MALAWI
IFPRI

STRATEGY SUPPORT PROGRAM | WORKING PAPER 47 JULY 2026

# Strategic grain reserves and maize price stabilization in Malawi

## What policies are feasible?

Jan Duchoslav and Nicholas Minot

## CONTENTS

**Abstract** ..... **1**

**Introduction** ..... **2**

**Sources of Maize Price Instability in Malawi** ..... **3**

Changes in supply ..... 3

Changes in demand ..... 5

International price volatility ..... 6

**Government Interventions to Stabilize Maize Prices in Malawi** ..... **7**

Minimum farmgate prices ..... 7

Import and export bans ..... 8

**Food Price Stabilization in Malawi Using a Strategic Grain Reserve** ..... **9**

Historical performance of Malawi's National Food Reserve Agency ..... 9

Buffer stock operations—a conceptual perspective ..... 11

Time-limited interventions ..... 13

Limited rate of purchases and sales ..... 14

Setting the optimal width of the grain price band ..... 15

Defensible price bands ..... 15

Buffer stock capacity ..... 15

Storage constraints on the buffer stock operations of Malawi's National Food Reserve Agency ..... 17

Cross-border trade—additional challenges in defending a maize price band ..... 19

**What Can a Strategic Grain Reserve Achieve in Reducing Maize Price Instability in Malawi?** ..... **22**

**References** ..... **23**

## FIGURES

Figure 1: Average retail price of maize in Malawi, April 2018 to March 2026 ..... 3
Figure 2: Annual maize production in Malawi, 2004 to 2025 ..... 4
Figure 3: Seasonality in maize sales of smallholder farming households in Malawi ..... 4
Figure 4: Monthly consumption of maize in Malawi, by source ..... 5
Figure 5: Minimum farmgate prices and retail prices of maize in Malawi, 2023 to 2026 ..... 8
Figure 6: Malawi cross-border maize flows during an export ban imposed in November 2025 ..... 9
Figure 7: Seasonal patterns in maize prices in Malawi with and without price bands that the government defends through buffer stock operations ..... 12
Figure 8: Strategies for defending a maize price band if the strategic grain reserve has insufficient storage capacity ..... 14
Figure 9: Defensible staple food price bands in an agricultural marketing season in a closed economy ..... 16
Figure 10: Monthly market demand for maize in Malawi, without and with buffer stock operations 18
Figure 11: Storage capacity allocation of Malawi's National Food Reserve Agency by function, based on its operational guidelines ..... 19
Figure 12: Average domestic retail and import parity prices for maize in Malawi, 2025/26 ..... 20
Figure 13: Defensible staple food price bands in an open economy ..... 21
Figure 14: Maximum export parity prices, minimum import parity prices, and retail prices of maize, Malawi, 2025/26 ..... 22

# ABSTRACT

Maize price instability remains a major policy challenge in Malawi, where most households depend on maize for both production and consumption. Many farmers sell maize after harvest, when prices are low, only to buy it back during the lean season, when prices are high. This paper examines whether Malawi's Strategic Grain Reserve, managed by the National Food Reserve Agency, can meaningfully stabilize maize prices. It reviews the sources of maize price volatility, assesses past government interventions—including minimum farmgate prices, trade restrictions, and public grain purchases and sales—and develops a conceptual framework for buffer stock operations. The analysis shows that while a strategic grain reserve can help mitigate the most extreme seasonal price movements, its effectiveness is severely constrained by limited storage capacity, financing and timing challenges, and, in particular, the market-determined import and export parity prices that govern cross-border trade. The paper argues that Malawi should retain its strategic grain reserve but calibrate its price-stabilization mandate to what is operationally feasible, while preserving the reserve's emergency and safety-net functions.

# INTRODUCTION

Food price instability has long been a defining feature of Malawi's food system and remains a central policy concern. As a low-income, landlocked country where maize dominates both production and consumption, Malawi is particularly exposed to fluctuations in maize prices. Most households rely on rainfed agriculture to meet part of their maize needs, yet few produce enough to cover their annual consumption requirements. As a result, the same households often sell maize shortly after harvest, when prices are lowest, but when they may have a pressing need for cash, and purchase maize later in the season, when maize prices peak but when their stocks of maize from their own production are exhausted. These dynamics make food price instability a key driver of seasonal poverty, food insecurity, and welfare losses among both producers and consumers (Chiwaula, et al. 2024).

Maize price instability in Malawi arises from a combination of structural and policy-related factors. On the supply side, maize production varies substantially across years due to weather shocks, including droughts, floods, and cyclones, as well as rising input costs that affect the use of improved seed and fertilizer and, hence, crop yields. Within the agricultural year, a predictable pattern of pronounced price seasonality is seen with low prices associated with the significant supply of maize to the market in the months after the start of the maize harvest in March. High maize prices then follow during the period of lean-season maize scarcity in the months before the following harvest begins. On the demand side, while per capita maize consumption is relatively stable, the share of consumption sourced from markets rises sharply during the lean season as households exhaust their own-produced stocks. This results in intensifying upward pressure on maize prices (Chiwaula, et al. 2024). These domestic food system dynamics interact with international agricultural markets, trade costs, and exchange rate movements. However, given that Malawi is landlocked, relative to other countries, domestic supply shocks tend to be a more important source of maize price volatility in Malawi than maize price fluctuations in world markets (Conforti 2004, Minot 2011, Minot 2014, Hazell, Shields and Shields 2005).

Successive governments in Malawi have attempted to moderate food price instability using a range of policy instruments, including administratively set minimum farmgate prices, restrictions on maize imports and exports, and direct market interventions through public grain purchases and sales. Central to these efforts is the strategic grain reserve (SGR), managed by the National Food Reserve Agency (NFRA), which manages a buffer stock of maize grain that is intended both to support emergency food security responses and to stabilize maize prices. In practice, however, each of these policy tools has faced significant constraints in achieving more predictable and less volatile maize prices. Minimum farmgate price policies are weakly enforced, trade restrictions are frequently circumvented through informal cross-border trade, and the effectiveness of Malawi's SGR is limited by insufficient storage capacity, financing constraints, and delays in procurement and release decisions (Jayne, Mangisoni and Sitko 2008, Rubey 2003, FAO and WFP 2005).

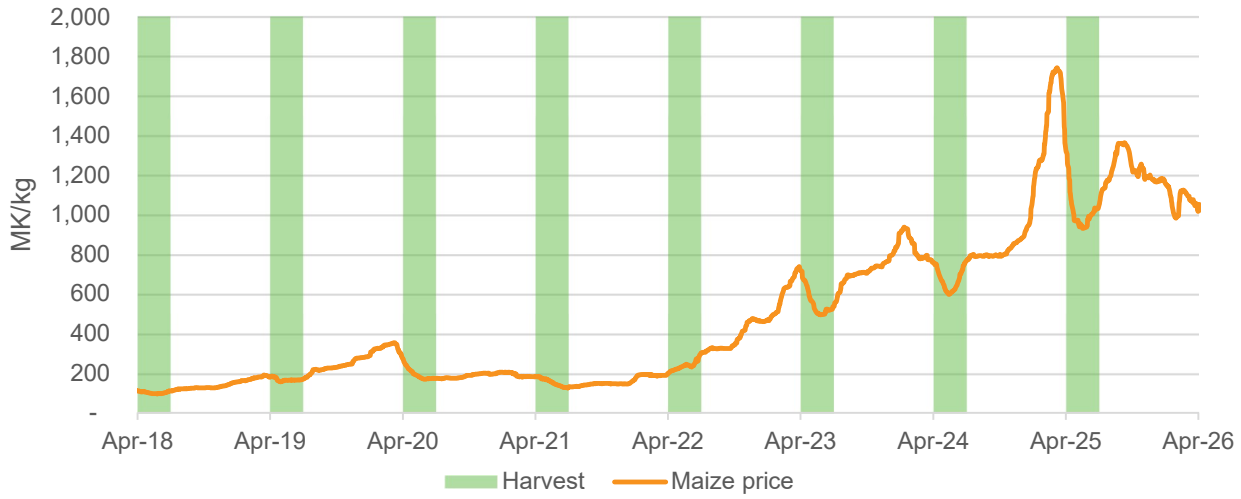
This working paper examines whether and, if so, under what conditions an SGR can contribute meaningfully to maize price stabilization in Malawi. It begins by documenting the magnitude and sources of maize price instability, situating Malawi's challenges within broader international experience. The paper then reviews the main policy instruments currently used in Malawi to stabilize maize prices, with particular attention to their timing, enforcement, and interaction with private markets. Building on this empirical foundation, the analysis explores the mechanics of staple food buffer stock operations from a theoretical perspective, including assessing the storage capacity required for effective price stabilization and evaluating the role of cross-border trade in shaping feasible price bands for staple foods in an open economy (Minot 2011, Minot 2014).

The paper's central argument is that while Malawi's SGR can play a role in mitigating extreme maize price movements, its capacity to stabilize prices is inherently limited. In a small, open economy with high transport costs and porous borders, such as is the case for Malawi, attempts to defend narrow price bands for staple foods through the management of public staple food reserves are costly and difficult to sustain. Effective maize price stabilization in Malawi therefore requires realistic policy objectives, improved timing and predictability of government interventions, and greater reliance on regional trade to absorb maize price shocks (Jayne, Mangisoni and Sitko 2008, Minot 2011).

# SOURCES OF MAIZE PRICE INSTABILITY IN MALAWI

Malawi experiences some of the most volatile staple food prices in Africa. The price of maize—Malawi's most important staple—shows this. Figure 1 depicts the average nominal retail price of maize in the country between April 2018 and March 2026 (orange line). Two aspects of the pattern should be highlighted. First, there is a general upward trend in maize prices over the years, reflecting overall inflation. Second, within a given year, maize prices tend to decline during the harvest season between March/April and June, the period marked in green in Figure 1, and then increase thereafter until the next harvest begins. However, these patterns are not observed consistently over the entire eight-year period, so they are not absolute rules. Deviations from these general patterns are regularly seen, which makes Malawian maize prices difficult to predict.

