyanza	6	0.821	9.0
Central	5	1.122	12.4
Eastern	5	0.498	5.5
Coast	4	0.473	5.2
Nairobi	1	0.750	8.2
Total	46	9.092	100.0

Source: NCPB files

From these depots, maize is distributed throughout the country with an aim of ensuring an equitable distribution from surplus to deficit areas. This would ensure that maize market prices in the informal channel would not fall below the official buying price in the surplus areas or rise above the official selling price in the deficit areas.

Earlier studies have shown that the board has not achieved these objectives mainly because of its marketing inefficiency. The concept of marketing efficiency deals with how well and less costly a marketing institution



performs its marketing activities and how effectively it achieves its objectives.

The studies have shown that prices in producing areas often fall below the official buying price and rise far above the official selling price in deficit areas. They have also shown that interregional price differences do not reflect transfer costs and that the board's transportation function is costly relative to private traders.

Other indicators of the marketing inefficiency of the board include failure to purchase all marketed surpluses of the farmers and to pay farmers cash-on-delivery. Losses resulting from inadequate storage occur in some years.

All these problems make it clear that the board has not attained efficiency in its internal maize marketing. This should be viewed with concern because small scale farmers form over 70% of the total population, most of them with low incomes (Schmidt, 1979, p. 1). Almost all of them produce and consume maize and since they usually cannot grow or retain enough for home consumption, they rely on purchases for most of the year (Kenya, 1981a, Table 12.10). Inefficiencies in the marketing system doubly affect them as producers and consumers.

Aggregate demand for maize has increased rapidly with increasing population and urbanisation (Kenya, 1981b, p. 11 - 16). Production however, varies both in time and space, with limited supply relative to demand in some areas and periods. In this situation an efficient marketing system is a sine qua non.

The studies have generally considered the aspects of the board's marketing inefficiency but have not fully identified and analysed the constraints underlying its inefficiency in internal maize marketing. The objective of this study is to identify and analyse these constraints. This would help policy makers establish alternative courses of action from which improvements in the marketing efficiency of the board can be sought.

#### 1.4 The Hypotheses

Two hypotheses are postulated in this study. These are that:

- (i) the board is faced with heavy financial constraints particularly in internal maize marketing.

It performs a number of activities related to the marketing of maize and other agricultural commodities it handles. To perform them efficiently, the board requires adequate financial and other resources. Each resource has a price and therefore a cost, which must be paid. Normally the board should meet these costs from its marketing margins. In maize marketing these margins are officially controlled. Unless they are sufficient to cover the costs, it will not break-even and will incur financial losses that will increase its financial problems

- (ii) There is a high level of external involvement in the activities of the board and particularly in internal maize marketing.

External involvement is interpreted in this study as the influence of administrative and political forces in the activities of the board. The board handles maize, a staple food for about 90% of the population in the country. The demand for it is price inelastic. There have also been periodic maize chaos in the country. These factors are bound to attract external influence in the marketing activities of the board, which would adversely affect its marketing efficiency.

## CHAPTER 2

### LITERATURE REVIEW

4 Agricultural marketing includes all functions involved in the transfer of agricultural commodities from the producers to the ultimate consumers. These functions consist of:

- (i) exchange functions of buying, selling and pricing
- (ii) physical functions of transportation and handling; storage, processing and packaging, and grading and standardisation
- (iii) facilitating functions of financing and risk-bearing, marketing information and news, demand creation and research.

Also included in agricultural marketing are the institutions which perform these functions and the institutional arrangements that create linkages of all stages in the marketing chain (Kriesberg et al 1982; P. 1).

In some countries marketing institutions are operated as private enterprises while in others they are set up and directed by the government. In others both the private entrepreneurs and the government play equally important roles in agricultural marketing.

# ↓

In the marketing of staple foods the trend has been of more state involvement (Wyeth, 1981, p. 307). A wide variety of arguments is used to justify state involvement in agricultural marketing. Broadly they can be categorised as economic, political, social and strategic (Howarth, 1967; p. 105).

Various intervention policies have been adopted in various countries. They include indirect forms whereby the government provides market facilities to improve the performance of private traders and influences prices only by such means as open market operations via the buffer stocks. They also include forms whereby the government becomes directly involved in the marketing process.

One form in which the government has been involved is through the creation of marketing boards. Abbott et al (1969) defined marketing boards as institutions established by government action and delegated legal powers of compulsion over producers and handlers of primary or processed agricultural products. They are expected to substitute for private traders, to fulfil effectively the objectives set for them and to perform marketing functions more efficiently than private traders.

The concept of marketing efficiency is concerned with how well and less costly a marketing institution performs its marketing functions relative to other institutions. It is divided into two different categories: pricing or allocative efficiency and operational or technical efficiency.

Pricing efficiency is concerned with the exchange functions. It is achieved if the marketing institution operates such that:

- (i) price differences between two areas reflect only the transport and handling costs of spatial transfer,
- (ii) price differences between two periods for a storable commodity reflect only the storage costs, and
- (iii) the price of a processed product exceeds that of the unprocessed equivalent by the cost of processing.

Operational efficiency, on the other hand is concerned with the physical or technical functions and the costs of performing them. Given its particular location and environment, an institution is operationally efficient if its production function yields the greatest output for any set of resources (French, 1977; p. 94). This implies optimisation of the output/resource ratio.

The marketing efficiency of marketing boards in various countries has been criticised. In a study of illicit maize marketing in one region of Tanzania, Nyiti (1976) indicated that it was a direct result of poor marketing services provided by the official channel to farmers as compared to private traders. These services included payment, collection, assembly and containerization.

In the Sahel region of Africa, a working group on Marketing, Pricing and Storage policies (CILSS, 1977) found that the efficiency of public grain marketing institutions was deficient in many respects such as storage and transport. High storage losses and delayed movement of grain stacked outdoors and exposed to natural hazards were reported a common occurrence.

In Kenya, Heyer (1976) and Gsaenger et al (1977) in their assessment of the maize marketing system noted that the MPB failed to stabilize rural market prices for maize and that inter-regional price differences were wider than transport costs.

Schmidt (1979) examined the maize marketing system in Kenya, with particular emphasis on the rural marketing system. He defined the attributes of an effective marketing system as operational and pricing efficiency,

security of outlets and services and protection of producers and consumers from exploitation by traders.✓

After testing the operations of the board and private traders against these criteria he concluded that the former was inefficient relative to the latter.

It is clear that in some countries, including Kenya agricultural marketing boards are generally inefficient in marketing staple food crops. Few studies have, however, identified and analysed the specific constraints underlying the inefficiencies. The rest of this chapter reviews some of these studies.

✓ Following the maize shortages in 1971 in Kenya, a Parliamentary Committee (Kenya, 1973) was appointed to investigate its causes and to devise a proper production, marketing and pricing policy. With respect to the board, the MPB, the committee noted that it was inefficient in maize marketing because of difficulties at the national level. These were identified as official interference in the decision making process of the board and lack of a clear division of the financial burden to be borne by the board and by the government.



∕ This politicised the board operations and decisions and complicated financial budgeting of the board. It was therefore recommended that the board and the government should adhere to their respective responsibilities in the maize industry. It was also recommended that a clear policy be formulated defining the costs to be borne by both the board and the government.

∕ The Ndegwa Report (Kenya 1982) noted that the use of a parastatal as an instrument of public policy implementation may undermine its capacity to finance and manage its own operations. It gave an example of the establishment of buying centres in 1980 by the NCPB as public policy whose implementation involved the NCPB in heavy financial losses. It was recommended that if a policy had to be implemented at a loss the government should explicitly subsidise it through a subvention in the budget.

Elsewhere factors limiting the marketing efficiency of public marketing institutions have also been exposed.

Holmberg (1976), in a review of official intervention in grain marketing in Ethiopia found that prior to 1976, the intervention by the Ethiopia Grain Corporation in the grain markets was weak and inconclusive; did not fulfil its objectives of price stabilisation and optimal grain

distribution and did not perform its functions efficiently. These shortcomings were attributed to shortage of working capital, insufficient market information and failure to generate enough profit to cover its administrative overhead costs. Its average grain market share was also less than 5%, which was insufficient for price stabilisation.

Abbott (1974) identified several factors limiting the marketing efficiency of marketing boards in West Africa and especially in Nigeria. He grouped them as:

- (i) board - government nexus
- (ii) board - private enterprise relationship
- (iii) crop procurement procedures, and
- (iv) board's internal organization

He noted that official interference in the routine matters of the board such as staffing, crop procurement and operational questions had a negative effect on morale and efficiency because the board only become an instrument rather than an agent of the government. Abbott suggested that the government should deal with central policy issues such as producer pricing while utilising the advice of the board and leave routine and operational questions to the board.

