

# Seasonal Food Crises and Policy Responses: A Narrative Account of Three Food Security Crises in Malawi

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**Summary.** — This paper examines seasonal food price crises in Malawi. In the 2000s, Malawi experienced three episodes in which seasonal maize prices rose in 2001–02, 2004–05, and 2007–09 by 354%, 218%, and 395%, respectively. These extreme price spikes resulted from a sequential interaction of economic and political events. A repeated pattern of cause, inapt response and adverse outcome is identified. The relative neglect in vulnerability analysis of staple food price movements as lead indicators of impending food crises is emphasized, and implications are drawn for price stabilisation, public–private coordination and social protection policies.

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**Key words** — price instability, food security, seasonality, social protection, Malawi, Africa

## 1. INTRODUCTION

In eastern and southern Africa, vulnerability to hunger is often markedly seasonal in character. A typical experience is for around 60% of small farmers to produce less than their annual consumption needs of their staple foods, resulting in recourse to market purchases of food in the “lean season” before the next harvest (Jayne *et al.*, 2003). When prices rise unduly in the lean season, food deficit farmers confront an exchange entitlement failure,<sup>1</sup> causing hunger, adverse coping behaviors,<sup>2</sup> and, in severe cases, famine. The international community and governments have learnt ways to ameliorate such crises to a degree, principally through seasonal safety net programs that offer food- or cash-for-work during the lean season. For example, in Ethiopia 7–8 million people are routinely protected in this way every year through the mainly donor-funded Productive Safety Nets Programme (PSNP) (Devereux *et al.*, 2008). In Malawi, food-for-work has also been a common response to seasonal food insecurity (Bloom *et al.*, 2005; McCord, 2008, Chapter 8). In recent years, regular cash transfers made throughout the year to the most vulnerable in society is a policy option that has gained traction (Barrientos & Hulme, 2008; Ellis, Devereux, & White, 2009).

In Malawi, seasonal price changes for maize play a key role in the vulnerability to hunger of food deficit small farmers in the lean season. The average difference between the lowest and highest price months in the annual maize calendar was 60% in the 20-year period 1989–2009 (see next section). However, six episodes of extreme seasonal price volatility occurred in this period (one episode every 3–4 years). Three of these episodes were in the 2000s in crop seasons 2001–02, 2005–06, and 2007–09 (across two crop seasons). The price rise in nominal terms from the seasonal lowest to highest month in these episodes was 354%, 218%, and 395%, respectively. The magnitude of such price spikes implies acutely adverse food insecurity consequences for the food deficit rural poor in Malawi; indeed the 2001–02 episode created a famine.

This paper addresses three interweaved strands of excessive seasonal price instability, utilizing the maize market in Malawi as a case study. The first strand concerns the continued prevalence of such instability in many African countries, and the deleterious effects this has on vulnerability to hunger of food deficit small farm families (Byerlee, Jayne, & Myers, 2006; Myers, 2006; World Bank, 2005). The second strand concerns the functioning of liberalized food markets, and in particular the public–private coordination problem that arises when governments reserve discretionary powers over market intervention (Jayne, Govereh, Mwanauo, Nyoro, & Chapoto, 2002; Kherallah, Delgado, Gabre-Madhin, Minot, & Johnson, 2000; Poulton, Kydd, Wiggins, & Dorward, 2006).<sup>3</sup> Of special interest here is the possibility that government policy decisions tend to exacerbate rather than lessen the severity of episodes of extreme seasonal price instability (Jayne, Zulu, & Nijhoff, 2006):

“... the strategic interactions between private and public marketing actors leading in some cases to heightened market instability and food crises” (Jayne *et al.*, 2006, p. 328).

“This case [the Malawi food crisis of 2001–02] illustrates that well-intentioned but poorly implemented government actions can exacerbate food price instability rather than reduce it” (Jayne *et al.*, 2006, p. 336).

The third strand concerns social protection policy responses to seasonal price instability in general, and to

\* This paper is based on research conducted jointly by the authors in 2009, part of which formed the basis of a chapter in the second author’s subsequently published doctoral thesis (Manda, 2010, Chapter 6). The authors are grateful to the Ministry of Agriculture and Food Security in Malawi for provision of data and documentation. The paper has benefitted from comments by Nicholas Freeland, Philip White, and two anonymous referees. Needless to say the interpretation of the paper is solely the responsibility of the authors and does not reflect the official or personal views of government officials in Malawi. Final revision accepted: March 7, 2012.

extreme price episodes in particular. The emphasis of social protection has in recent years switched from food to cash transfers as the most appropriate form of social assistance to populations at risk of hunger; and from *ad hoc* seasonal safety nets (food- or cash-for-work schemes) to continuous monthly payments to those predictably most at risk (social cash transfer programs) (Ellis *et al.*, 2009; Hanlon, Barrientos, & Hulme, 2010). The thinking behind such a switch is to shift social protection from discretionary responses to institutionalized rights. However, routine cash payments to ultra poor beneficiaries are impaired by extreme price volatility in staple food markets due to the acute erosion in the purchasing power of the transfer it causes.