**Figure 1:** Average retail price of maize in Malawi, April 2018 to March 2026

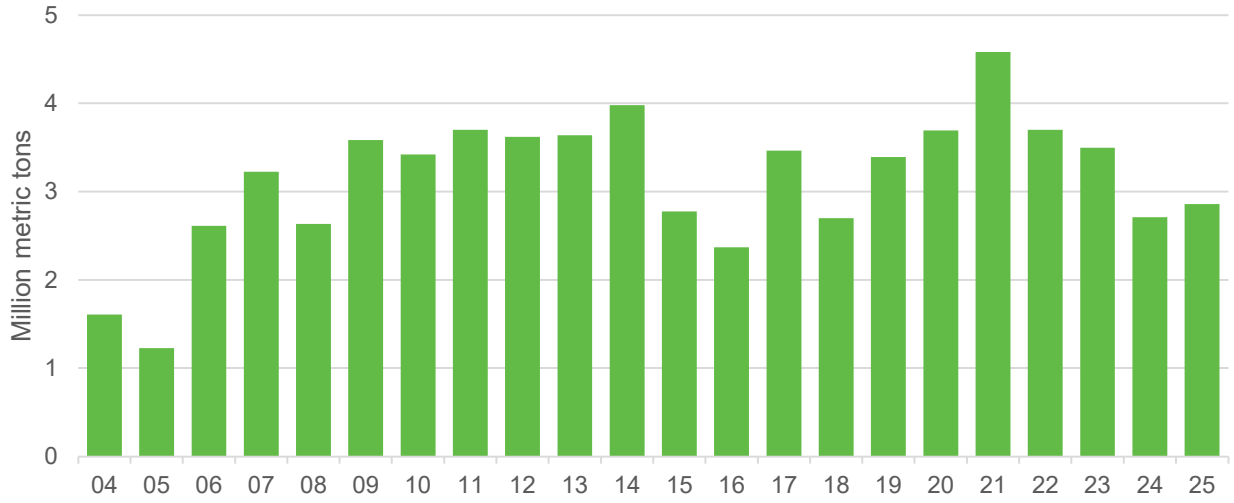



**Source:** IFPRI (2017–present).

## Changes in supply

Changes in supply are an important cause of food price instability. Grain production in Malawi and elsewhere in southern Africa is predominantly rainfed and, therefore, heavily influenced by weather conditions. Growing seasons with consistent, sufficient rain tend to result in better harvests than seasons interrupted by dry spells or excessive rain. Malawi's production of maize, therefore, varies considerably from year to year (Figure 2). Poor harvests are typically followed by higher prices, as can be seen in contrasting the patterns for 2024 in Figure 1 and Figure 2.

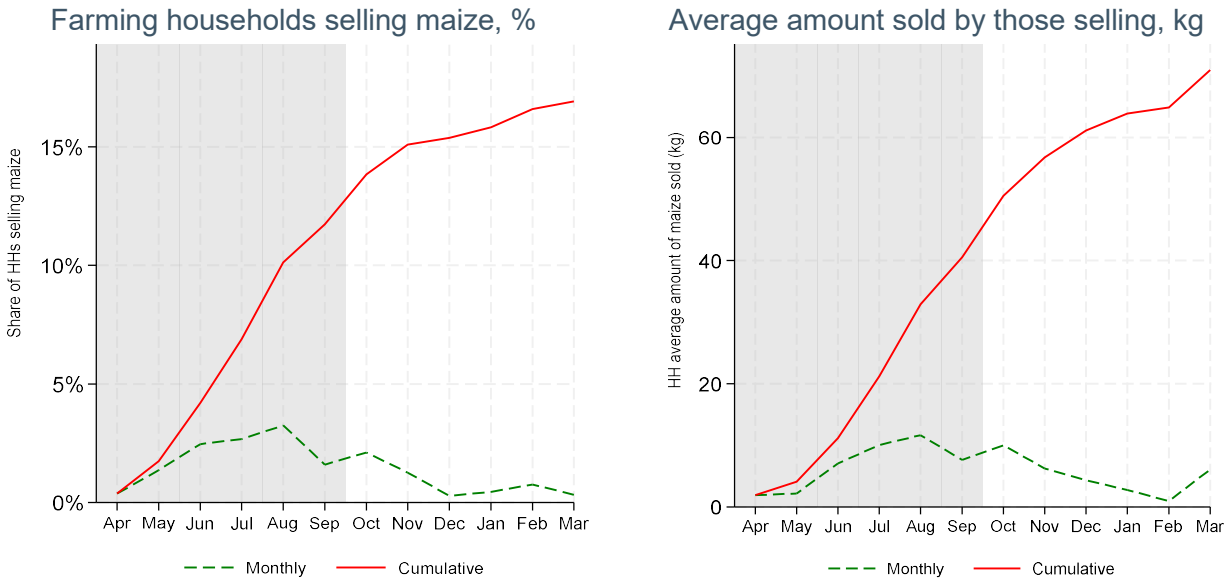
**Figure 2:** Annual maize production in Malawi, 2004 to 2025




**Source:** Ministry of Agriculture, Irrigation and Water Development (2004-2025).

However, maize supply to markets also fluctuates within seasons. Supply is highest soon after the rainfed maize harvest, when smallholder farmers tend to make most sales, and lowest in the lean season, by which time smallholder farming households typically retain only the grain they intend to use for their own consumption. Figure 3 illustrates this pattern using data from the marketing season following the 2019 harvest. The solid line in the left panel shows the cumulative share of smallholder farming households that reported selling any maize from the 2019 harvest in a given month. Starting at zero in April, sales rise quite steeply up to November, after which they flatten, indicating that almost no farming households sell maize during the lean season.[1] The dashed green line shows the share of households who made their first sale in each month— the peak period for households to enter the maize sales market is between June and August.

**Figure 3:** Seasonality in maize sales of smallholder farming households in Malawi




**Source:** Chiwaula et al. (2024).

[1] The very low level at which the line plateaus is noteworthy: while 74 percent of Malawian households grow maize, only 16 percent of households sell any maize they have produced.

The solid line in the right panel of Figure 3 is a similar cumulative distribution function for the average quantity of maize sold by smallholder farming households in a given month. Most maize marketed by smallholders is sold between April and September, the period when prices are below the median for the year (the shaded portions of both panels in Figure 3). Very little maize is sold by smallholder farming households between November and March, when prices are highest.

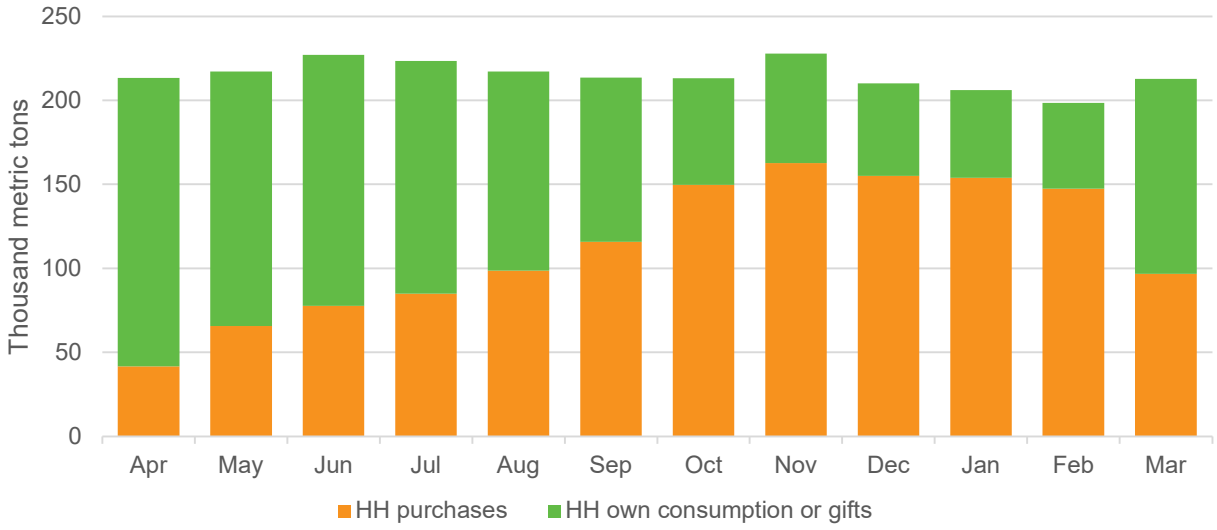
These seasonal changes in maize supply to the market contribute to seasonal variations in its price. Abundant supply suppresses prices after the harvest, and low supply in the lean season drives prices up.

## Changes in demand

Around the world, demand for staple foods is typically fairly stable. Such foods exhibit low own-price elasticity—that is, demand for a staple is only modestly affected by its price—and even lower cross-price elasticity—demand for a staple is affected by the prices of other staples less than by its own price. However, in places like Malawi, where most households produce maize but few produce enough to fully satisfy their annual consumption, the share of total demand for maize that is met through market transactions varies seasonally.

In a typical year in Malawi, per capita consumption of maize remains relatively stable at between 9 and 10 kg per month. However, where the maize comes from is largely a function of the time of year. In the period immediately after the maize harvest begins in late March, most people consume maize that was grown by their own household. As the year progresses, however, an increasing number of households run out of their own-produced maize and must turn to the market to obtain the maize they consume. As a result, the average Malawian buys more than three times as much maize in February (6.8 kg) as in April (1.8 kg). In aggregate, Malawian households purchase less than 45,000 mt of maize in a typical April, but more than 160,000 mt in a typical November (Figure 4). These seasonal differences in market demand for maize become even starker in years with a poor harvest. Higher market demand in the off-season drives maize prices up, further contributing to their seasonality.

**Figure 4:** Monthly consumption of maize in Malawi, by source




**Source:** Adapted from Chiwaula et al. (2024) using consumption patterns from the 2019/2020 marketing year scaled up for a national population of Malawi of 22.6 million.

## International price volatility

How do international prices affect domestic prices? In a market economy, international prices generally act to set an upper and lower limit on domestic prices. Domestic prices generally remain below the import parity price (IPP), defined as the world price plus the cost of shipping the commodity to the country, including any applicable taxes. As soon as domestic prices rise to the level of the IPP, it becomes profitable to import, which prevents further domestic price increases. Likewise, international trade keeps domestic prices above the export parity price (EPP), calculated as the world price minus the cost of exporting the commodity to international markets, including any taxes. As soon as domestic prices fall to the EPP, it becomes profitable to export, and the reduction in domestic supply prevents further decline in the price.[2]

Domestic prices for a commodity will closely follow international prices in the following circumstances:

- The locally-produced commodity is a close substitute for the internationally-traded commodity. That is, consumers consider them to be equivalent and will not pay a premium for either.
- If the commodity is regularly traded in international markets, then spatial arbitrage will link local and international prices.
- If the cost of transportation of the commodity to and from the country is low, the domestic price will be more closely linked to the international price. For a given world price, low transportation costs reduce the IPP and raise the EPP, narrowing the band within which domestic prices fluctuate.
- When trade policy with respect to the commodity is relatively open, local prices will be more closely linked to international prices. Low taxes and minimal non-tariff barriers, including low transportation costs, reduce the gap between IPP (the upper price limit) and EPP (the lower price limit), thus limiting domestic price volatility.

However, other circumstances may result in domestic prices for a commodity not following international prices:

- If there are important quality differences between the domestically produced commodity and the commodity in international markets, then domestic and international prices may diverge, even after taking transport costs into account.
- If the cost of transporting a commodity to and from international markets is high due to a country being landlocked or for other reasons, a higher IPP and a lower EPP result, creating a wider gap between them. This allows more domestic price variation in response to any supply shock for the commodity.
- If there are high taxes, quotas, or other administrative restrictions on imports or exports of a commodity, this will also create a wider gap between the IPP and the EPP.[3]

By limiting extreme movement of domestic prices upward or downward, international trade can reduce domestic price instability for a commodity, including staple foods, such as maize. At the same time, instability in international prices can be transmitted to domestic markets, as was the

[2] In practice, domestic prices can surpass IPP by an amount equivalent to the cost of transporting the commodity from the border further inland. Similarly, they can drop below EPP by an amount equivalent to the cost of transporting the commodity to the border. These amounts will differ from location to location, depending on the distance to the border through which imports would arrive or exports would leave.

[3] A small-to-moderate import tariff transmits shocks in international prices to local markets, whereas quantitative restrictions, including a ban on trade, generally do not.

case in southern Africa during the global food crises of 2007/08 and 2022/23. The net effect of international trade on domestic price stability is an empirical issue that depends on volatility in international prices, the width of the band between EPP and IPP, and the degree of instability in domestic supply.