He also compared crop procurement procedures of direct buying by the board using its own buying stations and indirect buying through licensed buying agents (LBAs). Having noted that primary purchasing usually involved assembling small quantities from dispersed producers, he concluded that the marketing activities involved were difficult for a public organization but relatively simple and less costly for experienced local traders. He therefore suggested that, given proper direction and control, marketing efficiency would be enhanced by using LBAs instead of stretching further the organization of the board; that is establishing and operating buying stations.

Abbott also analysed the effects of uniform transport allowances to farmers or traders delivering their commodities to the collection points of the board (buying stations and depots). He argued that this system amounted to subsidisation of farmers located nearer to the board's collection point by those further and that it did not encourage them to use the most economical route to the collection point. He however recognised that though a system of differential transport allowances had merits in terms of economic benefits and marketing efficiency, it could be politically unpopular.

Farmers or traders located farther away from the collection point could view it as economic discrimination against them rather than as economic rationalisation.

Finally Abbott identified the conflict between the responsibilities of the board to the public and the attainment of commercial standards of efficiency. He argued that by their nature, monopoly marketing boards lack a profit motive and a continuous spur of competition and they have no built-in mechanism for maintaining commercial standards of efficiency.

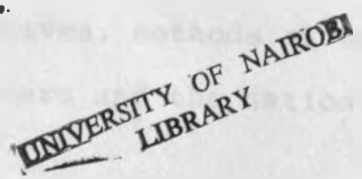
In the Sahel region of Africa, a study (CILSS, 1977) found that the marketing inefficiency of the Office des Produits Vivriers du Niger (OPVN), a public grain marketing agency in Niger was due to lack of flexibility in government regulations and the large number of its objectives. Uniform consumer prices in different parts of the country, irrespective of transfer costs to and within these areas imposed uneconomic behaviour on OPVN. Gross underestimation of some of the cost items in the official margin of the OPVN was also identified as one of the contributing factors.

"OPVN had many objectives some of which were in conflict. While it was supposed to pay farmers a higher price than private traders, it was also supposed to sell the grain

to consumers at a price lower than they would have bought it from private traders. This put its marketing costs out of line with its marketing margins.

In Mali the same study noted that the Malian Office of Agricultural Products (OPAM) lacked working capital, was dominated by the government and faced transportation bottlenecks. It had no permanent capital to enable it cover its operational costs and to intervene consistently in the grain market for price stabilisation. It also lacked real dynamic and commercial autonomy from the government. Due to poor road conditions OPAM often experienced long delivery delays which were compounded by poor handling and storage thereby increasing its marketing costs.

In all these studies the importance of each identified factor that contributed to the marketing inefficiency of the marketing boards was presented in the nature of weighted opinion rather than in the nature of analytical proof. This study provides an analytical evidence as to the extent of the importance of each constraint that is identified as affecting the marketing efficiency of the NCPB.



CHAPTER 3

M E T H O D O L O G Y



This chapter provides the details on how the data were collected, the limitations of these data and data analysis.

3.1 Data Sources

Both primary and secondary data were used in this study. They were collected between January, 1985 and May, 1985.

Primary data were collected through discussions and interviews with officials of the National Cereals and Produce Board, the Ministry of Agriculture and Livestock Development and the Ministry of Finance and Planning. Non-structured, non-disguised questionnaires were used, each to suit the responsibilities and information sought from each respondent.

The officials of the National Cereals and Produce Board were interviewed with regard to the board's objectives, methods of operation, services to consumers, producers and the nation at large. They were also

interviewed about its operational problems. A similar question was often put to different officials as a means of counterchecking.

Ministry of Agriculture officials were interviewed about the problems of the maize industry in Kenya and the relationship between the Ministry and the board. They also explained the annual price review process and the decision-making process in the import and export trade in maize.

The officials of the Ministry of Finance were interviewed mainly with regard to the relationship between the Cereals and Sugar Finance Corporation (CSFC) and the Board. As a countercheck they were interviewed about the annual maize price setting procedure and the procedure for external trade in maize.

Normally a random sample of the officials to interview would have been made. However, this was not possible in this study because they had different responsibilities and therefore could not be expected to know all that was sought on all aspects of the problem.

The main sources of secondary data were the annual reports, accounts and files of the Board. Data obtained from these records included the maize transactions of the board, their monetary values and its maize marketing costs for the period ranging from 1969/70 to 1983/84

### 3.2 Data Limitations

Most officials of the board tend to regard maize marketing as a sensitive area. This was compounded by the maize shortages of the previous year whose effects were still being felt in the country. They were therefore reluctant to answer some of the questions put to them. In addition detailed data relating to the costs of operating each buying centre and the costs of storage and transportation in particular were not obtained because of this problem.

Data contained in the annual reports were highly aggregated. Where more details were sought some of the closed files from which they could be obtained were either missing or incomplete. In some other instances both records contained differing data. In these circumstances we relied upon the judgement of the board officials as to which data were correct.



The board distinguishes between its variable and fixed costs. It defines its variable costs as consisting entirely of road and rail transport costs. Fixed costs are considered as all other costs it incurs such as costs of labour for crop handling, storage, fumigation and interest on borrowed capital. According to economic theory, these definitions are not entirely correct. However due to the absence of detailed cost information that could enable a more accurate allocation of these costs, we only considered total costs in this study. Accounting rather than economic costs were used.

Fixed costs are first presented on an aggregate basis, that is, for all the product lines. They are then disaggregated and allocated to the accounts of each product line on the basis of the number of bags sold of each commodity.

### 3.3 Data Analysis

Over a long period of time, changes are likely to occur in some of the factors on which a given variable depends. Observed values of this variable in different situations may therefore not be comparable. In order to obtain a time-series of comparable values of the variable, adjustments for these changes must be made.

Index numbers are often used to make such corrections. They compare the magnitudes of the changes in the variable in two or more situations. Once a 'normal' situation is selected, relative index numbers for other situations are computed and used to adjust the observed values of the variable.

In this study internal maize marketing costs incurred by the board for the period between 1969/70 and 1982/83 were adjusted to 1976 values by deflating them using implicit Gross Domestic Product (GDP) deflators. The following procedure was followed in computing these index numbers:

- (i) the deflator for each year between 1969 and 1983 was computed as a ratio of the GDP at current market prices to the GDP at constant market prices.
- (ii) deflators for the years prior to 1976 were adjusted to 1976 values using the statistical technique of changing a base year. Deflators for the years after 1976 did not require adjusting as the constant market prices were already based on 1976 values
- (iii) the simple means of the deflators for two adjacent years were then computed and considered to correspond to the financial

years of the board. For example the GDP deflator for 1977/78 is the mean of the deflators for the years 1977 and 1978.

Except in 1979/80 when it covered an eleven month period, each financial year of the board since 1969/70 has always covered a twelve month period. Between 1969/70 and 1978/79 it spanned from August to July and since 1980/81 it has varied between July and June. In 1979/80 it started in August and ended in June.

In data analysis, graphs, tables and an econometric model were used. Graphs and tables indicated the variation in the magnitudes of given variables in one or more financial years of the board.

A scattergram of real average costs against maize purchases of the board was plotted. A suitable cost function was then selected and, using ordinary least squares method, a structural relationship between these variables was computed.

## CHAPTER 4

### ANALYSIS OF THE PROBLEMS OF THE NCPB AND THEIR EFFECTS ON ITS MAIZE MARKETING EFFICIENCY

The set of problems a firm faces in carrying out its marketing activities influences its marketing efficiency. This chapter identifies and analyses major problems that the board has met in its internal maize marketing. Some general problems of the board will also be analysed in so far as they influence its internal maize marketing.

#### 4.1 Financial Position

The financial position of a firm can be analysed from its accounting records. From them, several financial analysis factors can be computed. These include the current ratio, the networth and the operating profits.

The current ratio of a firm at a given time is the ratio of the value of its current assets (or short-term resources) to its current liabilities (or short-term debts). It measures the liquidity position of the firm at a given date and is interpreted as the number of shillings a firm has in form of short-term resources to meet every shilling of its short-term debts. If

this index exceeds unity, the firm can meet all its short-term debts from its short-term resources and is unable if it is less than unity. The smaller the current ratio is, the poorer is the liquidity position of the firm.

The networth of a firm at a given date is the difference between the values of all its assets (or total resources) and its liabilities (or total debts). It indicates the solvency of the firm. If it is positive the firm has a surplus, is solvent and can meet all its debts from its own resources. If it is negative then it has a deficit, is insolvent and cannot meet all its debts from its own resources.

The profit of a firm for a given period is the difference between the revenue from its sales and its total marketing costs. If the costs exceed the revenue, it makes a loss. In a multi-product marketing firm, profits or losses can be presented on the basis of all or individual products. In this section they are presented on an aggregate basis.

The above factors were used in analysing the financial position of the board for the period between 1969/70 and 1983/84. Their values at the end of its financial years are shown in Table 4.1.

