

## **Liberalized Maize Marketing for Smallholder Farmers in Tanzania: Evidences from Ludewa and Sumbawanga Districts**

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### **Abstract**

*Since 1986, Tanzania undertook economic reforms to establish free market economy in order to stimulate economic growth. With respect to maize, policy measures were implemented through; removal of price subsidies on maize and production inputs, liberalization of the cooperative marketing system at the farmer level by removing restrictions and restructuring of the crop marketing system involving redefinition of the roles of regional cooperative unions, and the main food marketing parastatal (NMC). This paper presents findings from a study carried out in Ludewa and Sumbawanga rural districts. The study aimed at investigating the dynamics of maize marketing in the two purposely selected districts and villages. Using structured questionnaire data was collected from 115 maize farmers in the selected villages. Study results show that removal of state monopolies and the emergence of private sector in input (fertiliser) distributors, fertiliser procurement and distribution has had made majority of small-farmers in marginal areas less competitive and victimised by monopsony and oligopsony power of traders. Few farmers who can afford transporting maize to distant market records substantial benefit than otherwise. Farmers in marginal areas can benefit from liberal market if necessary infrastructures such as good road are in place. Among other things the study suggest that while the need for improving access to marginal areas still unattainable in a near future, necessary effort by the government to create a favorable environment that will enable increased number of private traders to reduce the chances of collusion which has negative impact to maize farmers is required.*

**Key words:** Maize, marketing policy, liberalized market, agricultural marketing.

## **Introduction**

Before Tanzania adopted the Structural Adjustment Program (SAP) in 1986, the government had employed a combination of specialized programmes and macro-economic policies aimed at boosting agriculture in general and maize production in particular. Some of the programmes taken by the government include; mass mobilization by the ruling Party through resolutions such as *Siasa ni kilimo* (meaning politics is agriculture) of 1971, and *kilimo cha kufa na kupona* (i.e. agriculture is matter of life and death) of 1973. Also the establishment of institutions such as Tanzania Seed Company (TANSEED) in 1974 as an agent responsible for production, processing and marketing of improved seeds; the Tanzania Fertilizer Company (TFC) for fertilizer procurement and distribution, the National Milling Corporation (MNC) for purchasing grain maize, and implementation of several rural support programs such as National Food Crops Credit Programme (NAFCREP) and National Maize Project (NMP) in 1974 and 1975 respectively. During late 1970s and early 1980s, these directive/policies had some bearing on maize production (Hella, 1992). The performance of agricultural sectors in general and maize production in particular was disheartening. For example between 1970 and 1985 maize production stagnated at less than 1% annual growth rate, at time when population growth was averaging at 2.8% per annum (Moshi et. al., 1997).

### ***Agricultural (Maize) marketing policy***

Interventions in agricultural marketing (maize in particular) by the government started in 1962 with the enactment of the Agricultural Products Act. The major objective of the intervention was to remove the middlemen and establishment of three-tier single channel marketing system. The National Agricultural Products Board (NAPB) and the National Milling Co-operation (NMC) were established in 1962 and 1973 respectively, the latter took over from the former. The NMC was vested with the monopoly power to buy and sell grain in bulk. Co-operative unions and their affiliate primary societies were acting as agents to NMC. After abolishment of Cooperative unions in 1976, the government restructured the marketing system and formed crop authorities, which bought produce from farmers at set prices. The system was commonly referred to as a two-tier single marketing system.

The new system required substantial investment in infrastructure, management and co-ordination, which resulted in substantial overhead costs. On top of the general responsibilities of other crop authorities, the NMC had additional tasks of managing grain reserves, importing, and

exporting grain. These activities imposed more financial difficulties to the NMC leading to: (i) failure to collect produce from farmers; and (ii) long delays to pay farmers for collected produce. Based on these problems, the government restructured the marketing system once more in 1983, through a new Agricultural Policy. It re-established co-operatives and vested them with the responsibility of crop procurement. Co-operative societies were allowed to sell to adjacent societies or local retailers. The NMC was restricted to distribution of food to urban and deficit regions. The major problem during this era was that co-operatives lacked capacity, i.e. qualified manpower, transport and storage facilities. As a result the problems of delayed payment to farmers and inefficient collection of produce persisted. Factors such as (i) involvement of government in direct production which only resulted in over-bloated government parastatal, (ii) fixing of producer prices by the marketing board (NMC) without pegging to the world market prices, and (iii) dis-incentives created by the macro-economic policies pursued during the same period were cited to limit the overall performance of NMC. Hence major reform was inevitable.