# GOVERNMENT INTERVENTIONS TO STABILIZE MAIZE PRICES IN MALAWI

Instability in the prices for the staple foods that they consume has substantial effects on people's welfare. It is evident from Figure 3 and Figure 4 that smallholder farming households in Malawi often sell a significant share of the maize they produce when its price is low, only to have to buy maize to meet household needs when their own supplies are exhausted later in the agricultural year and maize prices have risen.[4] Many farming households lose out on these transactions, which pushes them deeper into poverty and seasonal hunger (Chiwaula et al., 2024).

To counter these effects, the Government of Malawi has employed several tools in an effort to stabilize maize prices. These include minimum farmgate prices for agricultural commodities and bans on the importation or exportation of maize. The use and efficacy of these two tools are discussed briefly in this section. A third tool, the use of a strategic grain reserve that maintains and operates a national buffer stock of grain to enable Malawi to meet its food security needs, is considered in more detail in the following section. This mechanism for potentially ensuring the affordability of maize, in particular, for all Malawians is the focus of this paper.

## Minimum farmgate prices

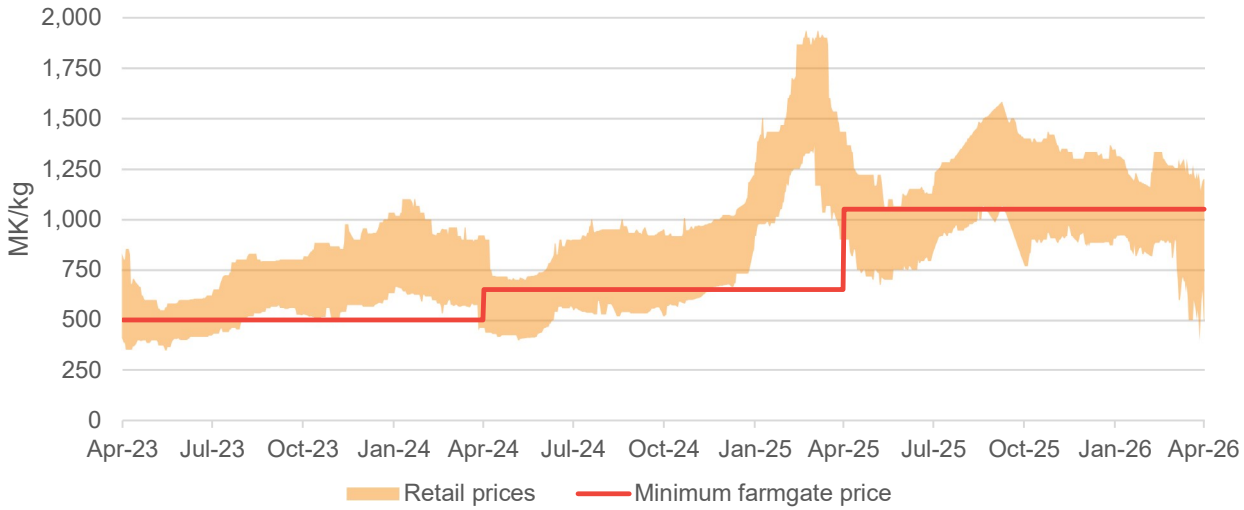
The Government of Malawi prescribes minimum farmgate prices to help farmers avoid "selling low." However, as there have been no effective mechanisms to force buyers of maize or other agricultural commodities to pay at least the stipulated minimum price, this effort has usually failed.[5] As shown in Figure 5, across Malawi, reported retail prices—which include transport costs as well as traders' and retailers' profit margins, so are therefore typically higher than the prices farmers receive—are often lower than the government-mandated minimum farmgate price for much of the marketing season in many markets. Minimum price regulations in Malawi have generally not prevented prices from falling below the prescribed level.[6]

[4] The reasons for the "sell low, buy high" paradox have been explored by (Cardell and Michelson 2023, Stephens and Barrett 2011, Burke, Berquist and Miguel 2019, De Weerdt, et al. 2024).

[5] The lack of capacity to enforce minimum farmgate prices everywhere at all times should not be mistaken for a total lack of enforcement capacity. Incomplete enforcement does, however, normalize inconsistent application of rules and regulations. Inconsistent rule application is then only a step away from facilitating corrupt business practices (Duchoslav, Nyondo, et al. 2022).

[6] It should also be noted that if the government succeeded in preventing farmers from selling their produce below the minimum price without correspondingly stimulating demand, some farm produce would remain unsold.

**Figure 5:** Minimum farmgate prices and retail prices of maize in Malawi, 2023 to 2026




**Source:** IFPRI (2017–present).

## Import and export bans

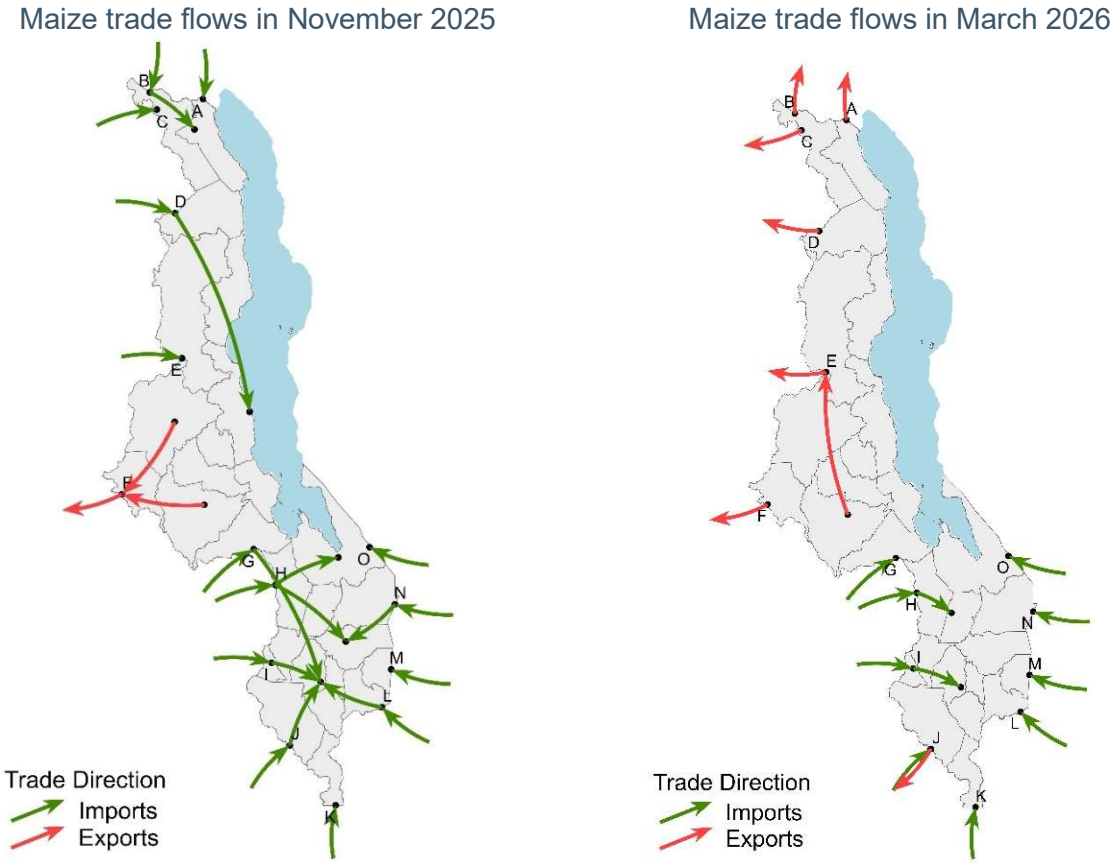
To prevent domestic prices of a commodity from rising too high, governments sometimes restrict its export in order to reduce general market demand for the commodity. Similarly, imports of a commodity are sometimes blocked in order to stifle supply of the commodity from elsewhere and, thus, prop up its domestic price. The Government of Malawi has regularly imposed trade restrictions on maize as well as on other agricultural commodities in attempts to stabilize prices for either consumers or producers.

However, here too, enforcement capacity lags behind intent. Malawi's long, porous, and sparsely patrolled borders enable informal trade in maize and other commodities to flow relatively freely across its borders. Trade restrictions are poorly enforced even in locations with official border posts.

Malawi's latest ban on maize exports, introduced in November 2025, is a case in point. Figure 6 depicts trade flows of maize through 15 locations along Malawi's borders that are monitored weekly by IFPRI (2017–present). Despite the ban on exports, maize continued to be traded from Malawi throughout the ban's duration, including through major border posts, like Mchinji. As such bans do not eliminate trade, they only moderate domestic maize prices to the extent that they increase the cost of transporting the banned commodity across the border. Anecdotal evidence obtained during the latest maize export ban suggested that the total bribes required to clear a truck carrying 30 mt of maize across the border with Zambia at Mchinji amounted to MK1,000,000, or less than MK34/kg. Trade restrictions on maize that are imposed in an attempt to moderate extreme prices in Malawi thus have rather limited effects.

Moreover, trade restrictions can only moderate extreme prices if they are well-timed. An export ban implemented when prices are high helps keep them in check, but one implemented when prices are low depresses them further. Similarly, an import ban implemented when domestic prices are low helps prop them up, but one implemented when prices are high increases them even further.

**Figure 6:** Malawi cross-border maize flows during an export ban imposed in November 2025




**Source:** IFPRI (2017–present).
**Note:** Cross-border trade patterns for maize in the weeks ending 30 November 2025 and 29 March 2026.

Malawi has seen its fair share of poorly timed trade policy changes for maize. These commonly exacerbated price extremes instead of taming them. In December 2021, for example, the Ministry of Trade partially lifted an export ban that had been in place since 2018. This increased regional demand for Malawian maize, putting additional upward pressure on domestic prices that were already on the rise in the lead-up to peak lean season. In December 2023, the Ministry of Agriculture banned imports of maize grain from Tanzania, stifling supply and thus again putting upward pressure on prices just before the lean season. In the latter case, the limited ability of the government to enforce these trade restrictions was probably a blessing in disguise for maize consumers.

# FOOD PRICE STABILIZATION IN MALAWI USING A STRATEGIC GRAIN RESERVE

The third tool that the Government of Malawi uses to stabilize staple food prices is the operation of a strategic grain reserve (SGR). The operation of such a national buffer stock of grain has a long history in Malawi.

## Historical performance of Malawi's National Food Reserve Agency

In 1971, several state-owned enterprises operating in the agricultural sector were merged to form the Agricultural Development and Marketing Corporation (ADMARC), with responsibility for purchasing, processing, and marketing agricultural products; stabilizing food prices; and

maintaining food security reserves. Through ADMARC, the government maintained pan-territorial and pan-seasonal prices for maize and other crops grown by smallholders. Although there was criticism that the system taxed smallholders and favored the export-oriented estate sector (Kydd and Christiansen 1982), Malawi was generally food self-sufficient and enjoyed healthy economic growth in the 1960s and 1970s.