Engagement with the second of these themes requires a political economy framework where political economy may be defined as “the study of how the political nature of decision making affects policy choices and, ultimately, economic outcomes” (Drazen, 2000, p. 20). In this an immediate distinction is made between “neutral” apolitical policy (technical, social welfare maximizing), and policy compromised by politics as the mediator of conflicting interests in state and society (including the interests of the rulers themselves). The latter is increasingly thought about in game theory terms where the strategic decision making of one set of interests or actors is based on their perception about the strategic actions likely to be taken by another set of interests. Some political games converge toward cooperative solutions with repeated plays, while others fail to do so, especially where there is fundamental absence of trust in repeated interactions between the different parties (Bates, 2008; Drazen, 2000; North, 1990).

In relation to food markets in Africa, a recent paper in this journal ascribes adverse food policy decision making to the failure of “credible commitment” on both sides of the interaction between government and private traders (Tschirley & Jayne, 2010). Credible commitment arises when the decisions made by one set of actors (private traders) cannot rely on predictable behavior by the other set of actors (government) when a particular set of circumstances (like rising food prices) arises (North, 1993). In Tschirley and Jayne, the credible commitment problem is even-handed and works both ways: governments feel they cannot depend on private traders not to behave badly if there is a food shortage (e.g., by hoarding), and traders feel that government may actively seek to undermine their business activities (e.g., by importing cheap grain that will reduce the value of their stocks). This bilateral lack of credible commitment results in sub-optimal economic decision making. Traders do not invest in storage and market infrastructure for fear that they will not see a return on their investment (or will be ruined by particular government actions), and governments make policy choices to exclude traders from markets when prices rise (e.g., by banning imports or exports, or re-conferring monopoly buying and selling powers on a marketing board).

This approach raises several research questions pertinent to the Malawi case study. A first question is whether credible commitment provides a reliable hypothesis about government and trader interactions, in the sense of being observable in repeated instances of market management failure. The second question is whether credible commitment is a two-sided problem as proposed by Tschirley and Jayne, or alternatively is weighted toward one party or the other (the unpredictability of strategy and action may be one-sided). The third question is whether credible commitment is a sufficient hypothesis, given alternative explanations of the politics of policy decisions in low income African countries. The chief such alternative is the neopatrimonial one which sees the ruling party as motivated by wealth acquisition and keeping in power, permeated

by clientelism and patronage in order to secure these objectives (Bates, 2008; Sandbrook, 1986; van de Walle, 2001).

A narrative method is adopted in order to address these questions. In this the basic economic understanding of price instability in a food crop market is interweaved with the sequence of policy decision making as it unfolds in historical time. This approach can be thought of as a nonformal application of “analytic narrative” as proposed by Bates, Greif, Levi, Rosenthal, and Weingast (2000). The latter seeks to overcome the limitations of economics, politics, and history each applied as separate disciplines, by allowing their particular insights to interact in the exploration of an observable sequence of past events.

The paper proceeds as follows. The next section provides the basic information about the maize economy of Malawi and the experience of seasonal price instability in the 1990s and 2000s. The third section provides a narrative account of the three extreme seasonal price spikes in the 2000s, focusing on the interplay of economic and political factors, the private–public coordination failure that results, and the role of social transfers in ameliorating detrimental outcomes. The fourth section identifies the recurring patterns present in the extreme seasonal price episodes examined; in effect identifying a “pathology” of events and sequential decisions that seem to manifest themselves predictably in each successive episode. This section also considers the implications of these findings for the three inter-related policy domains delineated above: price instability, public–private coordination, and social protection.

## 2. MAIZE PRICE INSTABILITY IN MALAWI

In Malawi, maize is overwhelmingly the principal food crop grown by farmers, and the preferred food staple of the population. It is estimated that 60% of all cultivated land is sown to maize, the crop contributes over 70% to dietary calories, and mean maize consumption is 172 kg per person per year.<sup>4</sup> For the past 40 years the achievement of domestic self-sufficiency in maize has been a fundamental priority of successive Malawi governments, with success or otherwise in this regard having observable political outcomes, especially since the advent of multi-party democracy in 1994. Since 2005 the Malawi government has implemented a substantial subsidy on the cost of seeds and fertilizer under a program called the Farm Input Support Programme (FISP) which has apparently contributed to maize production rising above domestic self-sufficiency levels since the 2005–06 crop season (Dorward *et al.*, 2008).

