

AGRICULTURAL MARKETS IN MALAWI

The thin and volatile agricultural markets of Malawi are the focus of this chapter. The conceptual understanding here is that both the dominant subsistence orientation of smallholder farming households and the weak agricultural markets result from two factors: (1) farmers' uncertainty as to whether they will find buyers who will offer them a profitable price for their food crops and (2) consumers' uncertainty that they can reliably find the food they require in the market at a price they can afford. These risks depress traded volumes, undermine market development, and reinforce the subsistence orientation of farming households.

Several factors that drive these market conditions are discussed here:

- Price shocks due to both poor and bumper national harvests
- Unpredictable government restrictions on trade in maize, which impede the access of surplus maize producers to more competitive regional markets and of consumers to greater supplies from Malawi's neighbors
- Often ineffective, but still disruptive, interventions in domestic maize markets by the government through the agricultural marketing parastatal, ADMARC
- Humanitarian responses to large-scale food crises, particularly involving food aid

In consequence of these factors, maize prices in Malawi have been volatile both within the annual cropping cycle and between cycles over the past decade or so, increasing market risks for potential commercial maize producers and for maize traders, inhibiting consumers from more readily relying on the market for the maize they require, and reinforcing the subsistence orientation of any farming they do. However, Malawian households are increasing their reliance on the market for their food, particularly in the lean season before the next harvest and particularly poorer households. There are few other options once a household's food stocks from its own production are exhausted.

Although much more easily stated than achieved, greater predictability in prices will reduce risks for both maize producers and consumers in Malawi, reduce incentives for farm households to primarily focus on low-output subsistence production, and enable many more Malawians to confidently pursue nonfarm employment.

Although farmers in Malawi have important agroecological advantages that they can exploit to produce a wide range of crops for their households' own consumption, the range of crops that they can produce and sell to earn sufficient income to meet other household needs and to increase their assets is considerably smaller. Agriculture in Malawi is dominated in terms of land, labor, and technology used by the low-input, low-output, and low-capital production practices of smallholder farmers. Most rural households have access to land for food crop production. Moreover, about a third of urban households, even if primarily employed in other sectors of the economy, produce some of their own food either through peri-urban farming or by organizing food crop production in their rural areas of origin. Although a growing share of the population seasonally relies on domestic markets for meeting a significant portion of its basic food needs, most farm production is focused on food production for own consumption, with relatively small shares of the total production of food crops being sold (Table 4.1).

The high value that farm households place on self-sufficient food production results in relatively little specialization in crop production among smallholders. In general, the quality of local market performance, particularly

TABLE 4.1 Households that engage in any crop production reporting production of and sales of selected crops, both rainfed and irrigated, in 2015/16, percentages

Crop	Produce crop	Of those producing, who reported any sales	Of those selling, mean share of harvest sold
Maize	95.1	16.0	34.6
<i>Local varieties</i>	45.0	11.4	31.2
<i>Hybrid, recycled hybrids, or improved open-pollinated varieties</i>	52.3	18.7	36.7
Rice	4.3	67.0	57.5
Groundnut	15.5	57.2	58.4
Soyabean	10.2	82.2	76.8
Pigeonpea	22.4	35.1	59.0
Bean or cowpea	14.1	29.9	66.8
Tobacco	6.4	91.3	92.5
Cotton	1.6	91.4	89.1
Sunflower	1.1	76.9	83.9

Source: Author's analysis of 2016/17 Malawi Integrated Household Survey 4 (Malawi, NSO 2017).

Note: Observations: 9,157 households. Weighted analysis.

during periods of economic strain, such as following a poor harvest, is insufficient to eliminate the risk that a producer who brings product A to the market in order to obtain product B from the proceeds of the sale of product A will not find buyers for product A offering a price that would allow the purchase of needed quantities of product B. Given this risk, most farmers will diversify their production as best they can to be self-sufficient in all commodities that they can produce.

Thin Agricultural Markets

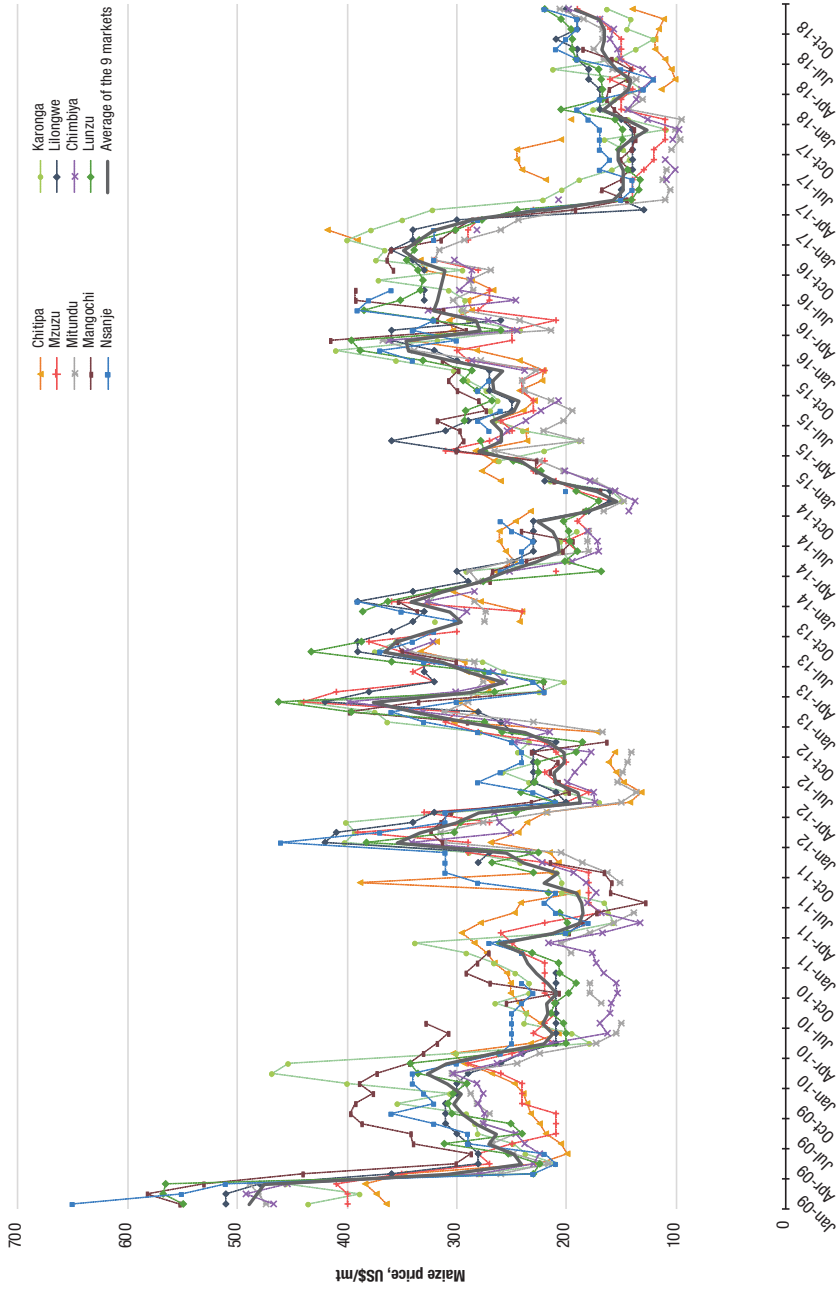
The prevalence of production for own consumption largely reflects the persistently thin markets for food crops in Malawi, and also contributes to this market weakness. Farmers are uncertain as to whether they will find buyers who will offer them a profitable price for their food crops, so any surplus production for most farmers primarily is generated as a safety measure against the food security risks of a bad cropping season, rather than as a commercial decision (Dorward et al. 2009). The small transactions they make with their limited surplus food crop production contribute to this pattern of thin food crop markets. An important consequence of the relatively limited supplies of food to domestic markets is that small variations in supply can result in abrupt and significant price changes (Dorward and Kydd 2004).