Table 4.1: Current Ratio, Networth and the Level of Profits of the Board in Kenya, 1969/70 - 1983/84

Year	Current Ratio	Networth Surplus/(deficit) KShs. million	Profit/(Loss) KShs. million
1969/70	1.56	38.6	3.0
1970/71	2.58	33.7	7.2
1971/72	3.79	32.5	(6.3)
1972/73	3.76	24.3	(8.2)
1973/74	1.38	89.8	21.4
1974/75	1.10	84.5	(5.2)
1975/76	0.83	43.5	(62.8)
1976/77	0.79	(22.5)	(70.2)
1977/78	0.79	(30.4)	(65.9)
1978/79	0.51	(162.0)	(174.0)
1979/80	0.39	(369.0)	(270.3)
1980/81	0.51	(231.9)	(308.5)
1981/82	0.68	(312.1)	(339.6)
1982/83	0.67	(655.2)	(481.4)
1983/84	0.63	(681.2)	(255.1)

Source: Computed from MPB/NCPB Annual Report (Various)

It can be discerned from the table that between 1969/70 and 1975/76 the resource base of the board was strong and it could meet all its debts from its own resources although it made frequent losses on its

commodity trading activities. Since 1976/77, however the board has been insolvent, has had a poor liquidity position and has made substantial losses in its trading activities.

The poor financial situation has had several effects on the functions of the board. It has sometimes lacked working capital which has affected crop procurement. In 1977/78, partly because of this problem it limited its maize purchasing from the farmers. Through discussions with the board officials it was also revealed that in 1979/80, 1980/81 and 1982/83 payment to maize farmers, which is normally cash-on-delivery was delayed for up to six months. The board was therefore an insecure producer outlet during these periods.

The board has often been unable to repay the CSFC, its major source of crop-procurement finance. In theory these loans are repaid from the proceeds of the sale of stocks. But in 1979 the board owed Shs. 551 million to the CSFC of which about 60% was outstanding for two to three years and the rest for four to nine years (CSFC, 1978/79 Annual Report p. 6). This has increased its long-term liabilities.

In 1982/83, the board turned to local commercial banks as a source of crop procurement finance. It borrowed Shs. 500 million at an annual rate of interest of 16% to pay the farmers for the maize delivered to the board<sup>2</sup>. This increased the board's debt burden since it was to be repaid in two years.

Several factors appear to have landed the board into this financial crisis. These will be analysed in some of the sections in this chapter.

## 4.2 Maize Pricing

### 4.2.1 Maize Price Setting Procedure

In Kenya buying and selling prices of maize are set by the government in an annual price review. The board is supposed to operate within this price structure.

Every year the Ministry of Agriculture prepares a detailed review of the maize situation. This is presented to a Price Review Committee consisting of representatives from the Ministry of Agriculture, Ministry of Finance and the Office of the President which develops a maize price strategy. Another committee comprising of Permanent Secretaries from these government bodies reviews this strategy and sets a producer price

<sup>2</sup> The banks and amounts borrowed were: Kenya Commercial Bank (KShs. 140 million), Barclays Bank (KShs. 140 million), Standard Bank (KShs. 140 million), National Bank of Kenya (KShs. 80 million) (NCPB, 1982/83 Annual Report, p. 3)



which is presented to the Cabinet for approval. This process takes about four months.

Once the producer price has been set, the board prepares and submits to the Price Controller in the Ministry of Finance its anticipated break-even cost structure. After consideration the Price Controller submits it together with the maize wholesale and retail price recommendations to the Cabinet for approval.

From the discussions with board officials and from examination of available board documents it became clear that the board's proposals are often revised downwards.

Table 4.2 shows that in 1980/81 the board's cost estimates exceeded the approved costs by Shs. 9.90. This reveals that the official selling prices are invariably set 'too low' to cover the operating costs of the board. It can not therefore be expected to perform its marketing functions efficiently because it is not adequately remunerated for doing so.

Occasionally maize prices are reviewed and modified outside the main price review process to allow faster price adjustment to take account of changed circumstances and policies. Sometimes these reviews do not adjust buying and selling prices simultaneously. In 1976/77 the

producer price for maize was increased from Shs. 65 to Shs. 80 in September, 1976 but the selling price was increased in March, 1977 from Shs. 82.40 to Shs. 107.40. This means that for five months of the main buying period, the board's official margin was only Shs. 2.40 as compared to Shs. 17.40 before the increase of the producer price.

Table 4.2: NCPB Proposed and Officially Approved Costs of the NCPB in Internal Maize Trading in Kenya 1980/81

KSh/bag		
Cost Item	Proposed	Approved
Producer price at buying centre	90.00	90.00
Average transport cost to depot	6.50	6.50
Agency fees	3.50	-
New gunny bag	8.60	8.60
Jute control cost	0.60	-
Insecticide	0.25	0.25
Shrinkage in store	0.90	0.90
Interest on new borrowings	10.00	7.00
Handling	2.00	-
Overheads	8.00	8.00
Railage	9.80	9.00
<b>Total cost/Average Selling Price</b>	<b>140.15</b>	<b>130.25</b>

Source: NCPB Files

#### 4.2.2 Marketing Costs and Margins of the Board

The marketing costs of a firm are the expenses it incurs in the marketing of a commodity or commodities. They include not only the costs of performing marketing functions but assessments such as taxes as well (Moore et al, 1973; p. 40). On the other hand its marketing margin for a given commodity is the actual amount it receives in the marketing process. It is the unit 'spread' between the selling price of the commodity and the buying price of its original equivalent.

In the theory of competition a firm's marketing costs and margins are equal in the long-run. In the short-run it is possible for it to make losses or supernormal profits. In the theory of monopoly a firm can select the level of throughput and price that can offer the greatest returns relative to its marketing costs.

In Kenya, the NCPB is a legal monopoly in internal maize trading. However it does not fulfil the theoretical conditions of monopoly. It neither determines the level of quantities handled nor does it set the selling price. Its motive is also not profit maximization but fulfillment of its objectives, some of which conflict with the concept of profit making.

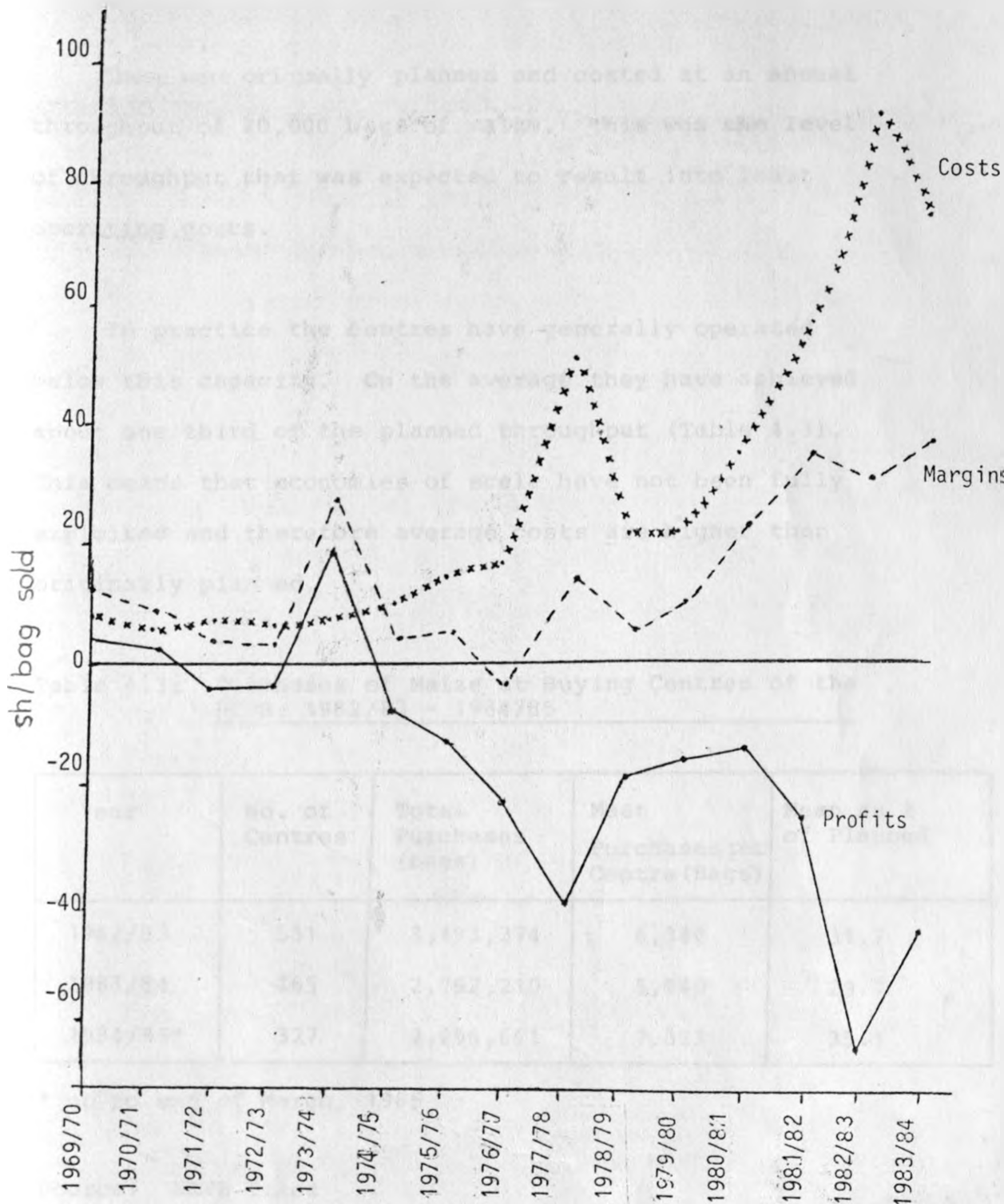
Figure 3 shows the fluctuations of the average marketing costs, the margin and operating profits of the board in internal maize marketing between 1969/70 and 1983/84. It indicates that since 1974/75 the board has consistently made losses in internal maize marketing. This is because the marketing margins have been smaller than the marketing costs.