A maize “balance sheet” for Malawi in the 2000s is constructed in Table 1. Production data are the official series published by the Ministry of Agriculture and Food Security (MoAFS), which is based on three rounds of crop estimates undertaken according to a prescribed methodology at intervals in the growing season which lasts from October–November (sowing) to April–May (main harvest) (Government of Malawi, 2007). The consumption data are also based on an exercise conducted intermittently by MoAFS (Government of Malawi, 2008a), adjusted to take account of the most recent population estimates provided in the 2008 census (Government of Malawi, 2008b). Essentially, consumption is posed as a smooth trend based on interpolating the annual population growth between censuses (2.78% per year during 1997–2008), and assuming a constant maize consumption per capita of 172.2 kg per person. This over-simplifies reality on the consumption side; however, the size of such annual or trend discrepancies are minor compared to the magnitude and potential for inaccuracy of fluctuations on the production side.

Table 1. *Malawi estimated maize production and consumption 2000–09*

Crop year	Production (tons)	Consumption needs (tons)	Surplus or deficit (tons)	Surplus/deficit % needs
1999–00	2,290,018	1,806,993	483,025	26.7
2000–01	1,589,437	1,857,201	–267,764	–14.4
2001–02	1,485,272	1,908,805	–423,533	–22.2
2002–03	1,847,476	1,961,842	–114,366	–5.8
2003–04	1,608,349	2,016,353	–408,004	–20.2
2004–05	1,225,234	2,072,378	–847,144	–40.9
2005–06	2,611,486	2,129,960	481,526	22.6
2006–07	3,226,418	2,189,142	1,037,276	47.4
2007–08	2,634,701	2,249,969	384,732	17.1
2008–09	3,661,732	2,312,485	1,349,247	58.3
Average	2,218,012	2,050,513	167,499	8.2

Source: Production data are Ministry of Agriculture annual maize production estimates (final figures); consumption trend as described in the text.

According to official data, maize production in Malawi declined erratically in the first half of the 2000s, reaching a lowest level of 1.2 million tons in the 2004–05 season, when the growing season was blighted by poor rainfall. However, from 2005 to 2006 this trend was steeply reversed, with all time record harvests being recorded in subsequent years. In effect, the 2000s was a decade of two halves: the mean level of production from 2000–01 to 2004–05 was 1.5 million tons, doubling to 3 million tons from 2005–06 to 2008–09. The Malawi government attributes this turnaround to the success of its fertilizer subsidy program. On the other hand, maize price behavior from 2007 to 2009 (see below) does not square with these figures, and informed observers have doubted the accuracy of production gains posted in the last 3 years of this period (Jayne, Chapoto, Minde, & Donovan, 2008; Jayne & Tschirley, 2009).

The availability of maize in the domestic market does not, of course, depend only on production, but also on net stock changes over an annual cycle, and on net imports or exports. Malawi has a strategic grain reserve (SGR) operated by a state agency called the National Food Reserve Agency (NFRA), and the maize purchase or sales behavior of this organization has an important role in the maize price narrative developed in the next section. The other crucial state institution in the maize market is the Agricultural Development and Marketing Corporation (ADMARC), a pre-liberalization style “crop parastatal” which has undergone a renaissance in the 2000s both as a big player in the purchase and sale of maize, and as a key institution in the delivery of subsidized fertilizers to farmers. In general, external maize trade in Malawi is curtailed by legislation, licensing, and *ad hoc* changes in policy. It is rare for private traders to be allowed free reign in making import or export decisions, and successive governments exhibit reluctance to issue import licenses. However, in the 2000s “informal” net imports (arriving across porous rural borders with Mozambique, Zambia, and Tanzania) were a significant feature, estimated on average to have contributed 110,000 tons annually to domestic supply during the decade.<sup>5</sup>

Maize prices in Malawi routinely exhibit a seasonal cycle. Since there is just one maize crop per year, prices decline to their lowest level at harvest time in April to June and rise to their highest level in the lean season before the next harvest, typically peaking in February (Figure 1). Research on seasonal price instability over the 20-year period 1989–2009 reveals an average trough-to-peak price rise of 60% (Manda, 2010, Chapter 4).<sup>6</sup> The mean figure is elevated by extreme seasonal price episodes occurring every 3–4 years when the trough-to-peak rise may be 4 or 5 times the mean level; however, these

