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Structure, Conduct and Performance of Maize Markets in Malawi: Synopsis

Dennis O. Ochieng, Rosemary Botha, and Bob Baulch

1 BACKGROUND

Recent rises in the price of maize have again raised questions about the structure, conduct and performance (SCP) of Malawi's maize markets. Maize is by far Malawi's most important staple crop and provides about 66 percent of calories to typical household diets (World Bank 2017). The crop, which contributes 45.2 percent to the Consumer Price Index, is both a food crop and a raw material for agro-industries and generates employment for millions. Indeed, Malawi's food security is often defined in terms of availability of and access to maize (Derlagen, 2012).

Maize production has significantly increased over the years due to increased demand and intensified use of improved technologies (Lunduka et al., 2013). Most maize is produced by smallholder farmers, who supplement their own production by buying maize in the lean season. Like many eastern and southern African countries, Malawi's maize market has been characterized by considerable price volatility and seasonality (Gilbert et al., 2017), which in turn is influenced by its structure, conduct and performance.

This policy note summarizes Working Paper 29 (Ochieng et al., 2019), which investigates the SCP of Malawi's maize market during the 2018/19 main marketing and lean seasons and provides policy suggestions on how to improve Malawi's maize marketing system.

2 METHODOLOGY

Our study adopted a mixed methods approach to analyze the SCP of maize markets in Malawi during 2018/19 main harvest and lean seasons. We interviewed 749 traders from 74 markets across 8 districts and held 28 focus group discussions with a total of 480 small-scale farmers. We also analyzed daily and weekly retail maize price data from 13 regional markets.

We explore the structure of the maize market by examining marketing channels, barriers to entry, and traders' perception of the competitiveness of different tiers of the marketing chain. Conduct is assessed in terms of seasonal shares of purchases and sales, switches in trader types between seasons, quality and weights standardization, and price setting mechanisms. Performance is analyzed by examining traders' cost and margins, and the spatial and temporal integration of maize markets.

3 RESULTS

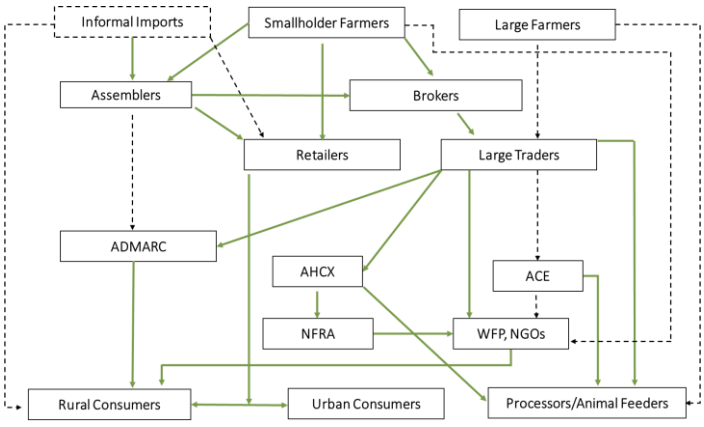
A combination of quantitative and qualitative data analysis provides the following picture of the SCP of Malawi's maize market.

3.1 Structure of Malawi's maize market

Figure 1 shows a flow diagram of maize marketing channels. The diagram shows the main channels but does not represent all possible channels.

Most maize is produced by smallholder farmers for own consumption, with limited marketed surplus. Smallholder farmers mainly sold maize to assemblers and retailers directly and indirectly through brokers to large private traders and processors. Large traders, sold to processors/animal feed processors, ADMARC, the state agricultural marketing parastatal, and organizations involved in humanitarian operations like the World Food Programme (WFP) and non-governmental organizations (NGOs). They also sold some maize to Malawi's two commodity exchanges, Auction Holding Commodity Exchange (AHCX) and the Agricultural Commodity Exchange (ACE), who supply processors/animal feeders and the National Food Reserve Agency (NFRA). Rural and urban consumers obtained maize from retailers, ADMARC, WFP and NGOs.