In 1976/77 the average marketing margin was negative mainly because of a very low official margin during the main buying season as already noted.

In 1977/78, maize movement controls were relaxed and farmers and millers, who are the main sales outlet of the board, were allowed to trade direct. As a result the sales of the board fell from 4.3 million to 1.4 million (Table A.6). At the same time its storage capacity was overloaded by maize which remained unsold. This led to high fixed costs per bag of maize sold.

High marketing costs in 1981/82 and 1982/83 reflect the costs of operating buying centres. In 1980 the board established buying centres and this involved the board into high variable costs of transporting maize from these centres to the depots. Table A.5 indicates that since 1980/81 variable costs have increased faster than in previous years.

Fig. 3: Fluctuations of Average Marketing Costs, Margins and Profits of the Board in Maize Marketing in Kenya: 1969/70 - 1983/84



### 4.3 Buying Centres

These were originally planned and costed at an annual throughput of 20,000 bags of maize. This was the level of throughput that was expected to result into least operating costs.

In practice the centres have generally operated below this capacity. On the average they have achieved about one third of the planned throughput (Table 4.3). This means that economies of scale have not been fully exploited and therefore average costs are higher than originally planned.

Table 4.3: Purchases of Maize at Buying Centres of the NCPB: 1982/83 - 1984/85

Year	No. of Centres	Total Purchases (bags)	Mean Purchases per Centre (Bags)	Mean as % of Planned
1982/83	551	3,493,374	6,340	31.7
1983/84	465	2,762,210	5,940	29.7
1984/85*	327	2,296,661	7,023	35.1

\* up to end of March, 1985

Source: NCPB files

The operating costs of buying centres have been estimated by various sources. In 1982 a World Bank report on Kenya (IBRD, 1982 p. 54) estimated that they varied between Shs. 7.50 and Sh. 15.00 per bag of maize handled. In May 1982 the NCPB estimated them to be Shs. 10.50 per bag and in 1983 a Grain Marketing Study in Kenya (Booker Agriculture International Ltd., et al 1983 p. 7) estimated average costs for 551 buying centres for nine months of 1982/83 crop year as Shs. 6.15 per bag (Table 4.4).

Taking these estimates as being reasonably accurate the opportunity cost of buying centres to the board was estimated. In 1981/82 and 1982/83 buying agents were paid a commission of Shs. 3.80 and Shs. 4.80 per bag of maize respectively. The opportunity cost was therefore about Shs. 6.50 in 1981/82 and Shs. 1.35 in 1982/83. These were costs which the board would have avoided had it continued procuring maize through buying agents instead of setting up buying centres.

These can be taken as minimum opportunity costs because they do not include the costs of establishing buying centres and the costs of transporting maize from buying centres to the depots. The agents often deliver the maize to the depots rather than to the buying centres.

Table 4.4: Estimated Average Costs of Buying Centres in Kenya: 1982 and 1983

KShs/bag of maize handled		
Cost Item	NCPB (1982) <sup>1</sup>	Grain Study <sup>2</sup> (1983)
Stores <sup>a</sup>	2.50	0.14
Staff Costs <sup>b</sup>	5.00	5.18
Transport of gunnies, etc.	0.45	0.08
Miscellaneous <sup>c</sup>	2.55	0.45
		5.85
Contingency - 5%		0.30
<b>Total Average Cost</b>	<b>10.50</b>	<b>6.15</b>

<sup>a</sup> represent maintainance costs in NCPB estimate and storage rental in Grain Study estimate

<sup>b</sup> include travel and subsistence, security services, salaries and wages

<sup>c</sup> include costs of dunnage, tarpaulins, scales, insecticide, stationery, twine and needles

Source: <sup>1</sup> NCPB files

<sup>2</sup> Booker Agriculture International Ltd, et al (1983)

It must also be mentioned that through discussions with board officials and examination of detailed buying centre cost analysis by the Grain Marketing Study, some buying centres were less costly to operate than buying agents.



#### 4.4 Operational Activity

From microeconomic theory the economies of scale for a firm increase as the level of its throughput increases. Under these circumstances costs are spread over larger volumes of throughput resulting into decreasing average costs. Beyond the 'optimal', diseconomies of scale outweigh the economies and average costs rise.

At this level of throughput the economies of scale are fully exploited, the average costs are at their minimum and the firm optimises its resource/throughput ratio.

For a single firm this level can be estimated from an analysis of the relationship between its past real average costs and the level of throughput. Real average costs are used in order to correct for the effects of changes in economic variables on the current costs. Other factors such as the changes in the handling technology have an effect on the level of costs.

Average total costs were computed from the board's annual report and then converted into real costs based on 1976 prices. All other factors were considered as disturbances in the analysis.

From a scattergram of real average total costs against internal maize purchases of the board for the period between 1969/70 to 1982/83, the most suitable cost function was

$$C_i = \alpha + \beta_1 Q_i + \beta_2 Q_i^2 + u_i$$

Where

$C_i$  = real average total costs for year  $i$  (Shs/bag)

$Q_i$  = level of internal maize purchases in million bags in year  $i$

$u_i$  = disturbance term in year  $i$

From theory, the constant ( $\alpha$ ), and the structural coefficients ( $\beta_1$  and  $\beta_2$ ) are restricted as follows:

(i)  $\alpha, \beta_2 > 0$

(ii)  $\beta_1 < 0$

The computed cost function, which is also graphed in Figure 4, was

$$\hat{C} = 62.07 - 21.00Q + 2.13Q^2, \quad R^2 = 0.55$$

$$(5.12) \quad (-3.62) \quad (3.45) \quad D-W = 0.97$$

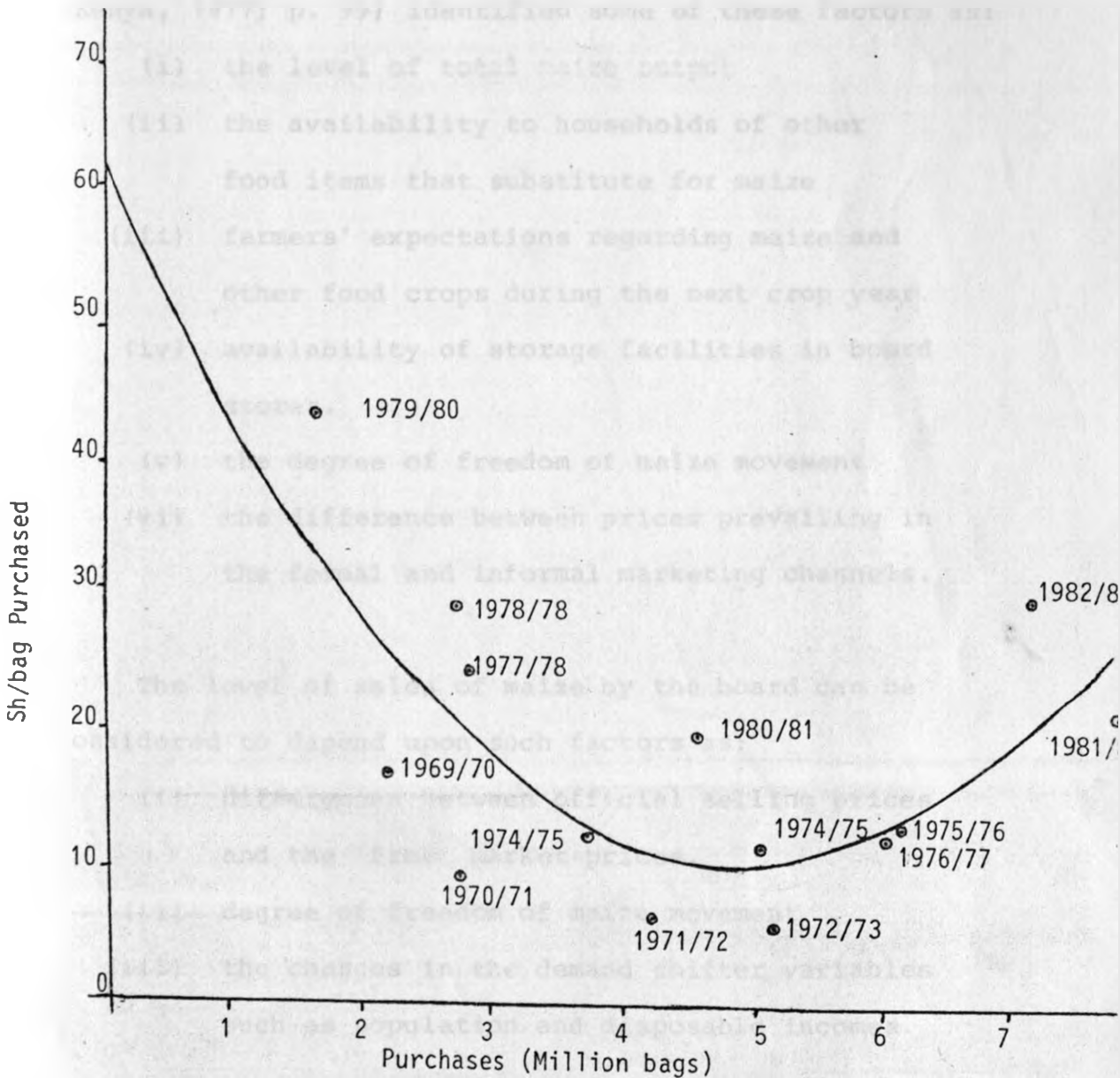
Figures in parentheses are t-ratios. Due to the above restrictions, a one-sided t test was performed on the coefficients and were significant at a 5% level. The autocorrelation test ( $D-W = 0.97$ ) was inconclusive at 5% level.