When considering whether or not to market agricultural produce—especially food crops—farmers contend with a number of factors that keep transaction costs high, including poor roads and, consequently, expensive transport, and limited information on market opportunities, among others. When spread across the low trading volumes that characterize rural market activity, these high transaction costs and uncertainty about current market conditions mean that both buyers and sellers face the risk that a desired market transaction might fail altogether. These risks depress traded volumes, undermine market development, and reinforce the subsistence orientation of the production decisions of farming households.

Maize price volatility

Figure 4.1 plots average monthly maize prices over the period 2009 to 2018 for nine of the larger maize markets across the country, three in each of the three regions of Malawi. Several features of maize price patterns over time and space in Malawi can be seen in the graph.

FIGURE 4-1 Monthly average maize prices in selected markets in Malawi, 2009 to 2018



Source: Author's calculations based on prices reported by the Agricultural Market Information Service of the Ministry of Agriculture, Irrigation, and Water Development of Malawi; the International Food Policy Research Institute's Lilongwe monthly maize price bulletin; and the Global Information and Early Warning System on Food and Agriculture, managed by the Food and Agriculture Organization of the United Nations.

- In most years, as many households deplete the maize stored from their last harvest, they will increasingly rely on the market for the maize they consume. In response to this demand, prices rise in the months before the next harvest, peaking around March, when the maize harvest begins in southern Malawi. In other words, there is an underlying seasonality in annual maize price patterns centered around the harvest of rainfed maize. However, this seasonal pattern is not seen consistently across the 10-year period. For example, the figure shows unexpected price spikes soon after harvest in 2013 and 2014 that then moderated for a few months before rising again. Also, the relative change in prices between the immediate postharvest period (May, with the lowest expected prices) and the following preharvest period (February, with the highest) shows significant variation—in the second half of the period examined in Figure 4.1, several years show this price change to have been flat to negative.
- Both the level of annual maize production and the response of authorities and their development partners to any shortfalls in production affect the annual maize price patterns. For example, the 2007/08 maize harvest was poor (see Figure 2.2). Consequently, prices rose significantly in the months before the good 2008/09 harvest and then fell sharply as that harvest came in. The 2015/16 harvest was similarly poor, particularly in southern Malawi. However, in contrast to 2008/09, a large response to the emerging food insecurity was mounted by the government and its partners starting in mid-2016. In consequence, what would have been a sharp rise in prices in the months before the 2016/17 harvest, paralleling the price pattern of 2008/09, was blunted by the importation of significant amounts of maize through 2016 and into 2017 as part of the response. Prices then fell sharply with the good 2016/17 harvest.
- Variability in prices can be seen across the country at any point in time, suggesting that maize markets in Malawi are not sufficiently integrated for price adjustments to occur immediately across the country. However, we also do not see patterns of consistently low or high prices for specific markets, suggesting that price adjustments nonetheless occur reasonably quickly.¹

¹ Myers (2013), using weekly maize price data from 2001 to 2008 for 10 markets in Malawi, estimated price adjustment half-lives of between 0.6 and 2.2 weeks, depending on the market pair. (The half-life is a measure of the speed of price convergence between two markets—the time period after a price change in the first market occurs until prices in a second market have adjusted by half the size of the change in price in the first market.) An earlier study by Chirwa (2000), using monthly prices from 9 markets over the period 1989 to 1998, found longer half-lives, of between 5 weeks and 6 months. Both studies concluded that maize markets in Malawi are relatively well integrated, with Myers (2013) suggesting that the level of integration is increasing over time.

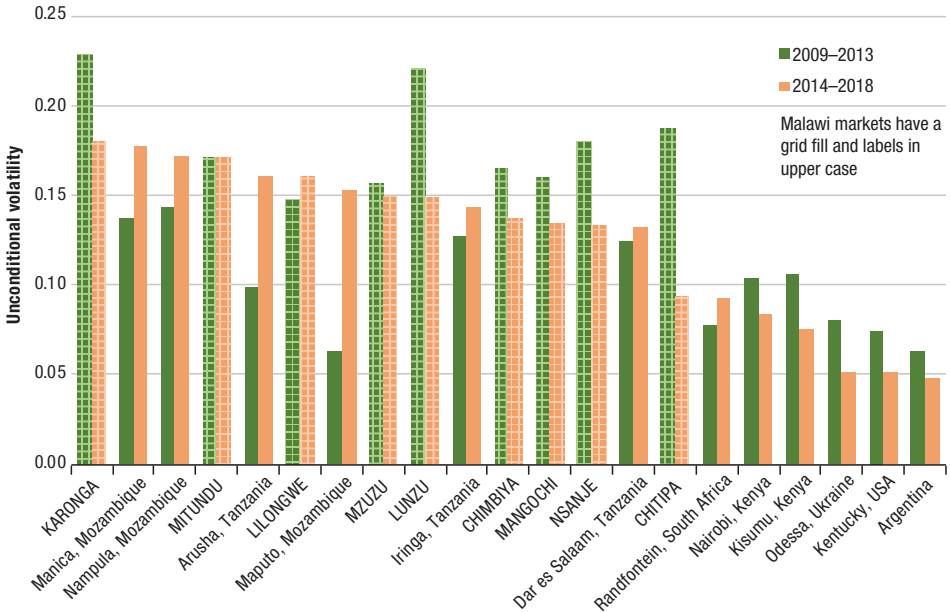
A range of policy decisions underlie these maize price patterns, even if they are not their primary drivers. Export and import policies affect the level of the peaks and valleys of the maize price series. With open trade in maize grain, this variability will be bounded by the import and export parity prices for maize. However, with restrictions on trade, maize production shortfalls will result in higher price peaks as a result of the maize supply not being augmented by trade, while maize production gluts will result in lower, less remunerative prices for producers. Similarly, any uncertainty about government policy around domestic maize marketing will result in commercial maize producers focusing their production on other crops and traders being more hesitant to build their stocks of maize for later sale. Both reactions to policy uncertainty exacerbate shortfalls in maize supply in the months before the next harvest, pushing prices higher. Decisions around public investments also affect these price patterns. Improved rural transportation and communication infrastructure can enhance market information flows and efficiency in moving maize from areas of surplus to areas of deficit, further improving integration across the market system. Such investments will result in greater convergence in maize prices across Malawi.