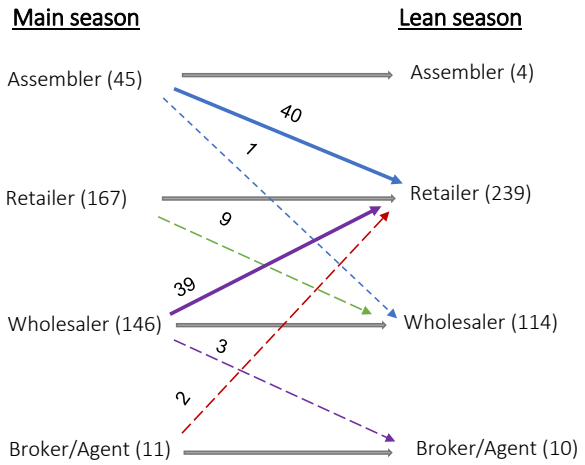
Figure 1: Maize marketing channels



Source: Author's construction from IFPRI Survey Data.
Note: Solid green lines represent major flows, dashed black lines represent minor flows.

Small traders and farmers perceive this structure to favor large private traders. Market channels vary across seasons with instances of rural-urban trade reversals. There are also seasonal switches across trader types, with a considerable number of wholesalers and assemblers switching to retailing in the lean season (Figure 2). The number of competitors decreased by 3 percent between the 2018/19 main harvest and lean seasons.

Figure 2: Seasonal switches between traders types



Source: IFPRI Survey Data (Jun/Jul 2018 and Jan/Feb 2019).

Traders were asked about their views on barriers to entry into the maize trade. Most traders said that it was easy to start a maize business in Malawi (66 percent). Financial capital was the most important barrier to entry into the maize trade (85 percent), followed by unpredictable prices (59 percent), and lack of quality standards (31 percent). Coupled with risks of frequent price declines, lack of financial capital, traders' limited scale of operation and investment in maize storage. High maize transfer costs between districts and regions discouraged small traders from long distance marketing activities.

Our study also found a widespread lack of structured trading in Malawi despite the existence of marketing cooperatives, two commodity exchanges, and several types of warehouse receipts. This is due to small volumes and uncoordinated manner of sales among small farmers and traders, and their limited knowledge of structured trade.

3.2 Conduct of Malawi's maize market

Our study analyzed market conduct in terms of: (1) seasonal shares of purchases and sales between marketing channels; (2) marketing strategies of traders; (3) price setting mechanism; and (4) sales revenue inequality.

We found significant differences in the purchases and sales volumes between the main harvest and lean seasons (Table 1). Most traders delay purchases to the tail-end of the main season to minimize warehousing costs, the risks of aflatoxin contamination, and weight losses from reduced moisture content. Most maize was purchased from small-scale farmers (50 percent) followed by other traders (38 percent) during the main harvest season (Table 1). By contrast, in the lean season, the greatest proportion of purchases was from other traders (56 percent), followed by small-scale farmers (30 percent).

The greatest proportions of sales were made to individual consumers (59 percent in both seasons), followed by other traders (16 percent in the main and 18 percent in the lean season). Most individual buyers from rural areas were small-scale maize farmers, who are largely net buyers of maize, selling at low prices in the main marketing season but buying at high prices in the lean season to meet household expenditures such as health expenses and school fees (Dillon, 2017).

Despite the large network of ADMARC depots, certified warehouses, and widespread existence of farmers' associations in Malawi, only a few traders made purchases from or sold to these outlets during both seasons. ADMARC receives funding in late June/July after the National Budget is approved and slow disbursement of funds further delays procurement until August or September. By this time, most small traders have sold stocks to large traders and other middlemen (usually well-connected private traders) who later supply ADMARC.