### **Research Problem**

In an attempt to solve the problem of price distortions, the government in 1986 effected a policy shift by adopting a strategy of economic liberalization. The major objective of the liberalization policy was to enhance efficiency in resource mobilization and allocation. It was presumed that policy reforms would generate sizeable supply responses and encourage the emergence of well functioning markets and thus present opportunities and challenges from it. With respect to maize, the mechanism for achieving this policy objective included the removal of subsidies on agricultural inputs, removal of concessionary interest rates on agricultural production loans, liberalization of trade and exchange rate policies, and abolition of marketing boards such as the NMC. However, there is a raging controversy as to the efficacy of the SAP measures to lead to a significant improvement in the performance of maize production and marketing efficiency. Lesson from other studies within and outside the country suggest that the performance of agriculture since the commencement of the programme has been impressive leading to significant increases in output thus leading to significant increase in the income of farmers (Akiyama et. al., 2000; Coulter and Poulton, 2000; Dirk, 1995; Jaeger, 1992; World Bank, 1994). On the other side of the argument are critics who strongly believe that the programme has not achieved much. Rather it has led to sharp increases in input prices which have eroded the profit margin of the farmers producing them (Temu et al., 2001). These

arguments were made without due consideration to specific problems associated location such as remote and poorly accessed villages.

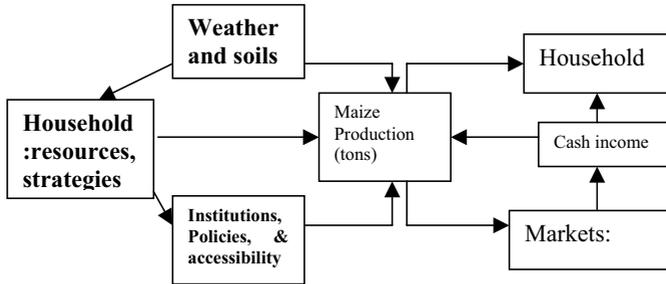
In the early days of structural adjustment and trade liberalization in Tanzania and else where in Africa, the anticipated impact of adjustment measures on less accessible areas was regularly flagged as a cause of concern. Subsequently, remote areas have attracted less attention in policy making circles, even though they have often fared worse than more accessed areas. The key questions are whether these areas are a lost cause, better left to look after them while investing in more promising and easier areas or they are important for potential intervention to attack rural poverty. If the latter is true little was known about the extent of potential benefits of improving market access in remote areas of the country and what alternative mean of achieving this are in place. It is within this background that this study, which aimed at investigating the dynamics of maize marketing in two districts in Tanzania, was conducted.

### **Conceptual Framework**

Adjustment theories can be traced to Keynes's general theory of employment, interest and money that contended that recession might be eliminated through correct demand management policies by relying principally on discretionary fiscal policies. There is a reasonable consensus in the literature that SAP has become the most popular response to the financial crisis whose foundations are traced to macro-economic policy distortions (World Bank, 1994). In similar respect the effect of reforms on maize marketing in remote areas was studied.

Figure 1 presents the framework, which directs this study. It is important to note that in Tanzania maize marketing research has received considerable attention over the years. Ashimogo (1995) recorded that food crop marketing policies for the country dates back as far as 1939. During those days the influence of weather on production and hence marketing pattern was mostly remained at the centre of the discussion. In recent years although the influence of weather is not completely obsolete, the production and marketing goes beyond ecological variability to issues like resource endowment, household strategies and livelihood, and institutional and policy factors such as access to market, organization of markets and information, finances, public institutions and services (Figure 1). Thus it is essential to analyze the farm household as a unit within the context of local economy; community and agro-climatic environment (Ellis, 2000). In addition, the extent of integration of different types of smallholders with outside markets, whether national or international and the effects they can be impacted by policy changes.

Household (resource and strategies) predicts maize marketing indirectly through production levels and enabling institutional and policy framework



**Figure 1:** Conceptual framework depicting factors affecting dynamics in maize marketing

## Materials and Methods

### *The study area*

This study was conducted in two districts namely; Ludewa and Sumbawanga rural located in the Southern Highlands of Tanzania in Iringa and Rudewa regions respectively. These regions, with bigger portion lying above 1500m above the sea level, receive a mono-modal rainfall falling between November and May. Annual rainfall varies from 800 mm in lower elevations to above 1500mm at higher elevations. Type of crops grown and livestock raised varies greatly with climate and land capability. Maize is a dominant crop in all two regions and together with Mbeya and Ruvuma are sometimes considered the national grain basket. Areas with low altitude, paddy, sunflower, tobacco, are produced and in high altitude finger millets, pyrethrum, tea, coffee, wheat, round potatoes, temperate fruits and vegetables are common.