Malawi has had some of the most volatile maize prices in eastern and southern Africa. Using unconditional volatility in monthly prices as a measure, Figure 4.2 shows trends in maize price volatility for specific marketplaces in Malawi, the region, and the world.² Over the period 2009 to 2013, the volatility measures for the nine markets in Malawi considered in Figure 4.1 and Figure 4.2 were greater than those of any of the other markets considered. However, in the more recent five-year period from 2014 to 2018, maize price volatility in these Malawi markets has fallen somewhat, whereas it has increased in several markets in Tanzania and Mozambique. Consequently, the high volatility of prices in Malawi's maize markets no longer stands out as prominently within the southern Africa region as it did in earlier years.

Using the average of monthly maize prices across selected markets in Malawi, Mozambique, Tanzania, South Africa, and Zambia, as well as in

2 The unconditional volatility measure used here is the standard deviation of the month-to-month change in the natural logarithm of maize prices over the periods considered (Minot 2014). This measure of price variability is better than the more straightforward coefficient of variation, the value of which is dependent in part on the length of the price series examined. In contrast, the unconditional volatility measure is based only on the observed variation in monthly prices.

FIGURE 4.2 Average unconditional volatility in monthly maize prices in selected markets in Malawi, the region, and the world for 2009–2013 and 2014–2018

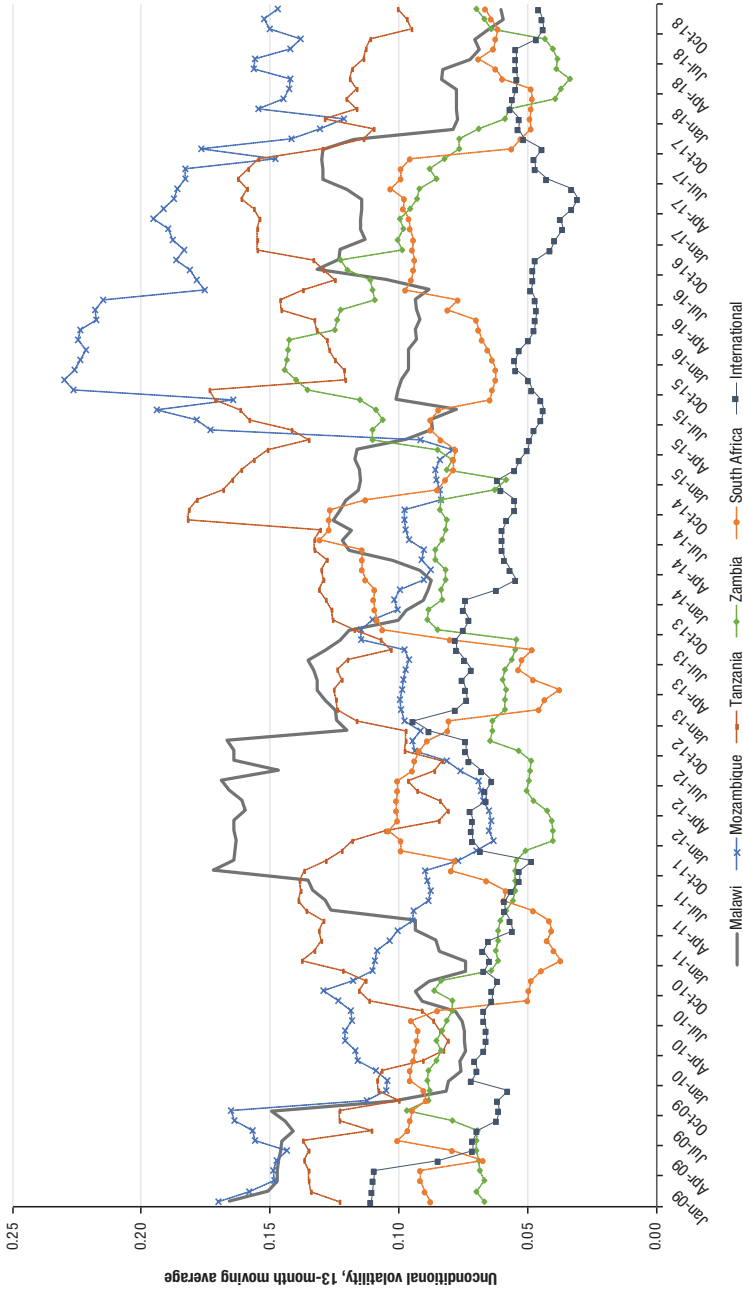


Source: Author’s calculations based on prices reported by the Agricultural Market Information Service of the Ministry of Agriculture, Irrigation, and Water Development of Malawi; the International Food Policy Research Institute’s Lilongwe monthly maize price bulletin; and the Global Information and Early Warning System on Food and Agriculture, managed by the Food and Agriculture Organization of the United Nations.