$R^2$ , the coefficient of determination measures the closeness of fit of the regression to the data. It indicates that 55% of the total variation in real average costs incurred by the board in internal maize procurement for the period 1969/70 to 1982/83 are explained entirely by variations in the level of internal maize purchases.

Mathematically, the optimal level of internal purchases of maize is about 5 million bags. However, Figure 4 indicates that the rate of increase of real average costs seems to rise faster outside the interval of 4 to 6 million bags. In practice this can be considered as the optimal range of internal maize purchases. Average costs would then be about Shs. 12.50 at 1976 prices.

As purchases fall below 4 million bags average costs would tend to rise faster mainly due to underutilization of fixed resources and beyond 6 million bags, variable resources such as transport would be overutilized. It is observed that in 9 out of 14 years the purchases fell out of this range implying that in most years the board either overutilized or underutilized its resources.

Fig. 4: Relationship between Real Average Costs and Maize Purchases by the Board in Kenya: 1969/70 - 1982/83



Source: Tables A.6 and A.7

#### 4.5 Instability of Board Maize Purchases and Sales

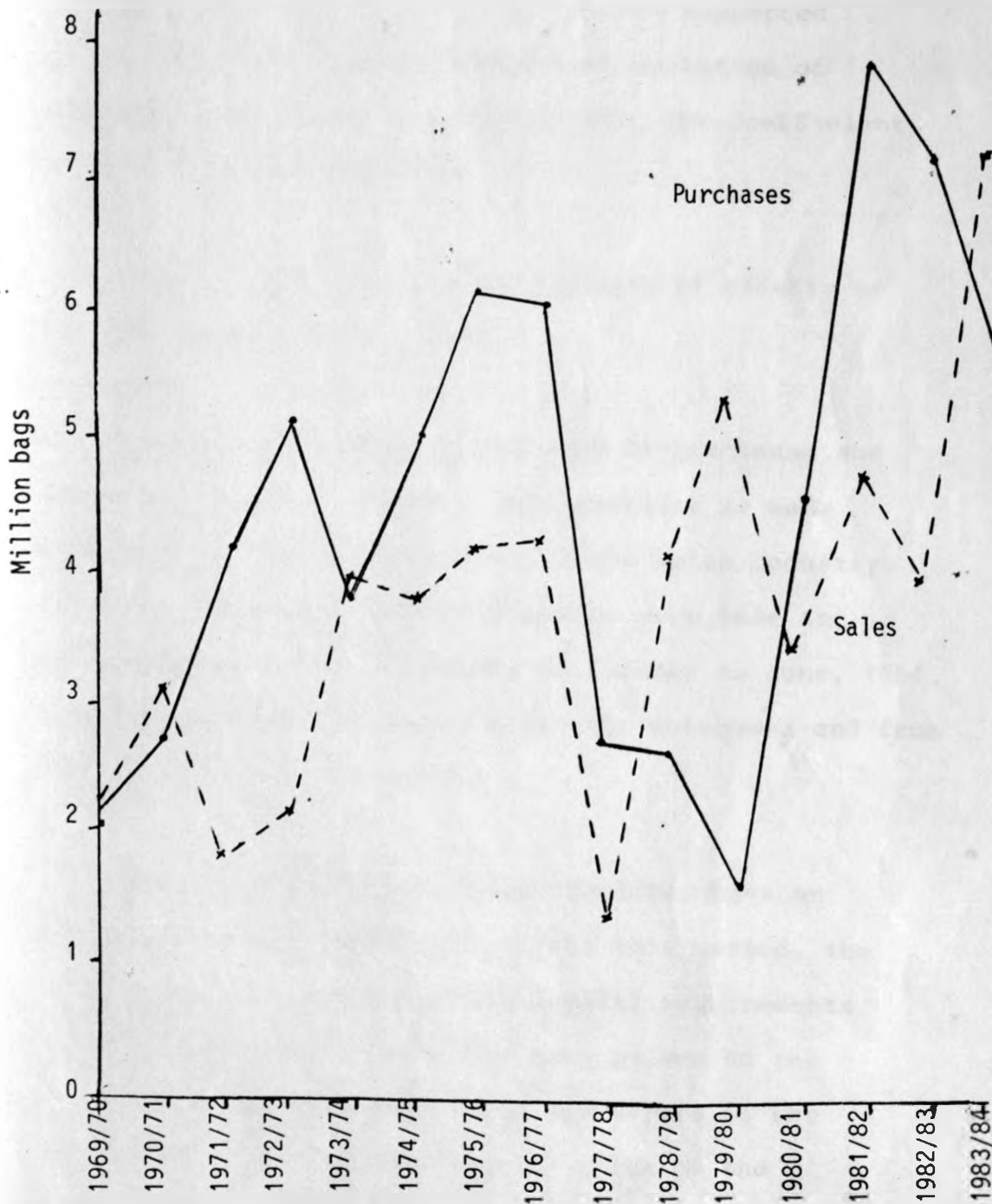
The level of maize purchases by the board is a function of many and related variables. An economic review of agriculture by the Ministry of Agriculture (Kenya, 1977; p. 99) identified some of these factors as:

- (i) the level of total maize output
- (ii) the availability to households of other food items that substitute for maize
- (iii) farmers' expectations regarding maize and other food crops during the next crop year.
- (iv) availability of storage facilities in board stores.
- (v) the degree of freedom of maize movement
- (vi) the difference between prices prevailing in the formal and informal marketing channels.

The level of sales of maize by the board can be considered to depend upon such factors as:

- (i) differences between official selling prices and the free market prices.
- (ii) degree of freedom of maize movement
- (iii) the changes in the demand shifter variables such as population and disposable incomes.

Fig. 5: Fluctuations of Annual Maize Purchases and Sales by the Board in Kenya: 1969/70 - 1983/84



Source: MPB/NCPB Annual Reports and Files (figures in Table A.6)

Figure 5 shows the fluctuations of the annual purchases and sales of the board for the period between 1969/70 and 1983/84. It is observed that the main source of instability in the board transactions is from the purchases side. This is also supported by the fact that the coefficient of variation of purchases was 44% as compared to 34%, the coefficient of variation for the sales.

These instabilities have a number of effects on the operations of the board.

The board makes monthly projections of purchases and sales every year. However, this exercise is made difficult by the instabilities in the maize industry. Table 4.5 indicates that wide errors were made in the projections for the months of January to June, 1984. They ranged from -90% to +47% for the purchases and from -19% to +151% for the sales.

These wide errors in the projections have an effect on forward planning. During this period, the board computed its net working capital requirements for crop financing. Using the same prices on the actual transactions, the percentage errors in the capital required were the same as those of the transactions. Discussions with board officials indicated

that this was a common problem that often led to underborrowing from the CSFC leading to later shortages of finance for crop purchases. The delayed payment to farmers in 1982/83 was partly attributed to this problem.