Quality is not a strong factor in Malawi's maize market. Scales were not widely used and there were almost no payments of quality premiums. Weighing scales were widely used in the central and southern region markets, but not in the North where buyers largely use pails. Limited quality improvement activities beyond weighing and bagging of maize were reported. Traders rarely carried out sorting or grading because only small premiums were paid for quality maize and a lack of quality standards. Inadequate financial capital also limits traders' investment in drying and grading equipment, which could help increase investment in quality improving equipment and reduce quantity and quality losses, especially from aflatoxin and insect infestation.

Table 1: Seasonal share of purchases and sales (%)

	Main season (04–07/2018)	Lean season (10/2018–02/2019)
Share of maize purchases from…		
Small-scale farmers	50.3	30.2
Other traders	37.5	56.2
Large farmers	1.8	11.1
ADMARC	0.0	1.0
Warehouses	0.0	0.0
Share of maize sales to…		
Individuals	58.3	59.3
Other traders	21.5	17.9
Processors	2.6	2.1
Retail stores	1.7	0.2
Warehouses	0.8	0.8
ADMARC	0.0	0.2

Source: Authors' calculations from survey data (Jun/Jul 2018 and Jan/Feb 2019).

When analyzing price setting mechanisms during the lean season, we found that more than half of the sampled traders used cost-plus pricing (51 percent) followed by collusion with other traders (27 percent) to determine their prices. There was little evidence of predatory or quality-based pricing. In contrast to the two most reported pricing mechanisms, demand driven pricing resulted in the highest sales prices.

In terms of inequality of sales, our study found differences in sales inequality between seasons and trader types. Between the main harvest and lean seasons, sales inequality reduced by 3 percent and 19 percent among assemblers and brokers, respectively while inequality rose by 19 percent and 21 percent among retailers and wholesalers, respectively. We further decomposed the inequalities by seasons, trader types and urban/rural location of traders. Overall, within-inequality was greater than between-inequality for season, trader type and location. Although the distribution of revenues was quite equal between urban and rural traders, there were statistically significant differences among traders in the poorest quintile.

3.3. Performance of Malawi's maize market

We analyzed market performance in terms of: (1) price dynamics; (2) marketing activities and costs; (3) price seasonality; (4) trade margins; and (5) spatial integration of maize markets.

In terms of prices, both traders and farmers stated that buying and selling prices changed significantly during the three years preceding the survey. High price seasonality is mainly caused by increased supplies to the market during the main harvest and reduced supplies during the lean season. Most of the sampled traders were unwilling to store maize for more than 3 months due to unpredictable prices.

In Malawi, maize transfer costs are high and variable due to high fuel prices, poor road networks, prohibitive trade 'taxes' and an uncompetitive transport industry - all of which stifle trade (Zant, 2018). Our study found that the physical costs of transporting, bagging, loading and off-loading maize constituted about 90 percent of the total monthly physical marketing cost of MWK24.3/kg. These activities are labor intensive and there is limited investment in equipment to enhance efficiency and lower costs.

Maize price seasonality as described by the average gross seasonal margin was 60.3 percent over the last 30 years (Table 2).

Table 2: Maize price seasonality (1989–2018)

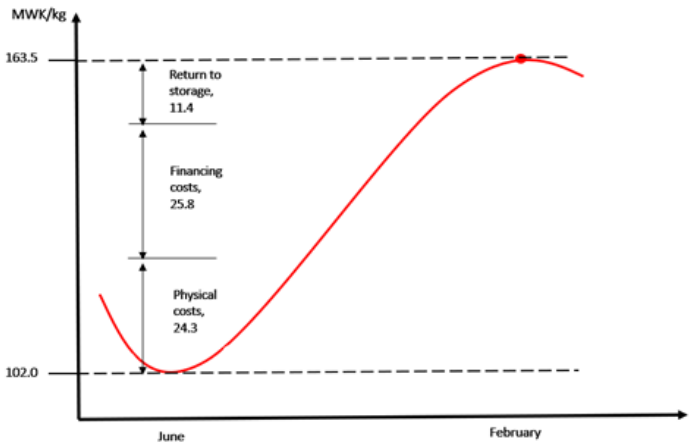
Region	Average gross seasonal margin (%)
North	59.2
Central	58.7
South	63.9
National	60.3

Source: Author's calculations from Agricultural Market Information System (AMIS) data (1989–2018).