Note: Markets are ordered in descending order based on their unconditional volatility in the 2014 to 2018 period.

several non-African markets, Figure 4.3 shows how variability in maize prices changed over the period 2009 to 2013 in these countries. Malawi experienced periods of significant price volatility in 2009 and again in 2012—the latter period principally linked to the sharp devaluation of the Malawian kwacha, by about one-third, in May 2012. However, thereafter, price volatility has moderated. In contrast, both Mozambique, with a price spike in February 2016 followed by a sharp price drop, and Tanzania, with a spike in April 2017, have seen substantially greater volatility in maize markets than

FIGURE 4.3 Moving 13-month average, unconditional volatility of average monthly maize prices in selected countries of southern Africa and the world, 2009 to 2018



Source: Author's calculations based on prices reported by the Agricultural Market Information Service of the Ministry of Agriculture, Irrigation, and Water Development of Malawi; the International Food Policy Research Institute's Lilongwe monthly maize price bulletin; and the Global Information and Early Warning System on Food and Agriculture (GIEWS), managed by the Food and Agriculture Organization of the United Nations.

Note: The markets from which prices are included in each average national price are as follows: Malawi—Chitipa, Karonga, Mzuzu, Lilongwe, Mitundu, Chimbiya, Mangochi, Lunzu, and Nsanje; Mozambique—Manica, Maputo, and Nampula; Tanzania—Arusha, Dar es Salaam, and Iringa; Zambia—unspecified set of markets from which an average price is reported monthly to GIEWS; South Africa—Randfontein (Johannesburg); and International—Argentina (up-river ports free on board [f.o.b.] price), United States (Kentucky f.o.b.), and Ukraine (Odessa f.o.b.).

were seen in Malawi markets in the second half of the period reviewed.³ In contrast, international markets and the main reference market for maize, South Africa, show relatively low volatility. This is to be expected given the strong integration of these markets into regional and global maize trade. The pattern of maize price volatility in Zambia over this period is generally lower than in Malawi. That the two patterns do not mimic each other more closely is surprising—Zambia is not very different from Malawi in terms of the risks to maize production that the country’s farmers face, the policy stance of its government around maize commercialization and trade, or the role of the commodity in national food security.

No single factor accounts for the patterns of price volatility seen in Figure 4.3 in Malawi or in the other countries. In any of the countries examined, several factors are likely involved in periods of heightened maize price volatility, including shortfalls or gluts in seasonal production levels; macroeconomic factors, particularly sharp currency devaluations; changing policy stances on openness to trade in staple foods; and how a country’s leaders balance policy goals for agricultural commercialization against those for food security. The effective response of the government and its partners to broad maize production shortfalls, especially following the poor 2015/16 harvest, has certainly moderated maize price swings in Malawi in recent years, particularly in the Southern region, which has been most affected by poor harvests.

Subsistence production as a response to unreliable food markets

When faced with uncertain markets, producers tend to devote more land to low-value food staples and less land to potentially higher-value, nonstaple crops. Fafchamps (1992) concludes that unpredictable prices limit farmers’ incentives to produce cash crops for the market and drive them to be more subsistence oriented than larger farmers, whose relatively lower share of staple food in their consumption expenditure enables them to tolerate more price risk. Alwang and Siegel (1999) find that lack of confidence in markets causes

3 Increased maize price volatility in Mozambique is likely linked to the debt crisis that emerged in early 2016. This had an adverse impact on several macroeconomic indicators. In 2016 the country experienced its highest rate of inflation in many years and a devaluation of Mozambique’s currency, the metical, by 45 percent in US dollar terms. For Tanzania, the recent increases in maize price volatility were due to high maize prices in early 2017 that resulted from poor harvests in bimodal rainfall areas in the second cropping season of 2016 (FEWS NET 2017). These were followed by very low prices later in the year after a good national harvest in the main cropping season. This price pattern was repeated in 2018 with high prices early in the year that then fell sharply.

farmers to use a large part of their land to produce low-value food staples. As a result, farmers are constrained in their ability to purchase inputs or other productivity-enhancing technologies. In a review of evidence on smallholder market participation in staple food markets in eastern and southern Africa, Barrett (2008) concludes that high commerce costs limit household-level market access, price transmission, and trader competition, leading to more volatile markets. These volatile markets, in turn, limit farm-level incentives to generate surpluses for the market through increased productivity, and thus curtail the potential of the agriculture sector to contribute to economic growth and poverty reduction.

Unpredictability in the seasonal pattern of maize prices also has an adverse impact on maize traders, particularly those who store maize obtained just after harvest in order to sell it later, when prices can be expected to peak before the following maize harvest. (The same adverse effects also face producers who store any surplus for later sale to profit from expected higher prices.) Engaging in storage is profitable only when the seasonal rise in maize prices is sufficient to generate a positive return on the investment the trader made in storage facilities as well as cover the costs of managing the grain while it is in storage (Chapoto and Jayne 2009).⁴ However, if the risk that prices will not rise as anticipated is increasing, storage of grain for later sale will not be a financially viable business strategy for traders to pursue—those storing maize will often realize negative returns (Cardell and Michelson 2020). Increasing unpredictability in seasonal maize price patterns in Malawi in recent years could be due to a combination of rising incidence of production shocks, both positive (gluts) and negative (deficits); increased discretionary interventions by government that affect maize marketing and trade patterns; and more frequent humanitarian responses to food crises that involve significant food aid. Any breakdown in the predictability of seasonal patterns in maize prices and consequent reduction in the storage activities of maize traders will be detrimental to Malawian consumers who obtain some of their maize from the market. Without storage, there will be less maize available in the market in the months before the next harvest. A stable, predictable pattern of prices over the year is characteristic of a strong and reliable market.

Unpredictable prices also hurt Malawi's consumers of maize, especially when one considers seasonal price movements. Analysis of the average maize

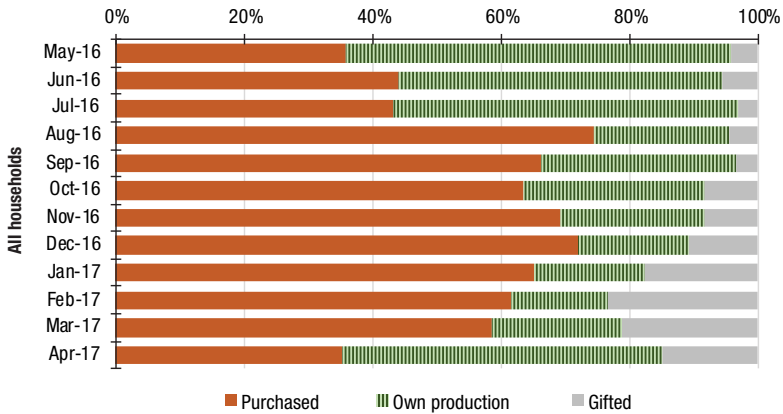
⁴ Myers (2013), using weekly maize price data from the period 2001 to 2008 for 10 markets in Malawi, found that storage would be an efficient way to manage temporal price movements in 8 of the markets over this earlier period.