### *Sampling procedures and sample size*

Purposeful and random sampling approaches were used in different stages of data collection. Region, district and villages for conducting this study were purposeful selected. Since maize was a focus for this study, high maize producing districts were naturally chosen. Other choice factors include; accessibility by road, and possibility of cross-border trade. In each district, contrasting villages in terms of accessibility and the possibility of cross-border trade were identified for sample survey. Accidental sampling approach was used to obtain respondents for a survey interview. Village and respondents sampled are presented in Table 1. Finally about 115 household heads or their representatives were interviewed.

**Table 1:** Sample villages and proportion of respondents in Ludewa and Sumbawanga districts

| District  | Village        | Village status | Cross-border trade | Number of Respondents |
|---|----------------|----------------|--------------------|-----------------------|
| Ludewa  | Luana          | NR             | N                  | 9                     |
|   | Mawengi        | NR             | N                  | 13                    |
|   | Ludewa Rural   | NR             | N                  | 8                     |
|   | Mkongobaki     | R              | N                  | 11                    |
|   | Maholong'wa    | R              | N                  | 9                     |
|   | Kiyombo        | NR             | N                  | 10                    |
| TOTAL respondents in Ludewa district  |                |                |                    | 60                    |
| Sumbawanga  | Kate           | NR             | N                  | 11                    |
|   | Ninga          | R              | Y                  | 12                    |
|   | Matai          | R              | Y                  | 16                    |
|   | Katumba Azimio | NR             | N                  | 10                    |
|   | Mkoe           | R              | Y                  | 3                     |
| TOTAL respondents in Sumbawanga district  |                |                |                    | 54                    |
| TOTAL   |                |                |                    | 115                   |
| NR = Not remote (difficult access);<br>R = Remote village (not difficult access);<br>N = no cross border trade;<br>Y = there is cross border trade. |                |                |                    |                       |

**Data collection and analysis**

Primary data was collected using structured questionnaire in November 1998 in all villages mentioned in Table 1. Three methods of data collection were employed. These include; single visit questionnaire, checklist designed to gather information from key informants such as Village Extension Officers (VEO) and focus group discussions (note the paper did not say anything on these). Collected data were analyzed by using SPSS computer program. Descriptive statistics such as cross tabulation with respect to villages and farmers' characteristics and regression analysis were principle methods of data analysis.

**Results and Discussion**

**Characteristics of the sample**

Characteristics of households interviewed are explained by variables such

as age, number of years in farming, family size, and total land area owned and cultivated (Table 2). Analysis of the sample revealed that mean age of the respondents was 39 years with range between 20 and 77 years. The corresponding mean number of years was 18 years in farming suggesting that most farmers' starts farming when they are about 21 years old. Household size varied slightly across the sample; however the mean size of 6.6 members is slightly higher than the national average of 4.9 members (Population Census, 2002). The ratio between members who are full time farmers and those who are not was 1:2 respectively. Total land area owned and cultivated per family was respectively averaged at 5.1 and 2.2 hectare with highest values recorded at Sumbawanga than Ludewa district.

**Table 2:** Characteristics of the sample household

|                            | n   | Mean | Min  | Max | Std. Dev. |
|----------------------------|-----|------|------|-----|-----------|
| Age                        | 115 | 38.8 | 20.0 | 77  | 9.94      |
| Years in farming           | 115 | 17.8 | 3.0  | 57  | 10.69     |
| Family size                | 115 | 6.96 | 1.0  | 16  | 3.04      |
| Members in farming         | 115 | 3.12 | 1.0  | 10  | 1.77      |
| Total land owed (Ha)       | 114 | 5.10 | 1.25 | 200 | 20.22     |
| Total area cultivated (Ha) | 114 | 2.16 | 1.0  | 32  | 4.68      |