Table 4.5: Relative Errors in the Projections of Maize Purchases and Sales by NCPB: January to June, 1984

1984	PURCHASES			SALES		
	Projected	Actual	Error	Projected	Actual	Error
Month	Million Bags		%	Million Bags		%
January	1.40	2.06	+47.1	1.07	0.87	-18.7
February	1.40	1.58	+12.9	0.73	0.76	+ 4.1
March	1.00	0.65	-35.0	0.45	0.49	+8.9
April	0.60	0.12	-80.0	0.45	0.65	+44.4
May	0.20	0.02	-90.0	0.45	1.13	+151.1
June	0.10	0.01	-90.0	0.50	0.93	+86.0

Source: NCPB Files

It was also learnt that in 1977/78, the board could not purchase all maize offered for sale by farmers partly because the inflow of maize was higher than expected and the government could not authorise exports because of lack of reliable projections of the maize situation. This, as already noted, led to high



marketing costs. Some maize bought was stacked outside the depots and was spoilt by the weather.

#### 4.6 Foreign Trade in Maize

In Kenya, the production of maize is characterised by fluctuations largely due to climatic conditions such that in some years there is a surplus of maize while in some others there is a shortfall in production. Kenya then trades on the international market to meet national shortfalls and to dispose off excess maize in surplus years. This has been a common occurrence in that between 1969/70 and 1983/84, Kenya traded maize in international markets in 12 out of 14 years (Table 4.6).

The board has the responsibility of securing the needed supplies or exporting surpluses on behalf of the government. In such circumstances the existing procedure is that it makes a recommendation to the Office of the President and the Ministry of Agriculture and thence to the Food Import/Export Committee. This Committee in turn makes its own recommendation to the Minister of Agriculture who may authorise this trade or refer it to the Cabinet for final decision.

This decision is sometimes not timely. In 1977/78 the board requested for authority to export maize not only to resolve storage problems resulting from an earlier heavy crop intake but also because of a good crop forecast. It was granted after a year. This was the main cause of the steep increase in the marketing costs of the Board by over 150% from Shs. 19.70 per bag sold in 1976/77 to Shs. 54.60 in 1977/78 (Table A.5). It also led to inadequate storage capacity for the board and consequently it could not purchase 1.0 to 1.5 million bags from farmers (MPB, 1977/78 Annual Report; p.5).

The Board does not trade directly on the international market but once the authority to import or export is given the Board calls for tenders. It exports the maize free-on-board (f.o.b) Mombasa and imports on cost, insurance and freight (c.i.f.) Mombasa. This means that the Board incurs all export costs up to loading on ship at Mombasa and in the case of imports, the seller incurs all costs of delivery to Mombasa.

Table 4.6 indicates that the maize trade in international markets was carried out at a loss. This was mainly because internal purchase costs of maize exports exceeded the export prices, and 1976/77, 1978/79 and 1982/83 export prices were lower than the internal purchase prices. Imported maize was also sold to consumers at lower than the import prices. In all years between 1969/70 and 1983/84, the Board made losses on imported and exported maize, except in 1973/74.

Table 4.6: The Price and Cost Structure of Exported and Imported Maize in Kenya: 1969/70 - 1983/84

Year	Exports (KShs/bag Exported)					Imports (KShs/bag imported)				
	Export Price	Buying Price	Costs <sup>a</sup>	Total Costs	Profit/(Loss)	Import Price	Selling Price	Costs <sup>a</sup>	Total Costs	Profit/(loss)
1969/70						50.29	29.65	15.43	62.72	(36.07)
1970/71										
1971/72										
1972/73	49.99	38.70	14.36	53.06	(3.07)					
1973/74	61.10	38.70	14.72	53.42	7.68					
1974/75										
1975/76	76.33	61.45	19.77	81.22	(4.39)					
1976/77	79.46	86.25	32.60	118.85	(39.39)					
1977/78	95.60	86.25	60.76	147.01	(51.41)					
1978/79	72.38	86.25	36.01	122.26	(49.88)					
1979/80	75.13	72.40	26.01	98.41	(23.28)	198.05	97.24	43.60	241.65	(144.41)
1980/81						130.08	106.10	68.28	198.36	(92.26)
1981/82						173.11	125.78	114.41	287.52	(161.74)
1982/83 <sup>b</sup>	138.94	145.46	52.37	197.83	(58.89)	173.11	171.25	67.46	240.57	(69.32)
1983/84 <sup>b</sup>						173.11	198.33	42.09	215.20	(15.87)

<sup>a</sup> consist of internal transport costs; operating and administration costs. In case of imports, they also consist of direct import expenses at the port. In case of exports they also consist of direct export expenses at the port.

<sup>b</sup> imports in these years were actually a carry-over from 1981/82 imports

Source: Computed from MPB/NCPB . Annual Reports

## CHAPTER 5

### DISCUSSION ON THE RESULTS

This chapter discusses the results of the study in light of the hypotheses postulated. It discusses the financial constraints of the board and then the external involvement in its operations.

#### 5.1 Financial Constraints

The first hypothesis is that the board is faced with heavy constraints in general and in internal maize marketing in particular.

In order to perform its activities efficiently the board requires adequate financial resources. Upto 1975 the board faced no financial difficulties. Its resource base was still strong. Since 1976, however, it has made increasingly large deficits and is therefore insolvent. In 1983/84, its insolvency was about KShs. 680 million (Table 4.1).

As the debts increased, some of its activities were affected. It could not pay farmers cash-on-delivery for up to six months in 1979/80, 1980/81 and 1982/83. In 1977/78 it could not fully perform one of its major

activities of acting as a reliable outlet for farmers' maize sales because it could not purchase over one million bags of maize from them. This was because it lacked working capital to purchase them and to acquire extra storage capacity.

Its financial problems have also led to a situation where payment to its creditors has delayed thereby increasing its debt obligations. Crop purchase finance the board acquires from the CSFC is supposed to be repaid following sale of the crop. However, repayment has delayed for many years.

The government has been concerned about the financial problems of the board and their effects on its marketing efficiency. Since 1978, it has tried to resuscitate the board financially by meeting some of its debts. Direct subvention and debts repaid to CSFC on the board's behalf amounted to KShs. 1,149 million in 1983/84<sup>3</sup>. Despite this, however, the board remains insolvent with a cumulative deficit of over KShs. 2,000 million between 1969/70 and 1983/84 (Table 4.1).

Apart from the government, the board has also been concerned about its financial crisis. In 1978/79 it lamented that:

3

Subventions were (in million Shs): 1977/78 (50), 1978/79 (20), 1979/80 (40), 1980/81 (360). Debts cancelled were (in million Shs.): 1981/82 (315), 1982/83 (142), 1983/84 (222) (MPB/MCPB Annual Reports)

"In our last three annual reports we have referred to, and emphasised the deteriorating financial position of the board, and last year we expressed concern almost amounting to alarm ....." (MPB, 1978/79 Annual Report; p. 5).

In 1979/80 it indicated further that

"The board has incurred significant operating losses for a number of years and results of operating have produced not only working capital deficiency but also overall deficit position .... the board's ability to continue as a going concern is dependent upon satisfactory resolution of this problem....." (NCPB, 1979/80 Annual Report: P. 13).

No satisfactory resolution has occurred because the board continues to experience large deficits and fails to pay farmers regularly. For example, the board was advanced KShs 139 million by the government in 1986 to pay farmers for the produce they delivered last year in Uasin Gishu District (Daily Nation of January 13, 1986).

The board is supposed to be self-financing. In theory, therefore, for every commodity it handles, its margins should exceed its marketing costs. This has not been the case in internal maize marketing. The average margins have been low relative to the average total costs since 1974/75 (Fig. 3). The proportion of marketing costs per bag of maize handled has also been generally below 50% since 1974/75 (Table 5.1).

Table 5.1: Board Average Margin as a Proportion of Its Average Total Costs in Internal Maize Marketing in Kenya: 1974/75 - 1983/84

Year	Margin (Sh/bag)	Average Total Costs (Sh/bag)
1974/75	6.01	12.59
1975/76	7.37	17.78
1976/77	(2.07)	19.70
1977/78	15.62	54.60
1978/79	7.15	23.66
1979/80	11.58	24.26
1980/81	26.08	37.25
1981/82	36.67	59.77
1982/83	33.25	95.28
1983/84	38.36	79.16

Source: Computed from Table A.5



The inadequacy of the margin implies that the board has been subsidising the price of maize to the consumers. This is in spite of the stated official policy of avoiding consumer subsidies on domestically produced foodstuffs. They are therefore not built in the official price structure.

Implicitly, however, the government subsidies have taken the form of subventions and ex-post write-offs of the accumulated losses but, as already noted, these have been inadequate. The board therefore bears a share of the financial costs of subsidisation.

The hypothesis that the board is faced with financial constraints is therefore not rejected.

## 5.2 External Involvement

The second hypothesis is that there is a high level of external involvement in board operations and particularly in maize marketing.

Decision-making with respect to pricing and external trade in maize are centralised. Normally the decisions must work their way up and down a hierarchy of administrators and politicians with little board involvement. It is these decisions that the board must implement whether or not they adversely affect its marketing efficiency.

The board is also required to procure all maize supplied to it by farmers regardless of whether or not its physical and other resources are adequate. As a result it exceeded its storage capacity in some years resorting either to commercial storage or stacking maize outside the depots.