However, the global oil crisis of 1979 and the interruption of trade caused by the war in Mozambique resulted in a severe economic crisis in Malawi. The government was forced to turn to the World Bank and the International Monetary Fund (IMF) for financial support, the obtaining of which entailed the government agreeing to a number of policy reforms (Chirwa and Zakeyo 2006). Under a series of structural adjustment programs in the 1980s and 1990s, Malawi was compelled to carry out reforms to liberalize its economy: In the agricultural sector, these included revising, between 1982 and 1986, the price bands at which ADMARC would buy and sell maize and other agricultural commodities, moving domestic prices closer to parity with their international prices. In 2000, ADMARC abandoned the maize price band altogether. However, it continues to intervene in maize marketing on an ad hoc basis.

In 1987, the monopsony power of ADMARC over smallholder crops was eliminated. Private trade was legalized, subject to licensing, leaving ADMARC in the role of buyer of last resort (Smith 1995). In 1997, the licensing of agricultural traders was eliminated, with the exception of those trading in maize.

In 1999, the National Food Reserve Agency (NFRA) was created to manage emergency food stocks. Doing so was consistent with the range of agricultural policy reforms carried out in Malawi in coordination with the World Bank and the IMF—NFRA was created to enable ADMARC to focus on commercial activities and reduce some of the social obligations in its mandate. However, since its creation, NFRA has not demonstrated a record of uniform success in assuring the food security of Malawi. Indeed, the inability of NFRA to effectively manage the SGR may have aggravated several food crises Malawi has experienced over the past 25 years.

A spike in maize prices in 2001/02 was widely blamed on advice provided to NFRA by the World Bank and the IMF to reduce its grain reserves from 167,000 mt to between 30,000 and 60,000 mt (Ellis and Manda 2012).[7] The government ordered 150,000 mt of imports to replenish NFRA's stocks, but logistical and administrative problems delayed their arrival. Private imports likely could have prevented the price spike except that traders lacked information about the size of NFRA's maize stocks and the government's stated intention to import a large quantity of maize scared off private grain importers until the extent of the delay of the imports became clear (Rubey 2003).

A combination of good rains and an expanded fertilizer subsidy program led to a bumper maize harvest in 2007 that was estimated at 3.4 million mt, although this likely was an overestimate (Jayne, Mangisoni and Sitko 2008). To manage the expected surplus, the government began procuring 450,000 mt for export to Zimbabwe. By late 2007, the government had exported 283,000 mt. However, in the process, the domestic price of maize was bid up by 65 percent, leading the government to suspend the procurement program (Ellis and Manda 2012). With maize prices in Malawi rising above those in neighboring countries, considerable maize flowed into Malawi from Mozambique and Tanzania in the lean season before the 2008 harvest.

In 2008, the government reported another bumper harvest. As ADMARC began its procurement program in part to replenish NFRA's buffer stock, it was forced to raise its buying price several times in order to compete with traders. By August, ADMARC and NFRA had only been able to purchase 60,000 mt. The government pinned the high prices on hoarding by grain traders, so

[7] IMF rejects this reasoning, placing greater blame for the food crisis on actions of the Government of Malawi (IMF 2004, 17).

private trade in maize was banned in August 2008, effectively restoring the legal monopoly of ADMARC on maize trading (Jayne, Mangisoni and Sitko 2008, Ellis and Manda 2012). This ban was lifted later in the year for traders who agreed to respect the government's maize ceiling price.

More recently, maize prices rose in 2022 and have persisted at a high level. This has been due to a combination of international market factors, unfavorable weather, and adverse macroeconomic conditions facing Malawi, while an under-resourced NFRA has struggled to respond effectively. An initial shock of high fertilizer prices precipitated by pandemic-related production bottlenecks was further exacerbated by the fallout on international fertilizer markets from Russia's invasion of Ukraine in early 2022 (Duchoslav and Rusike 2021, De Weerdt and Duchoslav 2022). By the time global fertilizer prices moderated a year later, multiple official devaluations of the Malawi kwacha in the interim kept domestic prices of fertilizer high. This exerted upward pressure on maize prices, as a large share in Malawi is produced using fertilizer. Malawi's continuing macroeconomic challenges have made it difficult for the government to procure and distribute subsidized fertilizer on time. Further, maize harvests in Malawi were reduced in 2022 and 2023 by cyclones, by El Niño-induced droughts in 2024, and by dry spells in 2025.

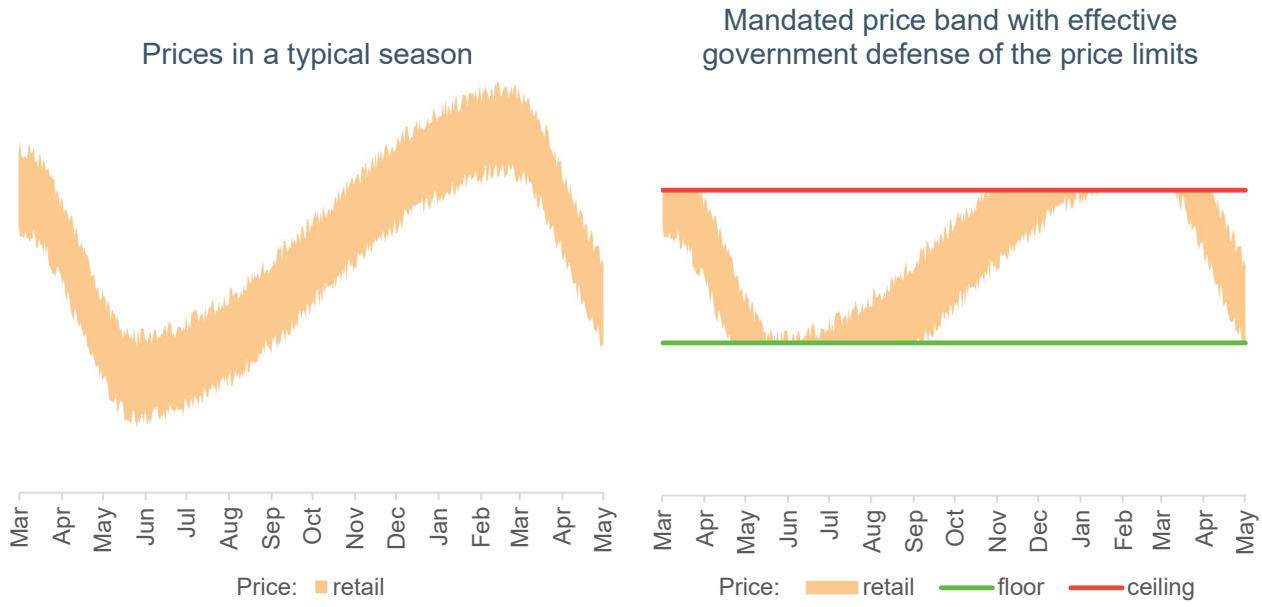
This compounding of stresses on maize production and marketing in Malawi continues to negatively affect Malawi's food system, erodes the capacity of households to absorb the associated shocks to their livelihoods and wellbeing (Upton, Duchoslav and Tennant 2024), and undermines the efficacy of NFRA in its response. NFRA has struggled to fill the SGR to recommended levels. The annual budgetary allocations that NFRA has received from the government have generally been insufficient, and the funds provided have often been disbursed too late to allow NFRA to take advantage of low prices early in the postharvest season. Funding challenges have been further compounded by administrative delays within NFRA itself. As a result, the agency has often contributed to increased seasonal variation in maize prices instead of mitigating the price shifts. Operational challenges aside, it is still unclear, however, to what extent the SGR managed by NFRA can stabilize prices.

## Buffer stock operations—a conceptual perspective

During most agricultural marketing years in Malawi, maize prices follow a typical pattern. Newly harvested maize boosts market supply. At the same time, there is a plunge in demand as farming households begin consuming the maize they grew instead of purchasing grain in the market, so maize prices decrease. However, few farming households produce enough maize to meet their needs over the entire year. As more households run out of maize to consume or sell, supply to the market dwindles, demand for purchased maize increases, and prices rise. Further propped up by accumulating storage costs, Maize prices rise until the next harvest restarts the annual maize price cycle.

The left panel of Figure 7 illustrates how maize prices change in a typical agricultural marketing year in Malawi if no interventions are made to restrain price movements by modifying either supply or demand. The figure also shows that at any point in time, Malawi experiences a range of prices rather than a single pan-territorial price. Such price differences arise due to regional differences between production and demand and because transporting maize grain to areas with high prices from areas of excess supply (and, hence, low prices) is costly.

**Figure 7:** Seasonal patterns in maize prices in Malawi with and without price bands that the government defends through buffer stock operations




**Source:** Authors.

International experience has shown that, generally, the most effective way to reduce grain price seasonality with the help of an SGR is to operate those grain reserves as a buffer stock. The SGR operator buys grain in the immediate postharvest period when prices are low and sells grain to consumers when prices are high in the lean season. The buffer stock operations thus provide additional market demand for grain when demand from households is low—thereby raising prices for grain producers—and additional supply to the market when grain supply from farmers is low—thereby lowering prices for grain consumers.

A successful buffer stock operation over an agricultural marketing season is conceptually illustrated in the right panel of Figure 7. The SGR operator sets a price band—a floor price at which grain producers or traders can sell as much grain to the reserve as they wish and a ceiling price at which consumers can buy from the reserve as much as they wish. When market prices fall within the price band, neither sellers nor buyers will engage with the grain reserve. They will not use the floor or ceiling prices in selling or obtaining grain because they can get a better deal elsewhere in the market—higher prices than the floor price for sellers and lower prices than the ceiling price for consumers.

However, when market prices fall below the floor price, sellers will then turn to the SGR, which now buys grain at a higher price than what private buyers would offer. With this outside option available, grain producers or traders can refuse to transact with buyers who offer them less than the SGR floor price for their grain. The grain reserve operator's willingness to buy at the floor price thus prevents market prices from falling below it.

Similarly, when market prices surpass the ceiling price, those seeking to buy grain can turn to the SGR, which now sells at a lower price than those buyers could get from traders in the private market. With this outside option available to buyers, traders must reduce their prices to the ceiling price level if they want to sell any grain. The grain reserve operator's willingness to sell at the ceiling price thus prevents market prices from surpassing it.

However, the ability of the SGR to serve as an outside option to sellers and buyers—that is, to act as a buyer and seller of last resort—is constrained by its storage capacity. If grain producers or

traders want to sell more at the floor price than the SGR can store, the SGR must stop buying when it runs out of storage space. At that point, the SGR will no longer be able to defend the floor price for grain. Similarly, if consumers want to buy more grain at the ceiling price than what the SGR has stored, then, too, the SGR will be unable to defend the ceiling price.

An SGR operator with limited storage capacity is thus constrained in the degree to which and how it can intervene in markets. The operator can adapt to this constraint in several ways.

- The SGR operator can limit the periods of the agricultural marketing year during which it intervenes in grain markets to prop up producer prices or reduce consumer prices, such as only in the immediate postharvest period to maintain the floor price or in the immediate preharvest period to maintain consumer prices at or below the ceiling price.
- The operator can limit the amount of price protection it offers sellers or purchasers over a specific time period to a relatively limited amount of grain. Thereafter, the seller or purchaser must accept the market prices for any additional grain that they sell or buy, without any direct reference to the floor or ceiling prices established by the SGR.
- The SGR operator can expand the price range between the floor and ceiling prices so that it only intervenes in price setting in the market when prices deviate quite significantly from the expected market equilibrium price.