### **Maize production characteristics**

Maize is an important food and cash crop in smallholder farming systems in all villages surveyed. Smallholder farmers<sup>1</sup> (who formed the majority of the respondents in this study) contribute about 95% of the total estimated national production. The remaining 5% is produced by medium and large farmers. In this study it was revealed that maize cropping systems varied considerably from one location to another but evidence else where in the country indicated declining percentage of farmers growing other cereals (except rice) and increase in proportion of those growing maize, bean and cassava. Total area under maize production between 1997 and now has increased by 14% in almost all villages surveyed. Survey results show that in all villages surveyed maize is an important food crop reported by all respondents. The proportion of respondents who reported maize as an important cash crop averaged at 77.8% with villages such as Mkongobaki, Ludewa rural, Kiyombo (in Iringa region), and Ninga and Matai (in Rukwa) recording higher than average proportion (Table 3). Factors such as accessibility, lack of alternative cash crop, and the

<sup>1</sup> According to definition in National Agricultural Policy, they own less than 20 Ha of cultivated land

possibility of cross-border trade are the most likely reasons for this variability.

**Table 3:** Maize production and utilization in sample villages

| Sample villages       | Main use maize % |       | Other cash crop           | Cultivated area (ha) |      |
|-----------------------|------------------|-------|---------------------------|----------------------|------|
|                       | Food             | Cash  |                           | 1997                 | Now  |
| Luana (n=9)           | 100              | 77.7  | Tobacco                   | 2.36                 | 2.47 |
| Mawengi (n=13)        | 100              | 76.9  | Coffee; bean              | 3.26                 | 4.34 |
| Ludewa rural (n=8)    | 100              | 100.0 | -                         | 3.43                 | 4.00 |
| Mkongobaki (n=11)     | 100              | 81.8  | Coffee                    | 3.51                 | 4.18 |
| Maholong'wa (n=9)     | 100              | 77.7  | Coffee, Bean              | 3.22                 | 3.77 |
| Kiyombo (n=10)        | 100              | 80.0  | Coffee                    | 2.00                 | 2.55 |
| Kate (n=11)           | 100              | 72.7  | Sunflower                 | 3.86                 | 4.45 |
| Ninga (n=12)          | 100              | 91.6  | Bean                      | 4.37                 | 4.58 |
| Matai (n=16)          | 100              | 87.5  | Bean                      | 4.53                 | 4.84 |
| Katumba Azimio (n=10) | 100              | 70.0  | Sunflower, finger millets | 3.15                 | 4.05 |
| Mkoe (n=3)            | 100              | 40.0  | Bean                      | 9.20                 | 8.26 |
| Mean                  | 100              | 77.8  | na                        | 3.70                 | 4.22 |

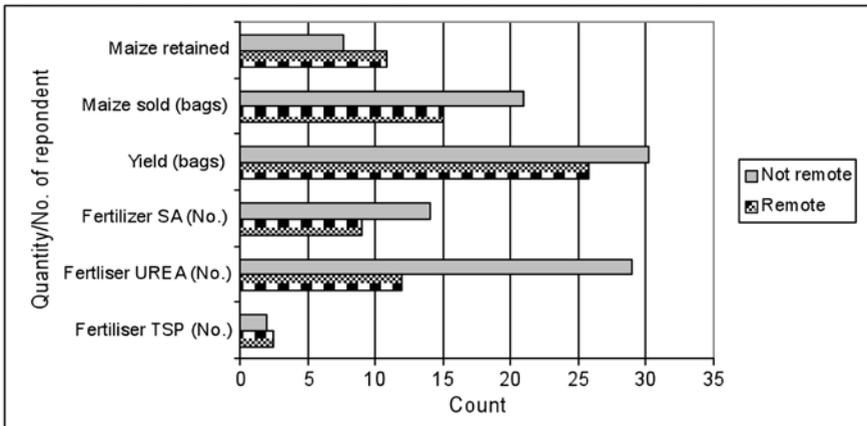
Before reforms maize farmers in the study region purchased all necessary farm input at subsidized price supplied to village by their respective primary co-operative societies. The removal of subsidies and collapse of parastatal organizations and co-operative societies meant that the ability of smallholder farmers to buy necessary input was greatly reduced. Also timely availability of most input especially in remote area was very uncertain. Maize production in all sample villages was still traditional with low level of conventional input usage. Table 4 presents farmers' responses with respect to input use and production responses after reforms.