price series, presented in Figure 4.1, shows that the average monthly price of maize in Malawi over the period 2010 to 2019 increased by one-third on average between the period just after harvest in May and the height of the lean season in February, when many households have exhausted their own stocks and look to the market for maize. However, there is considerable variability in the magnitude of these annual price movements—average maize prices increased by 80 percent in 2011/12 and again in 2012/13, whereas in 2014/15 and in 2017/18, prices essentially did not change between May and the following February. These potentially large but inconsistent price spreads affect how households plan to meet their food needs throughout the year and how they cope with any shortfalls in their own production of maize and other foods, especially in years in which maize and other food prices are on the high side. Such uncertainty in maize prices also makes it perilous for households to diversify from maize production into other, more profitable crops or nonfarm activities, because they depend so heavily on maize to meet their dietary needs (Dorward and Kydd 2004). Households cannot be confident, in the face of potentially high maize prices, that shifting their production away from maize to nonstaple crops will be sufficiently remunerative to assure them the income needed to buy the maize they require.

Although the large seasonal price swings make the market a somewhat unreliable means for gaining access to food, many households rely on the market to meet their food needs. In 2016/17, survey data show that the average share, by weight, of per capita maize consumption for all households that was obtained from the market doubled in the lean season, when maize prices were higher, compared with the harvest period, between April and June (Figure 4.4).

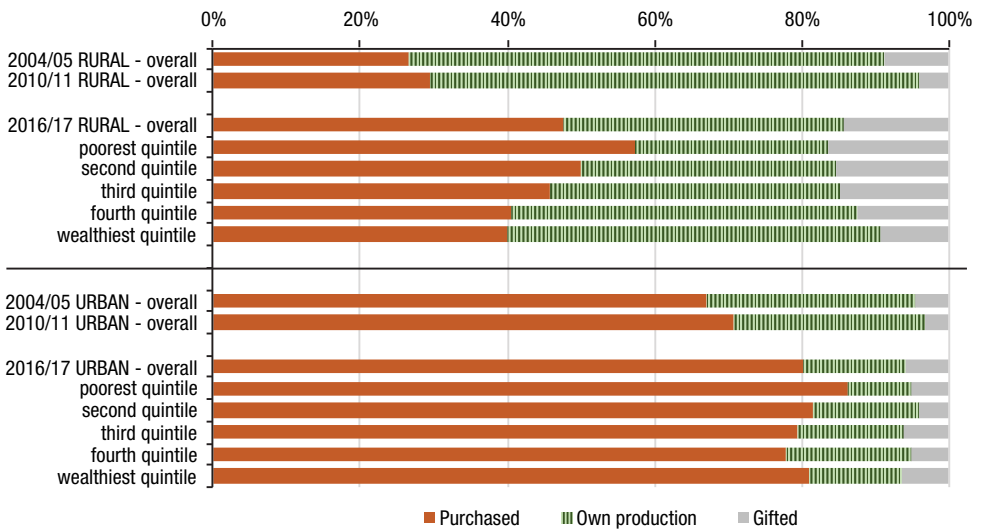
Moreover, reliance on the market to obtain maize is increasing among Malawian households, in both rural and urban settings (Figure 4.5). Purchase of maize for household consumption increased slightly between 2004/05 and 2010/11. But this reliance on markets increased sharply between 2010/11 and 2016/17. We also see in rural areas considerably more reliance on gifts of maize in 2016/17 than was the case in the two earlier survey years, both of which followed reasonably good maize harvests. The poor harvest in 2015/16, and the consequent food insecurity response mounted by the government and its development partners, is part of the explanation for this change in the sources of maize for household consumption reported in the 2016/17 household survey year. However, qualitative studies by FEWS NET of the sources of food consumed by Malawian households suggest a similar trend over the

FIGURE 4.4 Pattern in sources of maize consumed by Malawian households, by month, May 2016 to April 2017, percentage of total maize consumed



Source: Author's weighted analysis of 2016/17 Malawi Integrated Household Survey 4 (Malawi, NSO 2017), based on the sample of 11,697 households interviewed over the 12-month period who reported consuming maize in the week prior to being interviewed.

FIGURE 4.5 Source of maize consumed in 2004/05, 2010/11, and 2016/17, by rural and urban households and by household welfare quintile in 2016/17, percentage of total maize consumed



Source: Author's weighted analysis of data from subsample of survey households interviewed over a 12-month period who reported consuming maize in the week prior to being interviewed—2004/05 (Malawi Integrated Household Survey 2); 10,004 households interviewed between April 2004 and March 2005; 2010/11 (Malawi Integrated Household Survey 3); 11,384 households, April 2010 to March 2011; 2016/17 (Malawi Integrated Household Survey 4); 11,697 households, May 2016 to April 2017 (Malawi, NSO and World Bank 2007a; Malawi, NSO 2012, 2017).

past 15 years of decreasing reliance on own production and increased reliance on market purchase (FEWS NET 2018).

In addition to increased reliance on the market across all income groups, poorer households are more likely to purchase their maize than are wealthier households, particularly in rural communities. Moreover, Mussa (2015) has shown that poorer households in Malawi generally pay more for maize than do other households in both rural and urban settings, attributing this primarily to the poor generally purchasing maize in small quantities at a time due to cash constraints. Consequently, they do not benefit from quantity discounts on the maize price. The implications of maize price volatility for the food security and well-being of Malawi's poorest households are more pronounced than for their wealthier neighbors.

Government response to maize price spikes

When maize price spikes have occurred in Malawi outside of the normal seasonal pattern of price variation, government interventions in the market to manage such perceived food crises have often exacerbated such spikes. Although maize price volatility generally originates in production challenges that constrain supply, it also is associated with discretionary government interventions in the market, including ill-timed procurement or stock releases; mixed signals from government concerning intended procurements or price controls; uncertainty concerning the imposition or lifting of an export ban on maize; and unreliable estimates of maize production. Both traders and producers of maize face considerably greater risk in their commercial enterprises around maize than would be the case if the government adopted a predictable, rules-based approach to how it intervenes in agricultural markets.