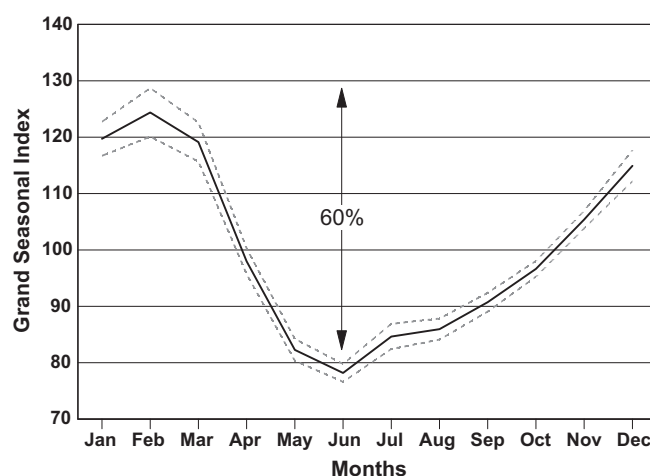


Figure 1. Mean seasonal price change in the Malawi maize market 1989–2009. Source: Manda (2010, Chapter 4); dashed lines represent one standard error either side of the 20-year mean.

events do not invalidate the statistical robustness of the mean cycle, as illustrated in Figure 1 by the band of one standard error either side of the mean.

The complete time-series of national average monthly maize prices in Malawi from July 2000 to June 2009, in both nominal and real terms, are provided in Appendix Table 1 to this paper. National average maize prices are based on weekly price returns from 38 markets scattered across the country, increased to 72 markets from 2005. Real prices are nominal prices deflated by the Malawi CPI, with base-year 2000. Certain particular prices are highlighted by shading in that table for ease of reference. These are key seasonal minimum and maximum monthly prices, and switching points between upward and downward trends. The real price data are graphed in Figure 2. This illustrates the magnitude of the extreme price episodes compared to the degree of price seasonality in intervening years. It also shows how a price spike originating in late 2007 became an extended extreme price episode over two seasons, peaking in January 2009 when the highest real maize price ever recorded in Malawi occurred.

The nominal price patterns experienced in each extreme price episode are summarized and compared in Table 2. These episodes share much in common, although the “double” price hike of 2007–09 makes the latter differ in some respects. In all

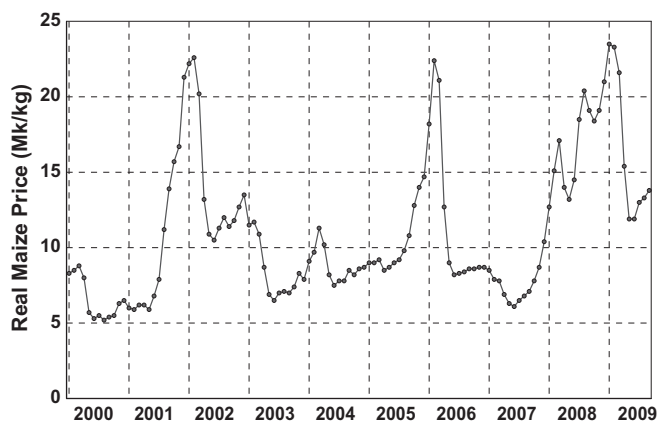


Figure 2. Malawi real maize price trend 2000–09. Note: Nominal maize prices deflated by the Malawi CPI 2000 = 100.0. Source: Graph drawn from the real price data contained in Appendix Table 1.

cases, the trends preceding the price crisis are distinguished by the relatively small drop in prices that occurs at the preceding harvest, and often by relatively low price seasonality overall in the preceding season. It can be inferred that when the price drop from peak to trough at harvest is small and curtailed in duration, there is a strong likelihood of a negative imbalance in the maize market developing in the ensuing lean season. In these instances, the seasonal lowest price is earlier (occurring in March or April) than the typical trough in June. Also in these cases, the lean season price increase is steeper and lasts for longer (9–10 months) as compared to the typical 6–7 months price rise from the lowest to the highest month. In 2007–09, these factors were effectively “chained” in two successive seasons, making the combined effect more extreme than in the preceding two events.