**Table 4:** Farmers' responses on input use and production responses after market liberalization

|                                       | Farmers' responses                    | Percent response |
|---------------------------------------|---------------------------------------|------------------|
| Seed maize varieties planted in 1997  | Local                                 | 60.2             |
|                                       | Improved                              | 35.9             |
|                                       | Both                                  | 3.9              |
| Seed maize varieties planted in 2000  | Local                                 | 67.9             |
|                                       | Improved                              | 27.5             |
|                                       | Both                                  | 4.6              |
| Maize production trend                | Declining                             | 80.0             |
|                                       | Increasing                            | 15.7             |
|                                       | Same                                  | 4.3              |
| Reason for declining trend            | Lack of farm inputs                   | 53.7             |
|                                       | High prices to be afforded by farmers | 39.8             |
|                                       | Pest and diseases problem             | 2.8              |
|                                       | Erratic rainfall                      | 1.9              |
|                                       | Lack of suitable farm implements      | 1.8              |
| Possibility of introducing other crop | Yes                                   | 48.6             |
|                                       | No                                    | 51.4             |
| Crops which are replacing maize       | Coffee                                | 25.4             |
|                                       | Beans                                 | 28.6             |
|                                       | Sunflower                             | 20.6             |
|                                       | Tobacco                               | 14.3             |
|                                       | Planted trees                         | 6.3              |
|                                       | Wheat                                 | 3.2              |
|                                       | Others (Pegeon pear simsum)           | 1.6              |

The proportion of farmers who used improved technology such as certified seed has declined considerably after trade liberalization. For example, this study revealed that only 28% in Iringa region reported to use improved seed in 2000 compared to 56% before reform (Hella, 1992). Furthermore, about 80% of the farmers acknowledged declining productivity attributed by the limited/or lack of use of recommended production input due to lack of farm input (53.7%) and high input prices (39.8%). About 50% reported to opt for alternative crops instead of maize. Cooksey (2002) reported similar results. Analysis of village accessibility and the rate of input usage indicated a slight variability across the

study villages. Number of respondents who reported to use fertilizer is higher in villages, which are easily accessed by road than remote villages (Figure 2). High rate of fertilizer usage is reflected by high yield and quantity marketed in easily accessed villages than remote villages. Contrary, it is in remote villages where large quantities of maize are retained for household use thus suggesting a very small portion is available for the market.



**Figure 2:** Selected input use and maize production in remote and less remote villages in study area.

Table 5 indicates that market based factors such as presence of cross-border trade and the previous years' price have positive and significant at  $p=0.01$  and  $p=0.1$  levels in influencing maize production respectively. Similarly, total production increase with the total cultivated area at  $p=0.01$  level of significant (Table 5). This observation confirms the existence of various opportunities and implications of trade liberalization. Since maize is a potential cash crop in all villages incentive to produce increase with higher producer prices within and outside the country. Accessibility to main maize consuming centers such as Dar es Salaam, and the possibility of cross-border trader offers a unique incentive to increase production. On the other hand, limited use chemical fertilizer caused by unavailability or high prices<sup>2</sup> (Cooksey, 2002) suggest capitalizing on area expansion for increasing maize yields (Table 5).

<sup>2</sup> Removal of subsidies following macro-economic reforms and private input traders whereby fertilizer prices are higher in remote areas than otherwise.

**Table 5:** Regression results on factors influencing maize production in remote areas in Tanzania

| Variables   | Unstandardized Beta | Std. error | Standardized Beta | t. stat. | Sig.    |
|---|---------------------|------------|-------------------|----------|---------|
| Cross-border trade  | 24.729              | 5.540      | .305              | 4.464    | .000*** |
| Total farm size   | -.117               | .131       | -.068             | -.893    | .374    |
| Area under maize in 1998  | 8.409               | .753       | .845              | 11.168   | .000*** |
| No. of years in farming   | -.491               | .268       | -.132             | -1.829   | .071*   |
| Family size category  | -2.355              | 5.738      | -.030             | -.410    | .683    |
| Village remoteness  | 2.478               | 5.283      | .032              | .469     | .640    |
| Variety grown in 1998   | 1.215               | 3.782      | .023              | .321     | .749    |
| Maize price in 1997   | 3.477               | .801       | .016              | 1.235    | .055*   |
| (Constant)  | -45.630             | 17.813     |                   | -2.562   | .012    |
| $r^2 = .646$<br>Adj $r^2 = .613$<br>F stat. = 19.337<br>F sig. = .000***<br>***, *, ; = Significant at $p=0.1$ and $0.01$ respectively. |                     |            |                   |          |         |

Furthermore, regression results suggest that number of years in farming though significant ( $p=0.1$ ) but was negatively related with yield variation denoting that young farmers are likely to records higher yields than otherwise. An incentive to increase production for the market among young farmers is the most likely reason for this observation. All other variables (see Table 4) although have varying influence were not significant in explaining variability in yield. Overall the predictor variables explained about 61% of the total variations in maize yield and the model (F. stat.) was statistically significant at  $p=0.01$  level.