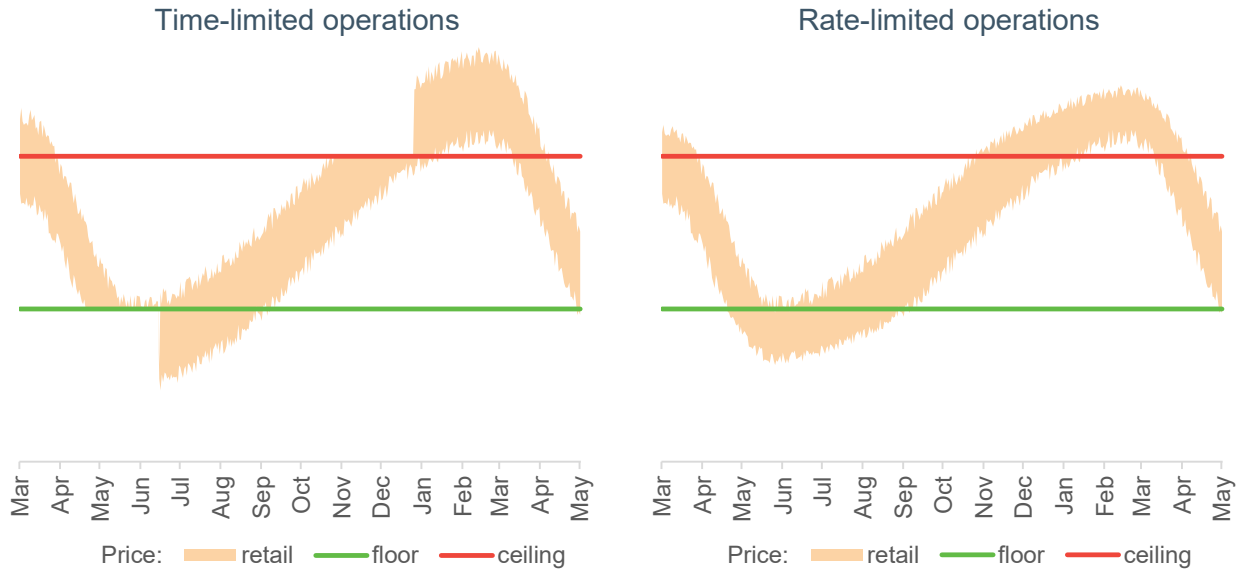
As we discuss, each of these options has its advantages and disadvantages.

### *Time-limited interventions*

The simplest way the operations of a buffer stock with limited storage capacity can be conducted so that it is successful to some degree in reducing grain price swings is to limit in time the interventions the SGR makes. The left panel in Figure 8 illustrates the effect of time-limited interventions by the SGR on prices in the market over the agricultural marketing year. When prices in the market have reached a predetermined floor price, the SGR operator buys as much grain as sellers want to supply until its storage fills up, at which point it stops buying altogether. Later in the marketing year, when prices reach a predetermined ceiling, the operator sells as much as buyers want to purchase until the buffer stock is depleted. Then it again ceases operations altogether. This way, the operator defends the floor price for part of the marketing season but eventually allows prices to collapse. It also defends the ceiling price for part of the lean season, but eventually will allow prices to rise above the ceiling.

This time-limited strategy does not require the SGR operator to precisely understand the levels of supply and demand in grain markets, which makes it a relatively easy strategy to implement. However, such a strategy can lead to sudden price changes in those markets. When the storage capacity of the SGR is completely filled up with new purchases, producer prices for grain are likely to drop significantly. Later in the year, when the SGR has exhausted all of its grain stocks, consumer prices are likely to jump significantly. If this happens before the gap between supply and demand starts to close, the time-limited intervention strategy will fail to prevent the worst extremes in grain prices. Insofar as the elimination of extremes in staple food prices is the principal rationale behind establishing and maintaining the SGR, adopting this strategy will come with significant risks that the SGR will fail to meet its primary purpose.

**Figure 8:** Strategies for defending a maize price band if the strategic grain reserve has insufficient storage capacity




**Source:** Authors.

### *Limited rate of purchases and sales*

The second option is to limit the rate at which grain is purchased or sold by the SGR, either by setting a maximum total volume of transactions per day or by limiting the volume of individual transactions. The right panel of Figure 8 illustrates price behavior when this strategy is employed in the case of maize in Malawi. When the rate of SGR purchases is limited during the immediate postharvest period, the SGR does not supplement regular demand sufficiently to keep the price in all maize sales by farmers or traders above the floor price. Similarly, when the rate of SGR sales is limited during the lean season, the SGR does not supplement the regular supply of maize enough to keep the maize price for all transactions by consumers purchasing maize below the ceiling price. Nevertheless, such limited buffer stock operations still prevent maize prices from falling as low or from rising as high as they would in the absence of any intervention.

Limiting the rate at which the SGR buys or sells grain requires that the operator have some understanding of grain supply and demand levels to ensure that the SGR capacity is fully utilized. If SGR purchases or sales are made too quickly, the points at which the buffer stock fills up or runs out of grain to sell are delayed rather than avoided altogether. Similar to the time-limited strategy discussed earlier, under a rate-limited strategy, high rates of SGR purchases or sales pose the danger of failing to prevent the worst price extremes. If purchases are made too slowly, the buffer stock contains less grain than it can store at the end of the marketing season, which limits its ability to defend a ceiling price during the later lean season. If sales are made too slowly during the lean season, the SGR will have carryover stock when it enters the next marketing season, diminishing its ability to buy grain in defense of a floor price following the coming harvest. However, the understanding of grain supply and demand levels required for employing this approach does not need to be perfect, as the share of grain market transactions in which the SGR engages or otherwise intervenes can be adjusted as time progresses.

Logistically, limiting the rate of purchases and sales often leads to queues of sellers and buyers, respectively. If the rate is limited by capping the volume of individual transactions, only sellers and buyers who value the time they must spend queuing less than the difference between the maximum transaction value and the market value of the same amount of grain will sell to or buy

from the SGR. These people will typically come from poor households, which are often the intended beneficiaries of price stabilization policies. Rationing of price stabilization benefits across the population through queuing may therefore be appealing to a buffer stock operator that, in particular, seeks to protect the poor from extreme grain prices.

However, such queuing comes at a cost. Those who spend time queuing cannot spend it productively. The SGR operator also incurs fixed costs for each transaction. When the volume of each transaction is capped, more transactions are necessary to fill and empty the grain storage facilities of the SGR operator, which increases its total operating costs.

Perhaps more importantly, the SGR operator must spend more than necessary in purchasing only limited amounts of grain with each transaction, and it receives less than possible for the grain it sells in similarly limited amounts. Had it purchased grain at a price at which sellers would have sufficient incentive to supply only as much as the buffer stock can store, it would have spent less on purchases. Had it sold grain at a price at which buyers demand exactly as much as the buffer stock contains, it would recoup all of its outlay to build its grain stocks from the sales without the need to ration the amount sold across buyers.

### *Setting the optimal width of the grain price band*

Setting floor and ceiling prices at levels where sellers supply and buyers demand exactly as much grain as the SGR operator can purchase and store is the most efficient way of stabilizing prices using a buffer stock. Doing so both minimizes the number of transactions needed to defend the price band and the length of time during which buffer stock purchases and sales must be conducted, while ensuring that they take place when they are most needed.

However, employing such a strategy requires a solid understanding of grain market supply and demand. If the floor price is set too high or the ceiling price too low, the buffer stock fills up or becomes empty too soon, and the situation reverts to that described in the earlier section on time-limited interventions and depicted in the left panel of Figure 8. If the floor price is set too low, sellers do not supply enough grain to fill the SGR storage during the marketing season, which then reduces the size of the buffer stock that it can use to defend a ceiling price during the lean season. In contrast, if the ceiling price is set too high, buyers do not completely empty the reserves during the lean season, resulting in carryover stocks at the start of the next agricultural marketing year and less empty storage space to be filled through purchases made in defense of a floor price. Setting an appropriate price band is therefore paramount to successful and efficient buffer stock operations. The following section outlines the challenges of doing so.

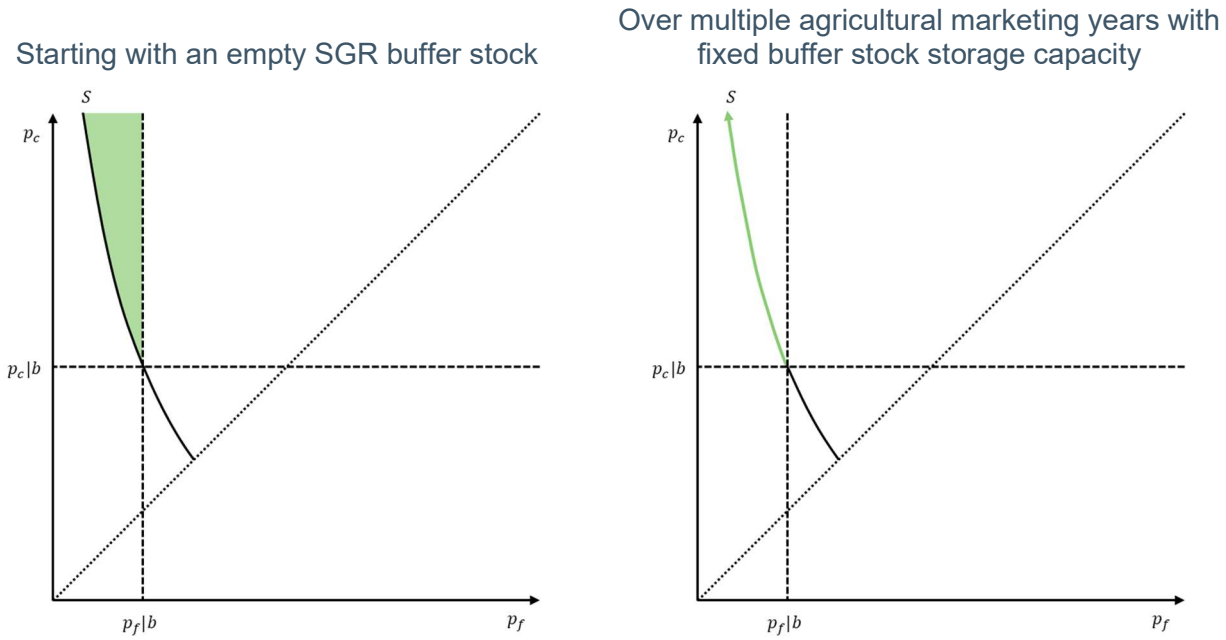
## Defensible price bands

If the SGR operator is to successfully defend a price band for a staple grain, it must take into account not only domestic supply and demand of the grain, but also the storage capacity available for the buffer stock and any net supply provided by imports and demand for exports of the grain.

### *Buffer stock capacity*

In the graphs in Figure 9, we show all possible floor-ceiling combinations in a two-dimensional space. The floor price ($p_f$) is the price at which the SGR operator buys excess grain from the market. This is plotted on the horizontal axis. The ceiling price ($p_c$) is the price at which the SGR operator sells grain. This price is plotted on the vertical axis.