Prices rise when there is a shortage of maize supply in the market, and the extent of the rise reflects the acuteness of this shortage. That much is obvious. What is not so clear is how price episodes of this kind come to run their course, without compensating reactions either from private traders (for whom importing maize becomes highly profitable) or from governments (which own strategic stocks, regulate imports, and are aware of the chronic vulnerability of many of their citizens to food insecurity). The purpose of the narrative account of each of these price episodes in the next section is to pin down these failures of reaction to crisis events.

### 3. A NARRATIVE ACCOUNT OF THE THREE EXTREME PRICE SPIKES OF THE 2000S

In this section of the paper, each of the three episodes of excessive price instability in the 2000s is examined in the form of a narrative of events as they occurred, in which the focus is on the actors involved in decisions, the interpretations they placed on the evidence before them, and the role of political factors in determining reactions to events. The narrative also comments on the role of the private sector in these events, and on the shifting interaction between public and private sectors as events unfurled.

#### (a) The 2001–02 famine

The 2001–02 extreme seasonal price episode is often referred to as the “Malawi famine” of those years, due to significant mortality from hunger. Of the three episodes examined here, it is the one about which most has been written (Devereux, 2002; IMF, 2002; Stevens, Devereux, & Kennan, 2002; Whiteside, Maro, Saiti, & Schouten, 2003). The sequence of events and maize price trends that occurred in this episode are summarized in Box 1. Politically, it is pertinent that Malawi had two excellent maize harvests in the 2 years preceding the crisis, 1998–99 and 1999–00, when 2.2 and 2.3 million tons were produced, respectively. The government of President Bakili Muluzi had attained power for a second term in 1999, and success in maize production was a main pillar of its appeal to the electorate.

The public stance of government as events unfurled through mid-2001 was that Malawi was food secure. MoAFS data suggested that any shortfall in maize would be compensated by record harvests for rice, cassava, and sweet potatoes, and in July 2001 a food surplus of 263,000 tons was declared, calculated in maize equivalent terms. Rising maize prices in the period August to October 2001 were treated rather casually, and not as evidence of an emerging food gap. Indeed, the public food trading agency ADMARC was permitted to increase its sales price to consumers from MK5 to MK17 per kg in August 2001 (a 240% nominal increase), and this was couched in FEWS-NET<sup>7</sup> reports as a maneuver to outwit private traders (preventing them buying maize at MK5 from ADMARC and re-selling at higher market prices), rather than as a substantial real change in the affordability of maize for poor consumers.

Table 2. Nominal price switching points, three price episodes

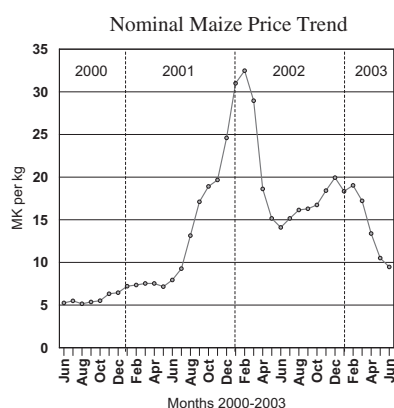
Time span	Pre-crisis season						Crisis season		
	Low MK/kg	High MK/kg	Rise %	Low MK/kg	Fall %	Duration months	High MK/kg	Rise %	Duration months
2000–02	August 5.15	March 7.53	46.2	May 7.16	–4.9	2	February 32.48	353.6	9
2004–06	June 12.96	January 17.88	38.0	April 15.93	–10.9	3	February 50.67	218.1	10
2007–09	June 14.61	March 43.53	205.3	May 32.83	–24.6	2	February 70.57	115.0	9

Source: Derived from Appendix Table 1.



**Box 1.** Event sequence and maize price trend in 2001–02

2001	January–July	Sell off grain stock by NFRA
	March–April	Flood damage to ripening maize crop
	June–July	Self-sufficiency in food re-affirmed
	August	Government import order made for 150,000 tons
	August–December	Imports arrive late and in small quantities
2002	January	Private maize trading banned
	February	Price peaks at 354% above May 2001
	February	22 February official emergency declared
	March–August	Late arriving imports add to 2002 harvest



In the early part of this sequence, the national maize stock had been depleted until it ran out in August 2001 (Table 3). The factors surrounding this have been carefully examined (Cromwell & Chintedza, 2005; IMF, 2002). NFRA was holding an excessively large maize stock that it did not have the financial capability to maintain, and the IMF had pressured the government during 2000 to reduce this stock to the mandated level of 60,000 tons, partly so that NFRA could pay off some of its debt, and partly to avoid mounting losses in store (due to deterioration and theft). The total sell off was not envisaged, but occurred in the form of collusive and non-

transparent actions involving senior government leaders, big private traders, and the decision makers in NFRA and ADMARC. As shown in Table 3, total public stocks of maize fell from 116,165 tons at the start of January 2001 to zero stocks by August 2001, and remained at zero for a year until August 2002, when they began to pick up again quickly due to the arrival of imports.