**Maize marketing opportunities and challenges**

Crop (maize) marketing policy in Tanzania has evolved through several distinct stages. Before the implementation of SAP the market forces of supply and demand did not determine the official producer and consumer prices of the main agricultural crops. They were instead administratively determined by the central government, and guaranteed by the organizations within the official marketing system. Producer price was set annually and announced in advanced of the crop season (Amani and Ndulu, 1987, Ellis, 1982). The importance of free market mechanism in maize production was

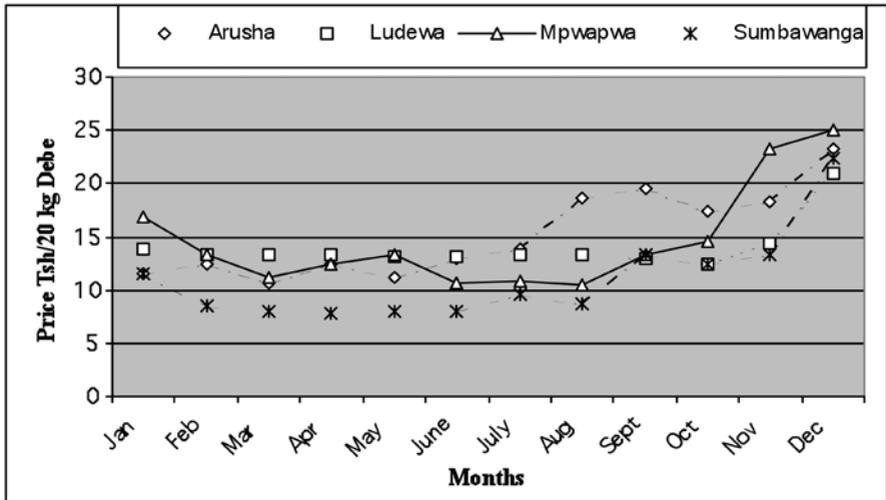
for long neglected. Producer prices were subject to controls, and the use of price incentives to stimulate agricultural production was limited. Instead of market incentives used has been of political campaigns, moral persuasion, exhortation and even coercion, such as use of by-laws on minimum acreage too promote agricultural development (Eriksson, 1993).

Maize trade liberalization saw the emergence of large numbers of informal traders. Theoretically this development would have been a blessing as it creates ideal situation for competition hence efficiency. Evidence contends that smallness and limited resources hinders them to enter into long term contractual arrangements, engaging in inter-seasonal storage and acquiring specific assets such as grain dryers and stores. In this respect, they create a significant dynamic disadvantage to small farmers in remote villages.

To support this observation, Figure 3 present annual maize price<sup>3</sup> before (data for 1983) and 4 after (data for 2000) market liberalization in four markets in Tanzania over a period of one year. The markets differ from each other by the degree of accessibility and distance from potential consuming centers. Arusha market enjoys high accessibility followed by Mpwapwa while Ludewa followed by Sumbawanga are least accessible from main maize markets i.e. Dar es Salaam. When a pan-territorial grain market price was used in the country i.e. before 1993, there were slight differences in prices and its behavior across years was characteristic and identical in all markets. For example, note high price of maize during rain season (November, December and January) in all four market as influenced by intrusion of private traders purchasing maize along the parastatal organization i.e. NMC. As presented in Figure 3, prior market reform, very slight variation across the markets was observed in the country. Conversely, the removal of pan-territorial prices (championed by market liberalization) has led to marked price variability across different market in the country. For example, farmers close to main consuming centers such as Arusha enjoyed higher maize prices throughout the year when compared to those in remote areas such as Sumbawanga and Ludewa districts. Similarly, this reason saw emergency of maize as an important cash crop in regions such as Dodoma (Mpwapwa/Kongwa)<sup>4</sup> mainly for Dar es Salaam market which is relatively near and easily accessed by competitive private traders than the traditional maize producing regions such as Iringa, Mbeya, Ruvuma and Rukwa region.