**Figure 9:** Defensible staple food price bands in an agricultural marketing season in a closed economy




**Source:** Authors.
**Note:** The floor price (pf), the price at which the SGR operator buys excess grain from the market, is plotted on the horizontal axis. The ceiling price (pc), the price at which the SGR operator sells grain, is plotted on the vertical axis.

For simplicity, we first assume that the buffer stock operates in a closed economy where no grain imports or exports are possible. The left panel of Figure 9 plots the set of price bands that would be defensible in a single marketing season starting with an empty SGR buffer stock. All realistic floor price and ceiling price combinations lie above the diagonal (dotted line) because a ceiling price must, by definition, be higher than a floor price. Points close to the diagonal represent narrow price bands with floor and ceiling prices close to each other. Points far from the diagonal represent wide price bands with large differences between floor and ceiling prices. The width of the price band that can be successfully defended with a buffer stock depends on the storage capacity available to the SGR operator. A buffer stock with large storage capacity can successfully defend narrower price bands than one with small storage capacity.

The SGR operator can defend a floor price $p_f$ by buying as much grain at that price as producers and traders are willing to sell. If the purchase price is low, suppliers do not sell much grain to the SGR operator. If the price is high, they want to sell considerable quantities. If suppliers want to sell more grain at the floor price than the SGR can store, the floor price is not defensible. It is therefore important to set the floor price sufficiently low so that the SGR does not run out of storage space. We denote the price at which suppliers want to sell an amount of grain equal to the buffer stock capacity as $p_f|b$. In the graphs in Figure 9, this floor price level binds the set of defensible price bands from the right. Large storage capacity will allow the buffer stock operator to buy more grain in defense of a floor price and therefore defend higher floor prices than would be possible with smaller storage capacity. Expanding storage capacity would enable the $p_f|b$ price level to be moved further to the right in the graphs in Figure 9.

The SGR operator can defend a ceiling price $p_c$ by selling as much grain at that price as consumers and traders are willing to buy. If the ceiling price is high, consumers buy little grain from the SGR operator, while if it is low, they buy a lot. If consumers demand more grain at the ceiling price than the SGR can supply, the SGR will exhaust its stocks, and it can no longer defend the ceiling price in grain markets. It is therefore important to set the ceiling price sufficiently high so

that the SGR operator does not run out of grain in its reserves to sell. We denote the price at which consumers and traders want to buy an amount of grain equal to the buffer stock capacity of the SGR operator as $p_c|b$. In Figure 9, this price level binds the set of defensible price bands from below. Larger storage capacity will allow the buffer stock operator to sell more grain in defense of a ceiling price and therefore enable it to defend lower ceiling prices, i.e., prices further down the vertical axis in the graphs in Figure 9, than would be possible with a smaller storage capacity.

However, the SGR rarely enters the lean season fully stocked. Its buffer stock size is proportional to the floor price that it defended immediately after harvest. The higher the floor price during the immediate postharvest season, the more grain suppliers sell to the SGR operator and the larger the buffer stock the operator holds. Conversely, the larger the buffer stock with which the SGR enters the lean season, the lower the ceiling price that it can defend by selling that stock. This means that there is an inverse relationship between the defensible floor price and the defensible ceiling price—the higher the defensible floor price, the lower the defensible ceiling price. In Figure 9, this relationship is represented by the downward-sloping curve $S$, which bounds the set of defensible price bands from below.

If an SGR enters a marketing season with an empty buffer stock and sufficient funding, it can defend any combination of floor price and ceiling price that falls within or above the green-colored region in the graph in the left panel of Figure 9. The larger the SGR storage capacity, the higher the floor price $p_f|b$, the lower the ceiling price, $p_c|b$, and thus the narrower the grain price band that it can defend.

The set of defensible price bands becomes more limited as the buffer stock operates over multiple seasons. If the ceiling price is set too high in an agricultural marketing year, consumers do not buy all the grain in the buffer stock, leaving some of it unsold at the end of the lean season as carryover. With less empty storage space available for the next harvest, the SGR operator is able to purchase less grain in the following harvest period. In consequence, it will only be able to defend a lower floor price than that which it could have defended if it had sold all of its stocks by the end of the previous year and started the new agricultural marketing year with only empty storage space. If the SGR consistently purchases more grain than it sells each agricultural year, it eventually runs out of storage space and loses the ability to defend any floor price whatsoever.

Similarly, if the floor price is set too low, producers do not supply enough grain to the SGR to fill the buffer stock storage facilities to capacity. With less grain than it might otherwise have had to sell during the lean season, the SGR operator can only defend a higher ceiling price than it could have with a full buffer stock. If it consistently purchases less than it sells, the SGR operator eventually runs out of grain and loses the ability to defend any ceiling price whatsoever.

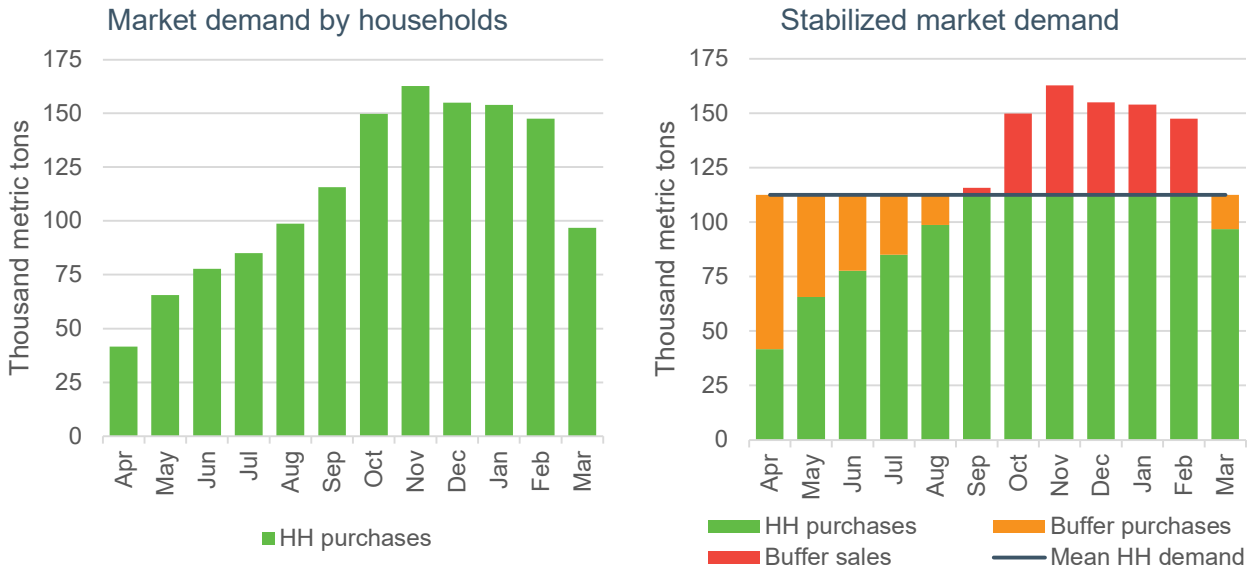
Over multiple agricultural marketing years, the volume of purchases by the SGR operator used to defend a floor price must therefore equal the volume of sales it makes to defend a ceiling price. This reduces the space of defensible price bands to the section of curve $S$ above line $p_c|b$ and to the left of line $p_f|b$ that is highlighted in green in the right panel of Figure 9. This curve represents the combinations of floor and ceiling prices that, in the long run, do not result in grain accumulation beyond the storage capacity of the SGR nor its premature depletion.

### *Storage constraints on the buffer stock operations of Malawi's National Food Reserve Agency*

Based on this conceptual review, Malawi's NFRA seems well placed to stabilize maize supply and demand through buffer stock operations. Figure 10 shows the volume of buffer stock purchases and sales that would be needed to stabilize supply and demand if today's population of Malawi,

estimated at 22.6 million, had the same consumption pattern as that captured by the Fifth Integrated Household Survey (IHS5) in the 2019/20 marketing year. To compensate for low demand, the SGR would have to buy 209,500 mt of grain between March and August and sell the same amount between September and February. The total volume of transactions required would be larger in years with a bad harvest and smaller in years with a good harvest. It would also grow as the population grows. However, in years with normal to high maize production, the buffer stock size required to stabilize supply and demand should fall within the physical storage capacity of NFRA, which has 217,000 mt of storage capacity allocated to it.

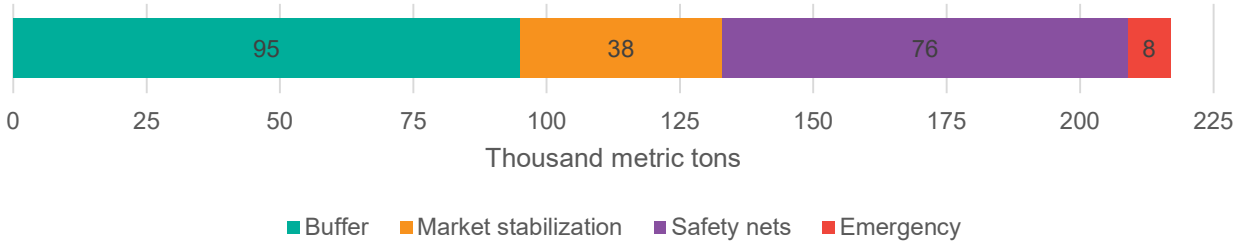
**Figure 10:** Monthly market demand for maize in Malawi, without and with buffer stock operations




**Source:** Adapted from (Chiwaula, et al. 2024) using consumption patterns from the 2019/2020 marketing year scaled up for a population of 22.6 million.

Not all of NFRA's storage capacity is operational, however, and not all is intended for buffer stock operations. Figure 11 shows that of the 217,000 mt of NFRA's total storage capacity, only 38,000 mt are dedicated to the buffer stock, referred to by NFRA as the "market stabilization" stock. 8,000 mt are dedicated to an emergency stock used to respond to emergencies, such as floods. 76,000 mt are reserved for maize used to supply safety net programs, including food-for-work programs and the distribution of free food during the lean season. The remaining 95,000 mt, confusingly referred to as a "buffer" stock by NFRA, is intended to serve as a back-up in case more grain is required for any of the other three purposes. If it were to successfully stabilize domestic maize supply and demand, NFRA would have to reallocate nearly all of its storage capacity to buffer stock operations, which would compromise its other social and humanitarian functions. It would also have to contend with supply from imports and demand for exports, which we discuss next.