Ellis and Manda (2012) provide an account of three episodes of maize price spikes in Malawi between 2001 and 2009, when prices rose between 200 and 400 percent. They describe a recurring pattern that starts with the government, primarily for political reasons, being slow to recognize a maize production shortfall, despite atypical price increases in maize markets. Thereafter, as prices continue rising, the government, through ADMARC and the National Food Reserve Agency, scrambles to obtain sufficient stocks domestically or regionally, its actions in the market raising maize prices further. At the same time, the government bans exports and presses grain traders to release the typically nonexistent grain stockpiles that they are believed to have hoarded. The government then institutes a ban on private maize trade, eliminating any incentives for traders to engage in efforts to supply additional maize to Malawi, including through cross-border trade, even though

ADMARC, the sole remaining supplier, has limited stocks of grain. Prices spike further, only starting to fall with signs of a good harvest in the following cropping season.

Between 2011 and 2016, Malawi experienced three further episodes of rapidly rising maize prices (as well as a period in the second half of 2014 of abnormally low maize prices). Although maize prices over this period, in real terms, did not reach the levels of the earlier spikes documented by Ellis and Manda (2012), many of the generally ineffectual actions that the government took in an attempt to mitigate the earlier spikes were repeated over this period.

In 2016 Malawi again faced significant food insecurity following a 25 percent drop in production from normal levels in the national maize harvest for 2015/16 due to poor rains in southern Malawi caused by a strong La Niña phase in the El Niño–Southern Oscillation climate pattern. The scale of the crisis, with an estimated 6.7 million Malawians vulnerable to food insecurity in the postharvest period, was such that the government and its development partners developed a joint response plan to address the food needs of this vulnerable population—the 2016/17 Food Insecurity Response Programme. More than \$235 million was spent in the form of cash, food, and vouchers to supply immediate food aid and to contribute to the restoration of livelihoods in affected areas (Babu et al. 2018). The response program was generally quite effective—there was no spike in maize prices in late 2016 and early 2017 (see Figure 4.1) and maize prices dropped sharply once the good 2016/17 harvest began. Moreover, no evidence was found that the provision of food aid distorted local market prices.

The 2016/17 Food Insecurity Response Programme demonstrated that broad food insecurity crises in Malawi can be managed so that significant short-term maize price volatility does not undermine household food security, erode household welfare, or hamper the development of commercial agriculture. Price spikes and collapses do not need to be recurrent features of maize markets in the country. However, the costs of managing supplies of maize to meet demand through a humanitarian response is high, and as the 2016/17 activity showed, the capacity of the government to intervene in the provision of staple food and to ensure that all households have access to the food they require was limited. Given the urgency of the crisis, the UN's World Food Programme took overall responsibility for the response to food insecurity down to local levels, with most government leaders and agencies at district and more local levels largely left out of the implementation process (Babu et al. 2018). The government's maize procurement efforts for the response were

not well managed, with both delays and inflated costs. Overall, the 2016/17 experience demonstrated that government did not yet have the institutional capacity to respond to and effectively handle large-scale food crises without significant assistance from development partners.

Although international assistance will remain an important element in responding to future large food insecurity crises in Malawi, the limited ability of government to respond to maize shortages requires an increased and strengthened role for market mechanisms to respond efficiently to such shortfalls in domestic maize supply. That Malawi finds itself on the verge of significant food insecurity following each poor cropping season is due as much to deficient domestic food market mechanisms as it is to the risks inherent in reliance on rainfed crop production. The current structure and operations of agricultural markets in Malawi are inadequate to reliably provide for the food needs of vulnerable households. Although building increased capacity within government to respond to food crises is important, a more sustainable solution to recurrent widespread food insecurity in Malawi would be centered on efficient markets that provide sufficiently profitable prices to producers who sell their maize and which in turn supply that maize at affordable prices to households across the country that are in need.

Government's Direct Engagement in Food Crop Marketing

For the agriculture sector to be an active part of a more open, market-based economy, a rules-based approach to government intervention in the maize market needs to be put in place. The way the government of Malawi has historically engaged in supporting commercial activities has not been through supporting private firms to competitively engage in production, marketing, processing, and retailing. Rather, the government generally has addressed the problem of inadequate marketing services for the crops produced by smallholder farmers or for the food crops required by Malawian households, particularly maize, by monopolizing trade through parastatal agricultural marketing organizations or by maintaining close oversight of marketing and trade in such crops.

Quite early on, the colonial government tightly regulated the sale of the crops produced by smallholders, instituting crop marketing boards. Richard Kettlewell, the director of agriculture for the colonial government in the decades before independence, later provided this reasoning for the establishment of such marketing boards:

If African cultivators were to be converted from subsistence to a cash economy it was felt that they must have confidence that there was a continuing market for their produce at fair and reasonably steady prices, and an efficient organization to buy it.... Government concluded that this aim could not be fulfilled if marketing were left to private enterprise. The fluctuations of price inherent in such a system would bewilder and discourage the inexperienced farmer Government control of the marketing of the more important crops produced by African farmers therefore appeared essential. (Kettlewell 1965, 248)

To a large degree this protective and somewhat patronizing perspective on the role of government in regulating the marketing activities of smallholder farmers in Malawi is maintained today in policy debates around food security and agricultural development. In 1971, the parastatal ADMARC was established to replace the colonial-period marketing boards. Although initially ADMARC was considered significantly more efficient than the parastatal agricultural marketing corporations of Malawi's neighbors (Dorward and Kydd 2004), its effectiveness declined as it increasingly came to be used by government as a vehicle to tax smallholders through low prices for their cash crops, transferring significant resources from commercially oriented smallholder producers to the emerging tobacco-producing small estate sector in the late 1970s and early 1980s (Kydd and Christiansen 1982). ADMARC also played an important role in the food security of the country, exercising its monopsony to purchase smallholder-produced tobacco, groundnut, and cotton at prices substantially below export parity, and using some of the revenue obtained to subsidize both producer and consumer maize and rice prices (Harrigan 2001).

The structural adjustment reforms of the 1980s that Malawi negotiated with its donors resulted in reforms to ADMARC to ensure more remunerative prices for smallholder producers. Its formal monopoly as the buyer of smallholder produce, though never complete, was eliminated in 1987. Liberalization of agricultural markets for smallholders continued through the 1990s.