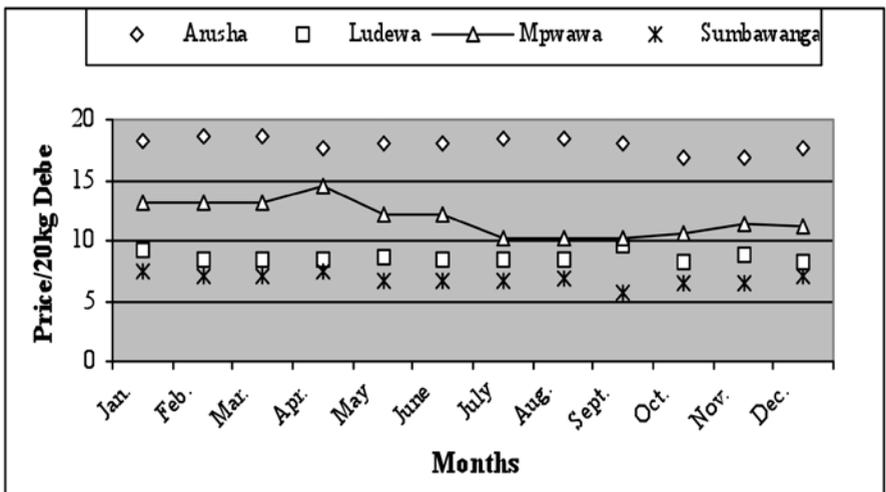
<sup>3</sup> *All prices are deflected (base year = 1994.)*

<sup>4</sup> *Following market liberalization, Kibaigwa village in Dodoma region has turn out to be the largest maize market in the country. It is cheaper for traders to buy maize from Kibaigwa than Ludewa.*



**Figure 3:** Annual maize price variations in for markets in 1983

**Source :** Calculated from MDB data (Deflected prices 1994=100) – MAFS Dar es Salaam (2003)



**Figure 4:** Annual maize price variations in for markets in 2000

**Source :** Calculated from MDB data (Deflected prices 1994=100) – MAFS Dar es Salaam (2003)

From findings 3 and 4, the dominant narrative maintains that seasonal price variability as necessary for the efficient functioning of a liberalized marketing system and to provide producers with incentives to store crops (e.g. Coulter and Poulton, 2000) can be argued against market reforms. Other mainstream evidences recognize price variability across markets as necessary to cover logistic (transport, transaction, handling and temporary storage) costs. In areas such as Sumbawanga and Ludewa districts, due to poor accessibility by road, storing maize beyond November (when rain season start) is risky thus induce farmers to sale at much lower price since crops cannot be hauled from the villages after the onset of rains season. During the period trader tend to purchase maize from areas, such as Dodoma, which are easily accessed by road. Farmers in remote areas are thus less advantaged since they are forced to sell their produce soon after harvest but at relatively lower price. Smallness of operating capital on the part of the traders and low willingness to go to remote areas worsens the situation. Based on these findings it is imperative to conclude that the liberalized market systems makes maize farmers in remote areas less competitive compared to those residing in areas which can be accessed by road. Farmers are always at the disadvantaged side hence are less likely to benefit by extending storage period. On the other hand, a marked price difference across markets is supposed to stimulate inter-regional maize trade. However, this is not the case due characteristic poor road network in the in the country. Therefore they are obliged to accept low price offered soon after harvesting.

### ***Gainers and losers in post-liberalization maize marketing***

Debate has confirmed that maize marketing has been one of the most successful stories of agricultural liberalization in Tanzania. According to Cooksey (2002) also see Coulter and Poulton (2000), withdrawal of production and marketing subsidies from a principal food crop such as maize<sup>5</sup> in some countries would have sparked-off riots among urban poor. However in Tanzania maize market liberalisation did not have this effect since the availability of maize has kept pace with demand. This success story is generally explained by the de facto liberalisation of grain supplies in the pre-reform period since the monopoly of NMC as sole grain purchasing parastatal was already supplemented, even surpassed by private sector in the pre-reform period.

However, for farmers residing in remote areas, the picture is still gloomy.

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<sup>5</sup> *A basic staple in the country with per capital consumption ranging between 114 – 125 Kg per annum.*

Evidence from several studies suggest that during post-reform period, returns to farmers in remote areas has been badly hit by two problems; first the increase in farm input prices and secondly by fall in output prices. Table 6 presents comparative evidences for various maize marketing related options with respect to total revenues from sale. As expected sale to distant market, use of improved husbandry practices, and sale to specific traders and/or contract product production is more profitable than. Unfortunately these options are practiced by limited number of farmers. Formation of marketing groups, postponing sale, and accessibility by road seem to influence total revenue. However, the difference was not significant (Table 6).