There is usually a long time lag before some decisions are made. The experiences in 1978 and 1980 indicate the depth and effects of these lags. In 1978 the board requested the Ministry of Agriculture for permission to export maize because of storage problems and expected good crop. It took almost a year before this trade was authorised. Meanwhile the board faced a storage crisis and stopped maize purchasing. When the exports were finally authorised, indications were that the 1979/80 crop would be a poor one and the board was advising against this trade. This was apparently ignored, for after the export programme, the country faced a food shortage. In 1980, substantial and persistent queues developed in urban areas, planning for maize distribution was done on a daily basis and maize controls and regulations were more strictly enforced by the Office of the President and the local administration (NCPB, 1979/80 Annual Report, P. 3). These were all reactions to lags and badly timed decisions by the government.

As a further reaction to the food crisis, the board was directed to set up buying centres to increase the maize market share of the formal channel in small scale farm marketed output. No thorough studies of their cost-effectiveness were carried out. As a result most of them are underutilised and have increased the marketing costs of the board because of the extra transport costs from the centres to the depots that it incurs.

Furthermore, their establishment was politicised at the local level:

"Local political officials took control of (the buying centres') operations. They promised buying centres to the farmers in each maize producing area; they instructed the maize board who to hire to staff the centres and they helped to organise the transport for maize" (Olsen, 1984; .p. 20).

This interference inevitably influenced the board's decisions regarding the location and management of the centres. External involvement also occurs in the issuing of maize movement permits. Normally the board issues the permit to a consignee for a limited period and to move maize from one geographical area to another within the country. However it seems that

there are other forces that direct the issuing of the permits. The Commission of Inquiry into the maize shortage of 1970/71 revealed that:

"there was pressure exerted on the Maize and Produce Board to issue permits to particular people.... by authorities other than the board" (Kenya, 1973, p. 21).

Referring to the same maize crisis, Leys pointed out that some influential individuals were granted open licenses to buy maize from the board and sell it where they liked but when the board tried to cancel them later, this decision was reversed by some political intervention (Leys, 1975; p. 107).

At the moment, district commissioners can also issue maize movement permits to a consignee who would like to move maize from a board depot to his trading premises. They can also appoint distribution agents who may be wholesalers such that they buy lorryloads of maize from the board and sell to the retailers who can in turn sell it directly to the consumers in local shops or local markets.

The hypothesis that there is a high level of external involvement in the board operations is therefore not rejected.

## CHAPTER 6

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The main objective of this study was to identify and analyse the main factors that have limited the marketing efficiency of the NCPB and its predecessors in internal maize marketing. This chapter summarises the findings and also gives suggestions that can lead to an improvement in its marketing efficiency.

#### 6.1 Summary and Conclusions

The study showed that since 1976/77 the board has been insolvent. This meant that it lacked both short and long-term capital with a consequence that its debts mounted. Despite the government subventions and debt write-offs to defray these debts, the board remained insolvent. It responded to them by not repaying the Cereals and Sugar Finance Corporation, its main source of finance, on time. In 1979/80; 1980/81 and 1982/83 it could not pay farmers cash-on-delivery and in 1977/78 it could not purchase all maize supplied to it by the farmers partly because of the shortage of cash. Delays in payment not only reduce the real value of these payments due to inflation but also affect the timely planting of the crop of the next

season because the capital for seed and other inputs may not be available. They also encourage the farmers to rely more on the informal channel than on the formal channel as an outlet for the disposal of their surplus maize.

The government offers maize producers a remunerative price and consumers a 'fair' price. It sets these prices and consequently the marketing margin as well. The selling price is set after the costs the board expects to incur in internal maize marketing have been taken into account. This study showed that some of the cost items of the board are often underestimated or disregarded in order to keep the selling price 'fair'. It was also shown that the average marketing margin of the board covered only about 50% of the marketing costs. Consequently the board made operating losses in internal maize marketing since 1974/75. Its socio-economic responsibilities and objectives such as stabilising the rural maize prices and optimal distribution of maize in the country were restricted due to inadequate marketing margins.

Buying centres were established in 1980 as a measure to increase the share of the board in maize purchases from small scale maize producing areas. It was shown that these centres have generally handled

about 30% of their planned purchase capacity of 20,000 bags of maize annually. This means that their average costs have been higher than originally planned.

It was also shown that the costs of maize procurement through buying centres have generally been higher than procurement costs through buying agents. Estimates of opportunity costs of buying centres to the board for 1981/82 and 1982/83 were at least KShs. 6.50 and KShs. 1.35 respectively. Some buying centres were however reported to be less costly to operate than the buying agents.

A regression analysis of real average costs versus the annual internal maize purchases for the period 1969/70 and 1982/83 indicated that the 'optimal' level of these purchases should be between 4 to 6 million bags. For this level of purchases the board would incur the lowest possible costs. However in most years the level of purchases fell outside this range, meaning that facilities for maize handling were under- or overutilised.

This study also analysed the instability of the internal purchases and sales of maize of the board for the period 1969/70 to 1983/84. It was shown both graphically and statistically that the greatest instability resulted from the purchases. The coefficient of variation was 44% for the purchases and 34% for the sales.

These instabilities have an effect on planning. Errors in the forecasts of purchases and sales were shown to be substantial in some periods. This in turn affected financial planning. How much to borrow and what proceeds to expect from the maize sales could not be made with accuracy. It also affected the planning for storage in 1977/78.

Shortages and surpluses of maize have arisen in some years necessitating importation and exportation of the commodity. However international maize trading invariably meant that the board traded maize at a loss. These losses compounded the liquidity and long-term financial problems of the board. In some years costs incurred internally on exported maize exceeded the average export prices and in 1981/82 massive imports of maize were carried out at a great financial loss to the board apart from congesting its storage capacity.

The decision to import or export sometimes delays as it works its way up and down a hierarchy of administrative and political decision makers. This puts a strain on the resources of the board as it stores exportable surpluses or distributes small quantities of maize while awaiting for the decision to import.



## 6.2 Recommendations

The government should give the NCPB a fresh start by writing-off all the debts it owes the Cereals and Sugar Finance Corporation and other creditors, followed by an injection of an adequate amount of cash grant to enable it carry out its functions. This is only a short-term solution to the financial problem of the board.

If the board has to continue trading maize at inadequate margins, then the government should subsidise the consumer prices by explicitly considering these subsidises as a budget item instead of the present system of ex-post write-offs of the NCPB accumulated losses. This would ensure that the board does not carry forward its short-term debts as is presently the case. Any financial short-falls arising from either trading maize at insufficient margins or unrecovered import and export costs would be fully subvented in the accounts of the year in which they occurred.

An alternative solution to the financial problems arising from internal maize marketing would be to remove subsidies entirely. However this may not be politically feasible at least in the short run. Gradual

increases in the real consumer price for maize may therefore be more acceptable than a once-for-all increase. Apart from reducing the economic losses that result from the subsidies, these gradual price increases may lead to the diversification of the food habits of the people.

It is also recommended that the NCPB should retain only those buying centres whose costs of operation do not exceed the commission and transport which the board would otherwise have to pay licensed buying agents. This requires that books of accounts should be properly maintained at each buying centre to enable the board to decide which centres are less costly to operate than buying agents and which ones have or can achieve long-term full economies of scale. Their average operational costs should meanwhile be considered when setting the official margin until this is possible.

Currently the board is inadequately represented in the price review process and in the decision-making process with regard to foreign trade in maize. This has led to a situation whereby some of the costs of the board are not adequately included in the marketing margin or some of the recommendations of the board are ignored. It is recommended that the board should be co-opted in the price review process through formal representation

and through discussions about the marketing costs. The government should also formally delegate the authority to import or export maize to the board within a clearly defined set of decision rules for carrying out such trade.

✓ Kenya cannot do much about the fluctuations in maize production that lead to exportable surpluses and shortages. It can however reduce the resultant foreign trade losses by assessing the general long-term food situation and therefore the potential and regularity of demand for, and supply of maize in the neighbouring countries and countries in the Preferential Trade Area for Eastern and Southern Africa (PTA). This may provide a remunerative market for its maize surpluses and reduce the need for expensive imports of maize from overseas.

In carrying out some of its activities, the board has been subjected to administrative and political pressure. Except with regard to policy matters, the board should be effectively shielded from these pressures. This would enhance its confidence and morale.