Only for maize has ADMARC continued to be involved in price stabilization efforts—the government sets a price band that the parastatal is expected to defend through its maize purchases and sales strategies. However, ADMARC usually does not receive sufficient financial resources in a timely manner from the government to effectively stabilize maize prices across the country from year to year. Consequently, the amount of maize it handles in a year is usually significantly less than would be required to keep prices

within the established price band (Baulch and Botha 2020). Nonetheless, the extensive network of local ADMARC depots across the country (Figure 4.6), including in more remote areas, provides the government with the physical means to distribute food in times of shortage. ADMARC today remains one of the central mechanisms that government has at its disposal to intervene in agricultural markets in Malawi, and it is seen by most Malawians as an important, if not always effective, mechanism for assuring their food security (Chilowa 1998; Chinsinga 2015).

The government is generally cautious, even distrustful, of the ability of private traders to be active in Malawi's food and agriculture markets under all conditions of relative supply and demand. The low capitalization of most traders, their limited access to financing, and the relatively high transaction costs associated with agricultural marketing in Malawi due to poor transport infrastructure and inadequate information and communication services all limit the capacity of private traders to move sufficient maize and other crops from sources of supply to consumers (Ochieng, Botha, and Baulch 2019). Because ADMARC, as a parastatal, has the resources to move maize stocks to its depots across the country, even if those stocks are quite small, its maize sales can serve to temper local maize price spikes.

However, ADMARC does not operate efficiently, limiting its ability to effectively and reliably moderate movements in maize grain prices. Although it is considered a commercial enterprise, it undertakes a range of social functions for the government, most notably related to food security, that by their nature often are not profitable. ADMARC looks to government to cover the costs of these social functions. However, government generally is slow in providing funds, limiting ADMARC's ability to engage in maize purchases soon after harvest to build the maize stocks that will enable the agency to make maize available to consumers quickly to blunt any price rise. Typically, ADMARC buys maize from producers late, several months after harvest, and often has insufficient grain stocks to meet consumer demand in the lean season, forcing restrictions on the amount consumers can buy. Confusing or late government directives and poor timing of its marketing activities mean ADMARC often sells its maize at a lower price than it was purchased for. The significant losses that ADMARC has repeatedly incurred are the responsibility of the government to cover—for example, a bailout of ADMARC by the government in early 2018 involved an unbudgeted expenditure of 45 billion Malawian kwacha (more than \$60 million), equivalent to just under 1 percent of the country's GDP.

FIGURE 4.6 Location of ADMARC depots relative to major roads, 2002

Source: Author's analysis, prepared from a comprehensive list from 2002 of about 360 ADMARC unit markets (permanent retail-level depots).

Note: Although there has been significant closing and reopening of depots since 2002, a 2015 unpublished document prepared by ADMARC for the Public Sector Reform Commission noted that the corporation still operated more than 300 unit markets and 9 storage depots, with total storage capacity of more than 400,000 metric tons. The 2015 document also noted that 205 of the unit markets were uneconomical to operate.

Efforts to restructure ADMARC are promoted regularly, particularly by donors, as part of programs to reform agricultural markets in Malawi, but so far with little to show. Such reforms are certainly needed. For example, clearer guidelines on how ADMARC is to serve the policy priorities of government could increase efficiency. However, any reforms to ADMARC will also need to determine how best to provide incentives to the private sector so that many more firms engage in the marketing and trade of food and other agricultural

products. When significantly more, and more competitive, agricultural trading firms emerge, the private sector will increasingly be able to undertake—in a more cost-effective manner—the functions that the government now often calls upon ADMARC to perform.

Continuing significant public investments in ADMARC are made at the expense of increased private-sector engagement in maize marketing. Consequently, as part of efforts to improve food security in Malawi, a reasonable longer-term policy objective should be to eliminate ADMARC. The generally ineffective efforts of ADMARC to defend the government-set maize price band add uncertainty to the market, adversely affecting all concerned—maize producers, traders, and consumers. In terms of market development, the funding and policy decisions through which the government supports ADMARC pose significant risks for private firms, both Malawian and regional, that might engage in maize trading in the country. These firms potentially could be efficient competitors to ADMARC, managing at lower risk and at lower public cost many of the functions ADMARC ostensibly has been set up to undertake. So long as the government's discretionary support to ADMARC distorts agricultural markets in Malawi and makes them more uncertain in terms of the commercial returns they might offer, many regional agricultural trading firms will choose to operate their maize businesses elsewhere than in Malawi's markets, and domestic firms will be constrained in the scope of their operations. In the medium term, a purely private sector-managed food system in Malawi should serve as a goal for how the food needs of the population are met under normal circumstances.

However, despite the ineffectiveness of government engagement in the food system through ADMARC, it will be some time still before the parastatal's role is substantially reduced. Given its scale and centrality to government actions to promote food security, reforms to ADMARC are needed to make it more effective. At the same time, however, serious efforts must be made to strengthen and expand the role and capabilities of private grain traders and other firms so that ADMARC becomes an unneeded feature in Malawi's food system.

International and Regional Markets

If agriculture is to drive significant economic growth in Malawi, external markets, particularly regional markets in southern and eastern Africa, will need to play a much bigger role in the near future in providing an outlet for increasing

production from Malawi's farmers. Until transformations to deepen domestic agriculture and food markets, including defining a proper role for ADMARC in these markets, are well established, the profits Malawian farmers can reliably achieve from focusing solely on domestic consumers will be slim. Malawi's trade has depended on agricultural exports since early in the colonial period—tobacco, tea, and cotton alone made up 83 percent of the value of Malawi's exports in 1960 (Kettlewell 1965) and these three crops still made up 61 percent of exports in the period from 2015 to 2017. In this recent period, overall agricultural exports provided 87 percent of Malawi's exports by value. Clearly export crops are still the basis for most of Malawi's economic engagement with the rest of the world.

However, Malawi could benefit more than it does from its agricultural exports. The Monitoring and Analysing Food and Agricultural Policies project of the FAO has closely assessed the performance of six of Malawi's export crops, including maize, over the period 2005 to 2014, particularly looking at how these export value chains are organized and the policy environment within which they operate (FAO 2015a). Overall, the analysis shows that producers of export crops in Malawi generally have faced policy-based disincentives to production over the period examined. This is even the case with production of maize, which, though benefiting significantly from some policies—most notably FISP—nevertheless is sold within a regulated national output market that often includes a ban on maize exports. These restrictions cap the price maize producers can obtain for their grain.