This implies that maize prices at the peak of the lean season in February were typically 60 percentage points higher than at the end of the main harvesting season in June. The average gross seasonal margin, which excludes the costs of storage, was higher in southern Malawi than in the northern or central regions. The average gross seasonal margin has narrowed over time, particularly after the roll-out of the Farm Input Subsidy Program in 2005/6. About 50 percent of sampled traders reported minimal changes in margins over the last three years.

Using the average seasonal margin of 60.3 percent and monthly physical costs of MWK24.33/kg, we performed a micro-simulation of possible net return to storage over 8 months (June to-February) while accounting for cost of storage and financing. Considering the average June 2018 price of MWK102/kg, a 60.3 percent gross margin yields MWK61.5/kg. When costs of financing and storage are deducted from this, the return to storage is MWK 11.4/kg (Figure 3). This modest return to storage helps to explain why most small and medium scale traders stated they were reluctant to store maize for more than three months, especially in an environment of possible discretionary trade interventions.

Figure 3: Traders' return to within seasonal storage



Source: Author's construction/calculations from IFPRI, Agricultural Market Information System (AMIS), and International Financial Statistics (IFS) data.
Note: MWK, Malawi Kwachas; physical costs refer to storage costs.

To analyze the spatial integration of maize markets, we employed a threshold error correction model that accounted for transfer cost on price data from 15 pairs of key markets categorized based on distance into short (<150 kms), medium (150 to 300 kms) and long-distance (>300 kms) market pairs. Overall, thirteen of the fifteen market pairs were integrated when the price difference between the markets was higher than transfer costs. However, there was slow price adjustment between markets with prices taking 6 to 19 days to adjust to long-run equilibrium values in medium distance market pairs and 7 to 14 days in long distance market pairs. This slow price adjustment can be explained by travel times and transfers costs usually being higher between distant markets, as well as limited trade between pairs of surplus markets.

4 CONCLUSIONS AND POLICY IMPLICATIONS

The key conclusions and policy implications from this study are:

1. Malawi's maize market is pyramidal in structure: highly competitive at lower tiers of trade but 'oligopolistic' at higher tiers. More private sector investment is needed to promote competition and competitive pricing, particularly at its higher tiers. The unpredictable regulatory environment is a disincentive to maize marketing especially storage. A more predictable policy environment, especially on export bans and minimum farmgate and procurement prices, would encourage more private sector investment in the maize market and increased marketing and sales.

2. There is a widespread absence of standardized grades and quantity measures. Institutionalizing quality grades and standardized weights and measures will promote structured trading and reduce cheating by a minority of unscrupulous traders.

3. Limited access to credit is a critical barrier to the expansion of maize trade. Both farmers and small traders struggle to obtain credit due to stringent collateral requirements and high interest rates. The high cost of financing coupled with high storage costs reduces the incentive to store maize. The Malawi government should work with the private financial institutions to increase credit access for small and medium scale enterprises.

4. Transport costs are high in land-locked Malawi and coupled with poor rural road networks restrict trade between markets. Investments in enabling infrastructure such as roads and warehouses are needed to reduce costs, which, along with improving access to market information, will help promote better linkages between markets.

5. There is limited use of existing structured markets, such as commodity exchanges, warehouse receipt systems, and marketing contracts. The promotion of structured trading might help to stabilize the highly seasonal maize volumes and volatile prices found in Malawi.

5 RESOURCES

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IFPRI Malawi, Area 14 Office, Plot 14/205, Lilongwe, Malawi | Mailing Address: PO Box 31666, Lilongwe 3, Malawi
T +265-1-771-780 | Email: IFPRI-Lilongwe@cgiar.org | http://massp.ifpri.info

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