**Figure 11:** Storage capacity allocation of Malawi's National Food Reserve Agency by function, based on its operational guidelines




**Source:** Ministry of Agriculture, Irrigation and Water Development (2016)

### *Cross-border trade—additional challenges in defending a maize price band*

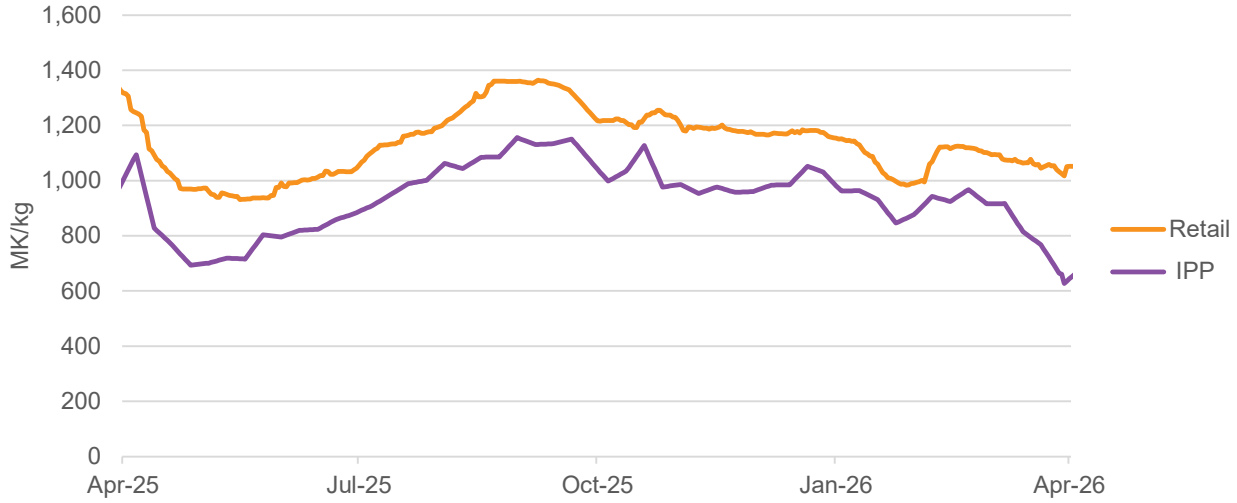
The analysis so far has assumed a closed economy in which the only sources of additional supply and demand available to defend a price band are the SGR's own purchases and sales. In reality, Malawi's maize market is far from closed. Cross-border flows with Mozambique, Tanzania, and Zambia routinely augment domestic supply when maize prices rise and absorb domestic surpluses when prices fall, even when formal trade bans on maize are in place. Before assessing what NFRA's buffer stock can realistically achieve, the conceptual framework above must therefore be extended to account for how cross-border trade flows of grain interact with—and constrain—the price bands that an SGR operator can credibly defend.

Once the closed-economy assumption is relaxed, the set of price bands that NFRA can defend through its buffer stock narrows considerably. Cross-border trade in staple foods has a strong influence on domestic prices and effectively imposes outer bounds on the floor and ceiling prices any SGR operator can hope to sustain. When domestic prices of grain rise above the cost of importing it, i.e., the import parity price ($IPP$), newly profitable imports boost the national supply, bringing prices back down. When domestic prices fall below what foreign importers will pay for the grain at the border, i.e., the export parity price ($EPP$), newly profitable exports boost domestic market demand and arrest the domestic price decline. Foreign markets thus act to regulate grain prices in a similar manner to a buffer stock of grain, albeit mobilizing significantly larger flows of grain than the entire domestic grain market can marshal on its own. Cross-border trade can impose effective limits on domestic grain prices. Imports supplement domestic supply, keeping prices below the IPP plus the cost of domestic trade[8] ($IPP + p_t$), and exports supplement domestic demand, keeping prices above the EPP minus the cost of domestic trade ($EPP - p_t$).

The moderating effect of cross-border trade on Malawian maize prices could be seen clearly after the 2025 harvest, which provided less maize than the country consumes. Throughout the 2025/26 agricultural marketing year, Malawian maize supply was supplemented by imports. Domestic maize retail prices consequently closely tracked import parity prices (Figure 12). For NFRA, this meant that any attempt to defend a floor price above the prevailing import parity price during the 2025/26 marketing year would have been quickly undone by imports, regardless of how much storage capacity the agency had at its disposal.

[8] The cost of domestic trade includes the cost of transport, handling, and trader margins.

**Figure 12:** Average domestic retail and import parity prices for maize in Malawi, 2025/26



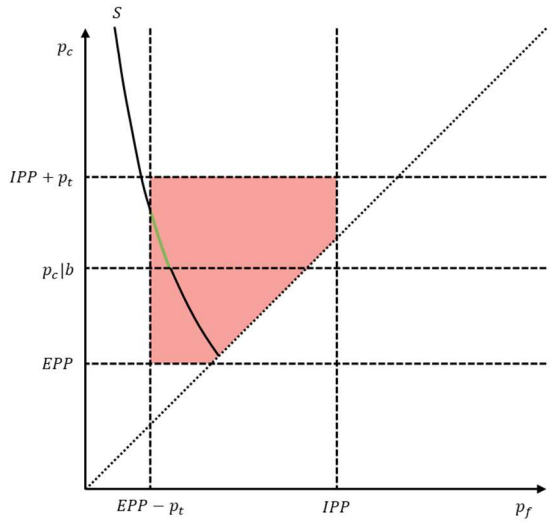

**Source:** IFPRI (2017–present).
**Note:** IPP = import parity price.

In places like Malawi, where the government has limited control over cross-border trade, imports and exports place limits on the price band that an SGR operator can successfully defend. If the SGR operator attempts to defend a floor price that is higher than the $IPP$, the additional demand its purchases create is likely to be offset by supply from imports, which prevents domestic prices from rising above the $IPP$. Under conditions of relatively unhindered cross-border trade, only floor prices that are lower than the $IPP$ can be successfully defended by an SGR operator through the management of its buffer stock of grain.

Similarly, if the buffer stock operator attempts to defend a ceiling price that is lower than the $EPP$, the additional supply that its sales create is likely to be offset by demand for exports. This demand will prevent domestic prices from falling below the $EPP$.

In addition to the limits imposed by the storage capacity an SGR operator has at its disposal, a buffer stock can only defend floor prices above export parity prices and ceiling prices below import parity prices. This is illustrated in Figure 13, where the price combinations that are feasible with cross-border trade are highlighted in red. Feasible floor prices are bound from above (and from the right in the figure) by the $IPP$, while feasible ceiling prices are bound from below by the $EPP$. At the same time, all domestic prices are bound from above by $IPP + p_t$ and from below (and from the left in the figure) by trade $EPP - p_t$. The set of defensible price bands in an open economy is then represented by the short green line in Figure 13 at the intersection of the closed-economy price band derived in Figure 9 and the price space determined by the prices of imports, exports, and domestic trade.

**Figure 13:** Defensible staple food price bands in an open economy

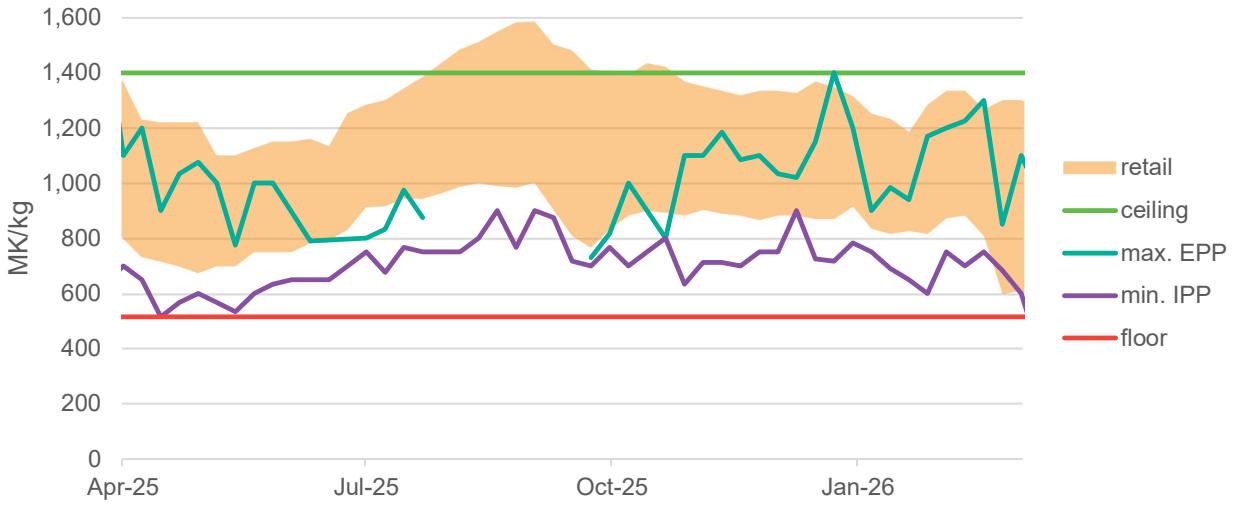



**Source:** Authors.
**Note:** The floor price (pf), the price at which the SGR operator buys excess grain from the market, is plotted on the horizontal axis. The ceiling price (pc), the price at which the SGR operator sells grain, is plotted on the vertical axis.

The challenge of defending a maize price band through the management of buffer stocks of maize is further complicated by Malawi's physical situation. With multiple neighbors and an elongated geography, maize prices across Malawi's border are not uniform. Import and export parity prices are generally higher in places facing locations in neighboring countries with high prices, and lower in places facing locations with low prices. Because it is the lowest import parity price that determines the maximum defensible floor price, and the highest export parity price that determines the minimum defensible ceiling price, large differences between prices in neighboring countries further widen the narrowest defensible price band.

Specifically, prices tend to be higher in Mozambique and in the neighboring Southern region of Malawi than in Zambia and Tanzania and the neighboring Central and Northern regions of Malawi. Prices of exports to Mozambique, therefore, tend to determine the lowest defensible ceiling in Malawi, while prices in Zambia and Tanzania usually determine the highest defensible floor price in Malawi. This is illustrated in Figure 14, which plots the highest export parity price (max. EPP) and the lowest import parity price (min. IPP) observed weekly at any given time during the 2025/26 agricultural marketing year along Malawi's borders. The lowest import parity price, which determines the highest defensible floor, was registered in April in Mchinji district, where maize was bought from Zambia for MK515/kg. The highest export parity price was registered in September in Chikwawa district, where maize was sold to Mozambique for MK1,400/kg. Even if buffer stock operations were sufficiently funded, efficiently undertaken, and did not face any disruptions, such operations could not have prevented retail prices from falling below MK515/kg in the postharvest season or rising above MK1,400/kg in the lean season during the 2025/26 marketing season. In the markets monitored by IFPRI, retail prices never fell below MK515/kg, and they only surpassed MK1,400/kg in August and September in some southern markets.

**Figure 14:** Maximum export parity prices, minimum import parity prices, and retail prices of maize, Malawi, 2025/26




**Source:** IFPRI (2017–present).
**Note:** EPP = export parity price; IPP = import parity price.

# WHAT CAN A STRATEGIC GRAIN RESERVE ACHIEVE IN REDUCING MAIZE PRICE INSTABILITY IN MALAWI?

Returning to the central question of this paper—what an SGR can realistically achieve in reducing maize price instability in Malawi—the analysis here points to a sobering answer. The ability of an SGR to stabilize prices is bounded on the one hand by its storage capacity and on the other by the import and export parity prices that govern cross-border flows. Within these limits, an SGR can mitigate price extremes; outside them, it cannot. Recognizing where these bounds lie—and that they allow for much less price stabilization than Malawian policymakers typically seek—is essential for setting realistic objectives for NFRA and for designing buffer stock operations that neither over-promise nor are under-resourced.

Within the constraints defined by import and export parity prices and Malawi's internal transport costs, NFRA can meaningfully smooth seasonal swings if three operational conditions are met.