In mid-August 2001, a slight shift in the stance of government became apparent in the form of a public contract with a South African agency to import up to 150,000 tons of maize over the period to the end of the year. However, this contract was slow to be fulfilled for a variety of commercial and logistical reasons. Other countries of the region were also experiencing maize deficits and were trying to source from South Africa too, the price for South African white maize was rising, and transport bottlenecks on main routes to Malawi were prevalent. Instead of obtaining 50,000 tons per month in October–December 2001, just 2594 tons had arrived by end-October and a cumulative 27,355 tons by end-December. On arrival, this maize was not going into store, but straight out to consumers from ADMARC outlets at the official selling price of MK17 per kg.

In November 2001, the international NGO Save the Children made a presentation to government and donors providing evidence of the emergence of famine in Mchinji and Salima districts, but their appeal for emergency action was rejected (Devereux, 2002). The donors were not supportive, being unwilling to offer emergency assistance to a government that had sold off its national reserve stock. A ban on private traders securing maize supplies from ADMARC was announced in January 2002, even though by then the previous maize import contract was being fulfilled in greater volumes. By February 2002, hungry rural dwellers were beginning to eat “green maize” (unripe maize on the cob) from the next harvest due to the lack of food available in rural areas. A national disaster was eventually declared on 22 February.

*(b) The 2005–06 price crisis*

The sequence of events and maize price trends in this episode are summarized in Box 2. The price spike at February 2006 had its antecedents in the previous year's very poor harvest of 1.2 million tons (Table 1) and in the stock position and import ordering associated with the lead up to that harvest (Dorward *et al.*, 2008; Menon, 2007). An important consideration in early 2005 was the avoidance of the excessive supplies that had characterized the maize market through 2003 and 2004, and which had involved selling substantial quantities of stock at prices below their import cost. For example, a substantial proportion of NFRA imports in mid-2002 had a landed cost of US\$285 per ton, equivalent to MK28 per kg, compared to the ADMARC sales price to consumers of MK17 reducing to MK10 in June 2003 (FEWSNET, 2003).

In January 2005, the government and donors concluded a review of the humanitarian assistance program that had run through 2004, and decided that the few outstanding import contracts that had not yet been fulfilled should be canceled since the food security situation did not warrant the potential financial losses that might be involved. However, the growing season of 2004–05 experienced lengthy dry spells, and by February 2005 it was apparent that the 2005 harvest might be lower than predicted. At this stage seasonal high prices were low compared to the long term average, and ADMARC was selling grain out of store at MK17 (the price since September 2004). In addition, various food aid

Table 3. *Evolution of NFRA stocks 2001–03, monthly (all figures in tons maize)*

Month	2001	2002	2003
January	116,165	0	261,023
February	85,640	0	258,000
March	64,727	0	266,000
April	53,778	0	250,000
May	40,331	0	258,000
June	35,174	0	212,936
July	14,411	0	210,538
August	0	79,553	208,139
September	0	122,285	205,741
October	0	164,653	203,342
November	0	209,778	168,251
December	0	264,045	118,321

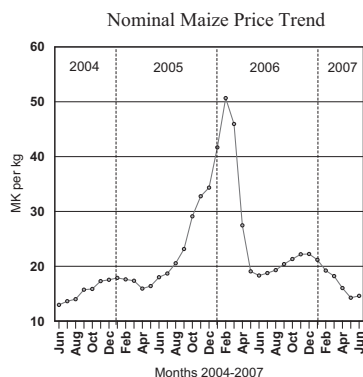
Note: Figures for July–September 2003 are interpolated from adjacent months.

Source: FEWSNET food security updates (monthly) for this period.

operations were going on in maize deficit areas scattered across the country.

**Box 2.** Event sequence and maize price trend in 2005–06

2003–04	June–May	Sell off excess grain stocks from 2002 to 2003
2004	November–December	Dry periods in maize growing season
2005	March	Projected cereal gap 300,000 tons
	April	Trader contract to replenish NFRA stocks
	July	Delayed tender for 100,000 tons imports
2006	January	Private maize trade banned
	February	Price peaks at 218% above April 2005
	March	Good harvest apparent, late imports arrive



In March 2005, new crop estimates suggested a 25% drop in output from the 2004 level, resulting in a projected national cereal gap of 300,000 tons. Available public stocks under different headings were about 50,000 tons at this stage, insufficient to close this predicted gap. The donors and government consulted in April 2005 and decided on timely imports to avoid a repetition of the events of 2001–02. The government, with assistance from DFID and the EU issued a tender for 29,000 tons to replenish the SGR. In addition, government announced its intention to purchase 100,000 tons of maize with 30,000 tons for sale to the public and the rest intended for food transfers to those most in need.