The low costs of family labor used in smallholder-based production of export crops in Malawi, such as tobacco and cotton, provide Malawi with a significant advantage in production for regional and international markets (Keyser and Tchale 2010). Family labor is implicitly valued at less than the prevailing wage rate for casual labor, keeping production costs low. For other smallholder-produced crops, such as maize, however, the generally low levels of productivity relative to potential productivity make Malawi's producers uncompetitive in international markets against higher-productivity producers. The low productivity in Malawi is partially attributed to the high costs of commercial inputs, particularly of fertilizer, which is imported, and the cash constraints faced by smallholder farmers that restrict their access to available inputs in the absence of government subsidies (Keyser and Tchale 2010).

Efforts around several specific trade-related policy issues have a bearing on whether Malawi's agricultural exports will be competitive within international or regional markets:

- Trade levels are sensitive to the exchange rate for the Malawi kwacha. The foreign exchange controls in place until mid-2012 resulted in a significant loss in the price competitiveness of Malawi's agricultural products, reduced investor interest, and caused distortions within the economy, exacerbating existing macroeconomic instability (Pauw, Dorosh, and Mazunda 2013; FAO 2015a). Removal of the controls sharply reduced the value of the kwacha and led to significant micro and macro adjustment shocks. However, doing so also significantly improved the competitiveness of Malawian producers in export crop markets.
- Malawi is disadvantaged in international trade due to its high costs of transport, both on rural feeder roads to domestic markets and from Malawi to ocean ports or regional market centers.
- Malawi's export performance is tied closely to tobacco, which accounted for just over half of the value of all exports between 2015 and 2017. Diversifying Malawi's agricultural exports away from their heavy reliance on tobacco would mitigate some of the adverse effects on Malawi's economy and its producers of any downward trend in global tobacco markets.
- Information flows within export crop subsectors can be improved. Smallholders are particularly disadvantaged in this regard, having far less information on current market prices and conditions than the buyers of their output.
- Limited competition among buyers in most export value chains of Malawi restricts opportunities for broad economic benefits, particularly for producers. Due in part to the information constraints noted, producers are generally price takers. Moreover, there are opportunities for collusion among output buyers. Efforts are needed to expand the pool of buyers of Malawi's export crops to foster more competitive price-setting processes for those commodities.

Expanding and diversifying the export crop sector in Malawi, including for food crops, will be an important component of agricultural transformation processes in the country (FAO 2015a). Coupling resilient export crop value chains with much thicker domestic markets for food crops would provide the foundation for more specialized producers of food crops or export crops to operate at significantly higher levels of productivity. Broader growth across the economy should result as productive and profitable agricultural producers establish stronger economic linkages with other sectors. Such economic

growth would expand the range of employment options for Malawian workers and improve their households' access to the food they need.

Commercial Crop Production and Food Security in the Context of Unreliable Markets and Production Constraints

Price reform was the central focus for agriculture sector reform in the structural adjustment programs prescribed by Malawi's development partners in the 1980s and 1990s. These donors felt it was in the interest of Malawi's farmers to remove policy-related price distortions so that they would have incentives to pursue a broader range of production choices more aligned with their objective comparative advantage. However, many of these price reforms were not fully implemented in practice. Government officials were hesitant to do so in part due to their fear that the policy change would put the food security of the country at greater risk. Lessons from this earlier experience of market reform are worth bearing in mind in formulating development strategies that will expand commercialized smallholder agriculture in Malawi without neglecting the country's food security.

Smallholder farmers in Malawi historically have shown that they respond quickly to higher crop prices with increased output. The immediate response of the colonial government to the 1949 famine was to significantly raise maize producer prices nationwide in 1950. This resulted in a rapid supply response from farmers across the country. Production doubled in 1951 and then almost doubled again in 1952, leading to problems of maize storage and losses for the colonial government as it disposed of its maize stocks on the glutted regional market (Vaughan 1987). A similar pattern was seen in the early 1980s as the government built up its strategic grain reserve stocks following a poor national harvest in 1980 (Harrigan 2001). Improved prices for maize between 1980 and 1984 resulted in "peasant producers ... not only fully [supplying] the domestic market but also a significant component of the food requirements of neighboring countries" (Kydd 1985, 341–342). In the mid-1990s, the national burley tobacco harvest shot up as restrictions on smallholder production were removed.

However, with improved incentives for production of nonfood export crops, burley tobacco, in particular, the challenge facing the government in assuring national food security is that there is limited scope for increased production of export crops without reducing food crop production, at least under

current production levels and landholding patterns. Sahn, Arulpragasam, and Merid (1990) provide evidence that much of the high supply response of Malawian smallholders to improved incentives for export crop production is generated by bringing land and labor previously used for other crops into the production of a now relatively higher-priced crop. Given growing land constraints and the continuing challenges that poor farmers face in raising their crop productivity levels using modern technologies, farmers are even more likely now than 25 years ago to be able to significantly increase the supply of a commercially attractive crop only by curtailing production of another that has a relatively lower price. Overall, aggregate agricultural supply across all crops can be expected to change little simply as a result of changes in the relative prices of the crops produced by Malawian farmers (Harrison 2003).

If smallholders significantly increase production of export crops because prices of those crops become relatively more attractive than those of maize and other food crops, there is a risk that the country's food security will suffer. If the government's strategy for agricultural development involves significant export-oriented production by smallholders, there will remain a continuing need for government support for increasing maize production. This will require both technical mechanisms to increase productivity and price incentives to ensure that farmers commit sufficient farmland to maize, as well as significant opening of Malawi's maize market to imports. In the absence of such production and/or import increases, maize prices will rise with increased export crop production and commercial maize production then will expand, likely at the expense of export crop production by smallholders. Although the higher maize prices will be beneficial for smallholder producers, they will adversely affect most food-insecure households, who will see a rise in the price of their staple food.

These trade-offs illustrate the difficulty of developing a more commercially oriented agriculture sector as part of a broader process of structural transformation of the economy of Malawi, while still ensuring sufficient food production to meet the nation's food needs. These are difficult objectives to achieve jointly. The pattern in maize prices in Malawi seen in Figure 4.1 shows no sign of convergence at a price level that would offer sufficient returns to producers while not exacerbating the food insecurity of the many poor households in Malawi that rely on the market for much of their maize. Propelled primarily by maize production shortfalls and gluts, but often worsened by ill-advised government engagement in domestic markets and in trade, these price variations suggest that agricultural markets in Malawi, and maize

markets specifically, are generally unreliable. Greater stability and predictability in prices would reduce market-related risks for both maize producers and consumers in Malawi, reduce incentives for farm households to primarily focus their efforts on low-output subsistence production, and enable many more Malawians to confidently pursue nonfarm employment.