- The floor and ceiling prices must be set far enough apart, i.e., below the lowest relevant import parity price and above the highest relevant export parity price.
- The storage capacity actually dedicated to buffer stock operations must be commensurate with the volumes required to defend the chosen band. As Figure 11 shows, only 38,000 mt of NFRA's 217,000 mt of nominal capacity is currently allocated to "market stabilization," far less than the roughly 209,500 mt that Figure 10 suggests would be needed in a typical year.
- Purchases and sales must be timed to coincide with the postharvest price trough and the lean-season price peak, respectively—something that has often eluded NFRA in the past due to funding delays and administrative bottlenecks.

Even a well-funded, well-managed, and appropriately sized NFRA cannot push domestic maize prices outside the band set by regional supply and demand. Malawi's neighbors together produce around 17 million mt and consume around 11 million mt of maize annually, dwarfing Malawi's own production and consumption of around 3 million mt and the 217,000 mt of total NFRA capacity. Buffer stock operations will therefore have only a marginal effect on price levels that are primarily

determined by regional conditions. Attempts to defend price bands narrower than what regional markets permit—such as the MK1,050/kg floor and MK1,300/kg ceiling implied by the 2025/26 minimum farmgate price and ADMARC selling price—are likely to exhaust either NFRA's stocks or its budget without achieving the intended stabilization, as the gap between MK515/kg import parity and MK1,400/kg export parity prices observed during that year illustrates.

Policymakers should therefore calibrate NFRA's price-stabilization mandate to what is operationally feasible rather than what is politically desirable. A defensible band, anchored by the parity prices and supported by adequate storage capacity allocated to buffer stock operations, would allow NFRA to dampen the sharpest seasonal price extremes without committing the agency to fights it cannot win. This more modest framing also has the advantage of freeing NFRA's remaining capacity for the social and humanitarian functions that the agency was created to perform—emergency response, safety-net supply, and back-up reserves.

More broadly, the analysis highlights that the effectiveness of an SGR for Malawi depends not only on NFRA's own operations but also on the broader trade environment. The most important binding constraint on NFRA’s ability to influence domestic prices comes from the sizeable difference between import and export parity prices, which in turn is a function of the costs of transport and of crossing the border. Higher costs increase the difference between parity prices and thus widen the defensible price band. Measures that lower those costs—better transport infrastructure, simplified border procedures, and deeper regional integration through the Southern African Development Community (SADC), the Common Market for Eastern and Southern Africa (COMESA), and the African Continental Free Trade Area (AfCFTA)—would close the gap between import and export parity prices, making it possible for NFRA's buffer stock operations to defend a narrower price band. A full treatment of these measures lies beyond the scope of this paper, but their relevance to the SGR question is direct: Every reduction in trade and transport costs helps moderate price extremes and thus bolsters NFRA’s ability to stabilize maize prices.

The central message of this paper, therefore, is not that Malawi should abandon its SGR, but that it should be clear-eyed about what the SGR can and cannot accomplish. Within the constraints imposed by storage capacity, financing, and regional trade, a well-operated buffer stock can play a useful role in mitigating the most extreme seasonal price movements for maize and in supporting NFRA's emergency and safety-net functions. Beyond those constraints, however, no amount of additional buffer stock activity will deliver the maize price stability that Malawian policymakers have historically sought. Recognizing these boundaries—and designing NFRA's operations to function effectively within them—offers a more promising path to a credible and sustainable role for the SGR than continuing to ask it to do what it structurally cannot.

---

# REFERENCES


Burke, M., L.F. Berquist, and E. Miguel. 2019. "Sell Low and Buy High: Arbitrage and Local Price Effects in Kenyan Markets." *Quarterly Journal of Economics* 134 (2): 785–842. https://doi.org/10.1093/qje/qjy034.

Cardell, L., and H. Michelson. 2023. "Price Risk and Small Farmer Maize Storage in Sub-Saharan Africa: New Insights into a Long-Standing Puzzle." *American Journal of Agricultural Economics* 105 (3): 737-759. https://doi.org/10.1111/ajae.12343.

Chirwa, E.W., and C. Zakeyo. 2006. "Malawi." In *Trade Reforms and Food Security: Country Case Studies and Synthesis*, by H. Thomas, 399-433. Rome: Food and Agriculture Organization of the United Nations (FAO). https://www.fao.org/4/a0581e/a0581e02.pdf.

Chiwaula, L., J. De Weerdt, J. Duchoslav, J. Goeb, A. Gondwe, and A. Jolex. 2024. *Welfare Impacts of Seasonal Maize Price Fluctuations in Malawi.* Malawi Strategy Suppor Program Working Paper 45 , Lilongwe: International Food

Policy Research Institute (IFPRI) . https://massp.ifpri.info/files/2024/02/Working-Paper-45-Welfare-impacts-of-seasonal-maize-price-fluctuations-in-Malawi.pdf.

Conforti, P. 2004. *Price Transmission in Selected Agricultural Markets.* FAO Commodity and Trade Policy Research Working Paper no. 7, Rome: Food and Agriculture Organization of the United Nations (FAO). https://openknowledge.fao.org/server/api/core/bitstreams/82c0e2dd-c20b-4cd9-b28a-8cbacfc9ecbc/content.

De Weerdt, J., and J. Duchoslav. 2022. *Impacts of the War in Ukraine on Malawi.* IFPRI Malawi Strategy Support Program (MaSSP) Policy Note 44, Lilongwe: International Food Policy Research Institute (IFPRI). https://doi.org/10.2499/p15738coll2.135869.

De Weerdt, J., B. Dillon, E. Hami, B. Van Campenhout, and L. Nabwire. 2024. *Expecting Too Much, Foreseeing Too Little? Behavioral Explanations for the Sell Low-Buy High Puzzle in Smallholder Market Participation.* IFPRI Malawi Strategy Support Program Report, Lilongwe: International Food Policy Research Institute. https://hdl.handle.net/10568/148993.

Duchoslav, J., and J. Rusike. 2021. *Why Are Fertilizer Prices in Malawi High? And What Can Be Done?* IFPRI Malawi Strategy Support Program (MaSSP) Policy Note 42, Lilongwe: International Food Policy Research Institute (IFPRI). https://doi.org/10.2499/p15738coll2.134546.

Duchoslav, J., C. Nyondo, A. Comstock, and T. Benson. 2022. *Regulation of Agricultural Markets in Malawi.* Malawi Strategy Support Program (MaSSP) Policy Note 45, Lilongwe: International Food Policy Research Institute. https://doi.org/10.2499/p15738coll2.135939.

Ellis, F., and E. Manda. 2012. "Seasonal Food Crises and Policy Responses: A Narrative Account of Three Food Security Crises in Malawi." *World Development* 40 (7): 1407–1417. https://doi.org/10.1016/j.worlddev.2012.03.005.

FAO and WFP. 2005. *FAO/WFP Crop and Food Supply Assessment Mission to Malawi.* Special Report, Rome: Global Information and Early Warning System on Food and Agriculture of the Food and Agriculture Organization of the United Nations (FAO) and the World Food Programme (WFP). https://www.fao.org/4/j5509e/j5509e00.htm.

Hazell, P., G. Shields, and D. Shields. 2005. *The Nature and Extent of Domestic Sources of Food Price Instability and Risk.* Report for Workshop on Managing Food Price Instability in Low-Income Countries, February 28 to March 1, 2005, Washington, DC: World Bank. https://doi.org/10.1016/j.foodpol.2024.102728.

IFPRI. 2017–present. "IFPRI Malawi monthly maize market reports." Lilongwe: International Food Policy Research Institute (IFPRI). https://hdl.handle.net/10568/181752.

IMF. 2004. *Malawi: Ex Post Assessment of Longer-Term Program Engagement.* Washington, DC: International Monetary Fund. https://doi.org/10.5089/9781451828030.002.

Jayne, T.S., J. Mangisoni, and N. Sitko. 2008. *Social Analysis of Malawi's Maize Marketing Reforms.* Report for the World Bank, Malawi, Lilongwe: World Bank, Malawi. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.151.1687&rep=rep1&type=pdf.

Kydd, J., and R. Christiansen. 1982. "Structural Change in Malawi since Independence: Consequences of a Development Strategy Based on Large-Scale Agriculture." *World Development* 10 (5): 355–375. https://doi.org/10.1016/0305-750X(82)90083-3.

Ministry of Agriculture, Irrigation and Water Development. 2004-2025. "Agricultural Production Estimates Survey." Lilongwe: Government of Malawi.

—. 2016. "Strategic Grain Reserve Management Guidelines." Lilongwe: Government of Malawi.

Minot, N. 2014. "Food Price Volatility in Sub- Saharan Africa: Has It Really Increased?" *Food Policy* 45: 45-56. https://www.sciencedirect.com/science/article/pii/S0306919213001863.

Minot, N. 2011. *Transmission of World Food Price Changes to Markets in Sub-Saharan Africa.* IFPRI Discussion Paper No. 01059, Washington, DC: International Food Policy Research Institute (IFPRI). https://cgspace.cgiar.org/server/api/core/bitstreams/e2b72f6c-fb72-4a01-a835-512c274372ed/content.

Rubey, L. 2003. *Malawi's Food Crisis: Causes and Solutions.* Southern African Regional Poverty Network (SARPN). https://www.sarpn.org/documents/d0000148/P140_Rubey.pdf.

Smith, L.D. 1995. "Malawi: Reforming the State's Role in Agricultural Marketing." *Food Policy* 20 (6): 561-571. https://doi.org/10.1016/0306-9192(95)00049-6.

Stephens, E., and C. Barrett. 2011. "Incomplete Credit Markets and Commodity Marketing Behaviour." *Journal of Agricultural Economics* 62 (1): 1-24. https://doi.org/10.1111/j.1477-9552.2010.00274.x.

Upton, J., J. Duchoslav, and E. Tennant. 2024. *Compounding Stresses Confront Rural Households in Southern Malawi.* IFPRI Malawi Strategy Support Program (MaSSP) Policy Note 52, Lilongwe: International Food Policy Research Institute (IFPRI). https://hdl.handle.net/10568/139431.

## ABOUT THE AUTHORS

**Jan Duchoslav** is a Research Fellow in the Development Strategies and Governance Unit of the International Food Policy Research Institute (IFPRI), based in Lilongwe.

**Nicholas Minot** is a Research Fellow Emeritus in the Markets, Trade, and Institutions Unit of IFPRI.

## ACKNOWLEDGEMENTS

The research underpinning this publication was funded by the Foreign, Commonwealth and Development Office (FCDO) of the Government of the United Kingdom. The authors thank the key informants interviewed for this study and the participants of a validation workshop held in Lilongwe for their valuable time, insights, and constructive feedback, which greatly helped to refine the paper.

All working papers published by the Malawi Strategy Support Program (MaSSP) are available at https://massp.ifpri.info/resources/working-papers/

MaSSP is managed by the International Food Policy Research Institute (IFPRI) and is financially supported by Irish Aid, Coefficient Giving, and the Foreign, Commonwealth and Development Office (FCDO) of the Government of the United Kingdom.

This publication has been prepared as an output of MaSSP and has not been independently peer reviewed. Any opinions expressed here belong to the authors and are not necessarily representative of or endorsed by IFPRI, Irish Aid, Coefficient Giving, or FCDO.


**INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE**

*providing research-based policy solutions that sustainably reduce poverty and end hunger and malnutrition*

**IFPRI is a CGIAR Research Center**

IFPRI Malawi: IFPRI-Lilongwe@cgiar.org | http://massp.ifpri.info