A 3 month delay then occurred to July 2005 when a procurement tender for 100,000 tons was issued, restricted to maize originating in the SADC region, excluding Malawi. By excluding domestic traders from participating in this tender, the intention was to provoke them to sell private stocks procured in the April–June harvest period, in order to avoid losses from falling prices when imported supplies arrived. As occurred in 2001–02, however, the alleged excess stock holding by private traders had no basis in evidence, and the maize price commenced a steep rise through August–November 2005. Also in July 2005, the government announced an export ban on maize and fertilizer,<sup>8</sup> and ADMARC started rationing its sales to consumers at the official price of MK17.

Data collected by FEWSNET show that informal cross border imports were a significant feature of the Malawi maize market in July–August 2005, indicating an emerging price

differential with adjacent countries. However, this source of maize dwindled in subsequent months as adjacent countries also experienced below average 2005 maize harvests. Meanwhile formal imports under the 100,000 ton tender were slow in being mobilized and faced transport constraints. As had occurred in 2001–02, Malawi was not the only country in the region seeking to secure additional supplies, and competition for supplies and trucks slowed the delivery process down, as did the failure of some SADC contractors to fulfill their contracts. By December 2005, the national average market price had reached MK34, while ADMARC was selling its dwindling stocks at half this price. In January 2006, the government banned private traders from selling maize in local markets, leaving ADMARC as the sole maize seller at a moment when it had no further stocks of maize to sell. In response, prices rose steeply, reaching MK42 in January and peaking at MK51 in February.

In March 2006, prices began to fall. By then it was clear that the forthcoming harvest was going to be significantly higher than in the preceding few years, and the maize harvest in Malawi starts in late-March in the south of the country. By then also, some of the government's 100,000 ton import tender was beginning to arrive in the country. Prices fell steeply through the harvest season to a seasonal low in July 2006. The abundant supply that then prevailed also meant that the seasonal price change in the ensuing 2006–07 season was atypically small.

An important reason why the 2005–06 price episode did not result in famine as in 2001–02 is that considerably more prevalent and diverse social transfer operations were going on throughout the country in 2005, as compared to 2001 (Devereux, 2008). The Malawi Vulnerability Assessment Committee (MVAC) had come into existence, and was using household economy assessment (HEA) methods to predict food balances in different zones according to the production and purchasing power of local populations.<sup>9</sup> The Malawi Social Action Fund (MASAF) was conducting widespread food-for-work or cash-for-work programs in parts of the country thought to be food insecure (Chirwa, 2007).

(c) *The maize price spikes of 2007–09*

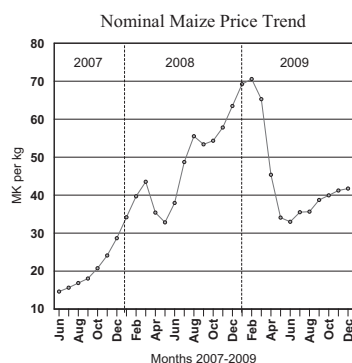
Several researchers have examined the maize price spikes of 2007–09 (Jayne, Chapoto, *et al.*, 2008; Jayne & Tschirley, 2009; Rapsomanikis, 2009).<sup>10</sup> The sequence of events is outlined in Box 3 together with the relevant price graph. In February 2007, government lifted a maize export ban that had been in place since July 2005. At this point predicted production for 2007 was 3.4 million tons, and prices were falling toward their lowest level in real terms since the year 2000 (Figure 2 and Appendix Table 1). Initially the government issued licenses to private traders for 80,000 tons of maize to be exported. This was followed in May 2007 by a contract to supply Zimbabwe with 400,000 tons maize by the end of February 2008. If production figures were accurate these quantities were feasible within the domestic surpluses of the two seasons, estimated at roughly 1.4 million tons (Table 1).