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APPENDIX TABLES

Table A.1: Estimates of Total Maize Production  
in Kenya: 1970/71 - 1984/85

(million bags)

Crop Year	CBS <sup>a</sup>	MOA <sup>b</sup>	Other <sup>c</sup>
1970/71	-	13.1	
1971/72	-	16.4	
1972/73	-	15.4	
1973/74	-	14.4	
1974/75	-	15.4	
1975/76	-	18.7	
1976/77	27.1	19.4	
1977/78	26.9	23.1	
1978/79	20.5	19.3	
1979/80	18.0	17.8	
1980/81	17.6	19.7	
1981/82	21.6	27.8	48.1
1982/83	26.1	26.0	-
1983/84	24.3	23.0	26.7
1984/85*	15.8	15.7	27.7

\* Provisional

Source: a Republic of Kenya Economic Survey CBS  
Ministry of Planning and Economic Development  
(various)

b Ministry of Agriculture Provincial Reports,  
Nairobi (various)

c Computed from area and yield estimates by  
CBS and NCPB respectively

Table A.2: Estimated Maize Production by Small and Large Scale Farmers in Six Provinces of Kenya: 1976/77 - 1981/82

(million bags)

Province	Small Scale						Large Scale <sup>a</sup>		Total	
	1976/77	1977/78	1978/79	1979/80	1980/81	1981/82	1980/81	1981/82	1980/81	1981/82
Rift Valley	4.41	5.48	4.55	4.25	5.49	5.58	4.71	6.22	10.20	11.80
Western	1.95	2.15	2.29	2.62	2.13	2.67	0.42	0.53	2.55	3.20
Nyanza	1.92	3.69	3.15	2.83	2.35	2.64	0.12	0.08	2.47	2.72
Central	2.73	2.43	3.30	2.01	1.29	1.91	0.04	0.09	11.33	1.95
Coast	0.45	0.89	1.05	0.74	0.28	0.50	-	-	0.28	0.50
Eastern	0.41	1.75	2.79	1.60	1.27	1.51	0.08	0.13	1.35	1.64
Total	11.87	16.40	17.13	14.05	12.81	14.81	5.37	7.05	18.18	21.86

<sup>a</sup> Includes medium farms as well

Source: Republic of Kenya, 1981. Integrated Rural Survey 1976-79. Basic Report C.B.S. Ministry of Planning and Economic Development, Nairobi (for data between 1976/77 and 1978/79).

: Republic of Kenya, 1981. Crop Forecast and Crop Review C.B.S. Ministry of Planning and Economic Development (for data between 1979/80 and 1981/82)

Table A.3: Estimated Seasonal Output of Maize in Six Province of Kenya:  
1979/80 - 1983/84

(million bags)

Province	Painy Season	1979/80	1980/81	1981/82	1982/83	1983/84
Central	Long	1.29	0.86	1.12	1.29	2.11
	short	0.72	0.43	0.79	0.74	0.75
Coast	Long	0.42	0.12	0.31	0.29	0.48
	Short	0.32	0.16	0.19	0.25	0.19
Eastern	Long	0.82	0.57	0.81	0.72	0.38
	Short	0.78	0.70	0.70	1.92	0.94
Rift Valley	Long	4.25	5.49	5.58	14.31	12.04
	Short	-	-	-	0.26	0.44
Nyanza	Long	1.82	1.51	1.72	1.90	2.25
	Short	1.01	0.84	0.92	1.59	0.94
Western	Long	1.60	1.58	1.75	2.62	3.16
	Short	1.02	0.55	0.92	0.22	0.49
Total	Long	10.20	10.13	11.29	21.13	20.42
	Short	3.85	2.68	3.52	4.98	3.75

N.B 1979/80 - 1981/82 data refer to small scale output while 1982/83 and 1983/84 data refer to total output

Source: (i) Republic of Kenya. 1982 Crop Forecast Survey Short Rains 1982  
 C.B.S. Ministry of Planning and Economic Development (for data  
 between 1979/80 and 1981/82)

(ii) Private communication with C.B.S. (for data of 1982/83 and 1983/84)

Table A.4: Estimates of Total Sales by Small Scale and Large Scale Farmers in Six Provinces of Kenya:  
1979/80 - 1981/82

(Million bags)

Year	SMALL SCALE							LARGE SCALE <sup>a</sup>
	Central	Coast	Eastern	Fift Valley	Nyanza	Western	Total	
1979/80	0.31	0.05	0.02	1.83	0.35	0.34	3.11	3.02
1980/81	0.11	-	0.17	1.51	0.26	0.54	2.59	3.50
1981/82	0.20	-	0.25	1.79	0.14	0.58	2.96	4.48

<sup>a</sup> Includes medium farms as well

Source: Republic of Kenya, 1981 Crop Forecast and Review 1981/82. C.B.S. Ministry of Planning and Economic Development, Table 1.1

Table A.5: The Cost Structure of the Board in Internal Maize Marketing in Kenya: 1969/70 - 1983/84

(KShs/bag sold)

	1969/70	'70/71	'71/72	'72/73	'73/74	'74/75	'75/76	'76/77	'77/78	'78/79	'79/80	'80/81	'81/82	'82/83	'83/84
MM <sup>a</sup>	13.05	9.77	4.66	4.89	29.41	6.01	7.37	(2.07)	15.62	7.15	11.58	26.05	36.67	33.25	38.36
VC <sup>b</sup>	3.16	3.15	2.59	2.83	3.34	5.62	11.33	7.70	10.21	9.99	7.62	14.81	27.16	42.73	39.02
FC <sup>c</sup>	5.45	3.71	4.46	3.53	3.88	5.28	4.38	6.82	23.71	7.12	9.74	12.99	15.73	26.77	23.90
CF <sup>d</sup>	0.06	0.04	1.26	1.76	1.25	1.69	2.16	5.18	20.68	6.55	7.10	9.45	16.88	25.78	16.24
MC <sup>e</sup>	8.67	6.90	8.31	8.12	8.47	12.59	17.78	19.70	54.60	23.66	24.26	37.25	59.77	95.28	79.16
OP <sup>f</sup>	4.38	2.87	(3.65)	(3.23)	20.94	(6.58)	(10.50)	(21.98)	(38.98)	(16.51)	(12.88)	(11.20)	(23.10)	(62.03)	(40.80)

a average marketing margin

b average variable costs

c average fixed costs

d average costs of finance

e Average Marketing Costs

f Average Operating Profit

Source: Computed from MPB/NCPB Annual Report (various)

Table A.6: Purchases and Sales of Maize by the Board  
in Kenya: 1969/70 - 1983/84

(Bags)

Year	Purchases	Sales
1969/70	2,151,712	1,984,753
1970/71	2,667,874	3,093,168
1971/72	4,211,353	1,837,863
1972/73	5,082,607	2,152,615
1973/74	3,726,748	3,876,778
1974/75	5,008,582	3,772,722
1975/76	6,174,087	4,193,173
1976/77	6,031,366	4,252,341
1977/78	2,713,391	1,441,729
1978/79	2,648,070	4,149,022
1979/80	1,491,610	5,289,824
1980/81	4,508,917	3,502,616
1981/82	7,830,607	4,706,561
1982/83	7,070,567	4,009,559
1983/84	5,659,687	7,239,831

Source: MPB/NCPB Annual Reports and Files

Table A.7: Current and Real Average Costs of the Board and Gross Domestic Product (GDP) Deflators in Kenya: 1969/70 - 1982/83

(KShs/bag of maize purchased)

Year	Current <sup>a</sup> Average Costs	GDP <sup>b</sup> Deflator	Real Average Costs
1969/70	8.59	51	16.84
1970/71	4.98	52	9.58
1971/72	3.59	56	6.41
1972/73	3.48	60	5.80
1973/74	8.81	70	12.59
1974/75	9.48	81	11.70
1975/76	12.17	92	13.23
1976/77	13.92	109	12.77
1977/78	29.04	119	24.40
1978/79	37.19	124	29.99
1979/80	58.04	134	43.31
1980/81	29.52	148	19.94
1981/82	35.93	166	21.64
1982/83	54.03	181	29.85

Source: a computed from MPB/NCPB Annual Report (various)

b computed from Republic of Kenya Kenya Statistical Abstract, Nairobi (various)

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LIST OF INFORMATION SOUGHT

(a) NCPB Officials

- Objectives of NCPB
- Its functions in maize marketing
- How it performs its maize buying functions
- How it performs its maize selling functions
- How it carries out foreign trade in maize
- When and why buying centres were established
- Advantages of buying centres to the board and farmers over buying agents
- How farmers are paid for their maize deliveries to the board
- Problems the board faces in maize buying
- Problems the board faces in maize selling
- Sources of finance for the board
- How the board projects its financial and other requirements
- How maize prices are set
- Role of NCPB in maize price setting
- Can I look at copies of
  - annual reports?
  - price schedules?
  - buying centre lists and accounts?
  - transport accounts?
  - purchases and sales lists?



(b) Ministry of Agriculture Officials

- Problems of the maize industry in Kenya
- Role it plays in board operations
- Price setting procedure
- Role of Ministry in setting these prices
- Role of the Ministry in foreign trade in maize
- Sources of finance for the board

(c) Ministry of Finance Officials

- Role of the Ministry in maize marketing
- Procedure for setting maize prices
- Procedure for foreign trade in maize
- Sources of finance to the board
- Objectives of the Cereals and Sugar Finance Corporation (CSFC)
- Copies of CSFC annual reports