**Table 6:** Key variables associated with maize marketing in liberalized market

| Variables explaining maize marketing     | Variable definition (a vs b) | Variables respective values ('000 Tsh.) |            | Variable difference ('000 Tsh) (a-b) |
|--|------------------------------|---|------------|--------------------------------------|
|  |                              | a                                       | b          |                                      |
| Sale maize to distant market             | (Yes/No)                     | 254.9 (2)                               | 76.7 104)  | a= 178.2                             |
| Farming technology followed (seed)       | (local/ Improved)            | 50.5 (65)                               | 125.4 (2)  | b= 74.9                              |
| Sale maize to specific trader always     | (No/Yes)                     | 78.9 (104)                              | 138.7 (2)  | b= 59.8                              |
| Maize as a leading cash crop             | (No/Yes)                     | 53.4 (51)                               | 105.7 (??) | b= 52.2                              |
| Have contract buyer                      | (No/Yes)                     | 80.3 (105)                              | 50.0 (1)   | a= 30.3                              |
| Practice cross-border trade              | (No/Yes)                     | 89.2 (74)                               | 58.9 (32)  | a= 30.2                              |
| Maize as an important crop in the system | (Maize/Other)                | 83.8 (88)                               | 53.8 (15)  | a= 29.9                              |
| Size of the household                    | (less 5/ more 5)             | 85.7 (71)                               | 68.5 (35)  | a= 17.2                              |
| Farmer- members of maize mktg group      | (No/Yes)                     | 78.9 (99)                               | 95.6 (1)   | b= 16.6                              |
| Education level of the farmer            | (Formal/ informal)           | 82.3 (91)                               | 66.3 (15)  | a= 15.9                              |

|                                       |                  |           |           |         |
|---------------------------------------|------------------|-----------|-----------|---------|
| Store maize for a while before sale   | (No/Yes)         | 70.7 (41) | 85.9 (65) | b= 15.2 |
| District of residence                 | (Ludewa/S'wanga) | 87.0 (55) | 72.5 (51) | a= 14.5 |
| Accessibility by road                 | (Poor/Good)      | 76.0 (66) | 86.6 (40) | b= 10.6 |
| Gender of the household head          | (Female/Male)    | 71.9 (19) | 81.8 (87) | b= 9.8  |
| Member of Primary cooperative society | (No/Yes)         | 77.9 (73) | 84.7 (33) | b = 6.7 |

Number in brackets frequency of observations

From therefore-discussion, it is evident that with the removal of state monopolies and the emergence of private sector in input (fertilizer) distributors, fertilizer procurement and distribution has had made majority of small-farmers less competitive and victimized by monopsony and oligopsony power of traders. Few efficient farmers can afford transporting maize to distant market records substantial benefit.

### ***Conclusion and recommendations***

Economic sustainability of Tanzania's small maize farmers in the liberalized market economy is still grossly mixed. In one hand, evidence from this study shows that majority, especially resource poor farmers residing in poorly accessed village such as Mkongobaki in Ludewa district and Matai or Ninga in Sumbawanga district faces two problems; one lack or availability of inputs at relatively high prices, and two low prices and limited marketing season for the produce. These farmers are adversely affected by reforms. On other extreme, well-of farmers in similar villages records substantial benefits through strategizing sale by space and time. Presence of few and small traders (volume of operation and operating capital) influence collusion and exercise of monopsony and oligopsony power hence guaranteeing extremely low prices in one hand and sustain excessive inter-regional price differentials. Based on this study, the conclusive situation presented above would have little effect to small farmers if the infrastructure such as road network for quick and safe transportation and distribution had been suitable.

*Based on these conclusions, the following recommendations are presented*  
The government should create favorable environment that will enable

increased number of private traders to reduce the chances of collusion which is detrimental to farmers. In similar manner, the government should empower large private dealers who are capable of keeping stock for longer period. Government Strategic Grain Reserve (SGR) can be one of them.

There is a need to improve institutional frameworks i.e. regulatory and legislative infrastructure which would hinder the monopsony and oligopsony power of the some traders who can eventually exclude small and up-coming traders.

Improve and sustaining farmers sovereignty both in production and marketing decisions to foster the sense of commercialization among smallholder farming systems.

Government should make necessary efforts to make the price right through periodic intervention in marketing sides. SGR involvement in grain purchase and marketing offer a very useful entry point.

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