In order to fulfill the Zimbabwe contract NFRA signed purchase contracts with private traders for close to 240,000 tons in May 2007, and by the end of the month some 50,000 tons of the contract had been fulfilled. ADMARC began buying maize at MK17 in June, but lacked financial resources to expand purchases rapidly and was therefore unable to rebuild its stock for routine market operations. In ensuing months, exports remained a key feature of the market.<sup>11</sup> However, in the domestic market post-harvest prices began to rise steeply. As in previous such occurrences, ADMARC was forced to ration

maize purchases by consumers due to demand outstripping the ability of public stocks to supply at the MK17 level. ADMARC began bidding for maize against private traders, upping its purchase price to MK20. By January 2008, the market price was MK34 and ADMARC was allowed by government to raise its selling price to consumers to MK30. Domestic prices continued to rise for the following 2 months, peaking at MK44 in March 2008, just before the next harvest.<sup>12</sup>

**Box 3. Event sequence and maize price trend in 2007–09**

2006	June	Export ban lifted, following record harvest
2007	May	Contract to supply 400,000 tons Zimbabwe
	October–December	Steep rise in prices suggest market shortage
2008	March	Price peaks just before 2008 harvest
	March	Export to Zimbabwe ceases at 300,000 tons
	May	Maximum buying price private traders enforced
	June–July	ADMARC competes with traders for supplies
	August	Private maize trading banned
2009	January–February	Price peaks at 395% above May 2007 level



This magnitude of this price rise was incompatible with the level of maize harvest officially declared for 2007 taking into account total exports of about 425,000 tons that actually took place (Jayne, Chapoto, *et al.*, 2008). The 2007–09 story is not, however, complete. The second round 2008 harvest figure was lower than previous forecasts, but nevertheless came in at an official estimate of 2.6 million tons. In April 2008, the government re-imposed an export ban on maize. Prices at that stage were still declining as the harvest came in, but not steeply, and they leveled out at MK33 in May 2008. When ADMARC entered the market as a purchaser this time, it adopted a competing approach in which it procured maize at differing prices at different buying points depending on trader prices. This initiated a scramble for supplies, and an unusually early start to the lean season upward price trend.

In May 2008, the government decided to enforce a maximum buying price for maize of MK28 per kg, requiring all maize buyers to purchase a restrictive license. The license was to be obtained from MoAFS upon the recommendation of the Malawi Grain Trading and Processing Association

(GTPA)<sup>13</sup> and imposed stringent compliance conditions, including regular reporting of all purchase transactions. As in the previous extreme price episodes, this policy initiative was swiftly overtaken by market events. By June 2008 ADMARC was buying maize from traders at between MK50 and 60, and NFRA was attempting to procure maize for the Strategic Grain Reserve at MK65. By early August 2008, the two state agencies between them had procured 60,000 tons, which from previous experience was too low to meet demand through the lean season to March or April 2009 (Jayne, Chapoto, *et al.*, 2008, p. 16).

In August 2008, the government revoked its previous licensing agreement with the GTPA, and imposed an outright ban on the private purchase and sale of maize, making ADMARC in effect the sole buyer and seller of maize at fixed prices of MK45 and MK52, respectively. The aim was to force private traders to release their stocks (by sale to ADMARC) causing market prices to fall toward that price band, and a slight dip in prices occurred in the following 2 weeks. As in 2004–05, an inadvertent effect of the ban was to curtail the flow of cross-border imports, thus further restricting market supply. Between August and September 2008, informal cross border trade was estimated by FEWSNET monitors to fall by 67% from 8540 to 2185 tons (FEWSNET, 2010). In September, a clarification was issued exempting small-scale traders from the ban (*The Daily Times*, September 15, 2008; FEWSNET, 2008); however, for cross-border trade this still meant that imports and onward sales could only be done by bicycle or cart, or using back roads and small pickup trucks.

By November 2008, the average market price of maize had risen to MK58, and a familiar sequence of events occurred in which ADMARC started rationing its diminishing stocks to 25 kg per transaction at its official sales prices. The maize price eventually rose to a historical high of MK71 in February 2009 (Box 3 and Appendix Table 1), before declining in view of forecasts for yet another record forthcoming harvest.

Despite the size of the overall run up in prices from the low of June 2007 to the peak of January 2009 (285% in real terms), the 2007–09 price spikes did not create famine. This was due to the continuing widening of social protection coverage toward the end of the decade, including the expansion of an initial pilot social cash transfer scheme in Mchinji district to cover 28,000 families across seven districts (Devereux, 2008; Government of Malawi, 2010; Miller, Tsoka, & Reichert, 2010).

The 2007–09 price spikes in Malawi were overtly political. The government had staked its political reputation at home and abroad on the success of the fertilizer subsidy under the FISP from 2005 onward. After the government reported two successive record harvests in 2006 and 2007, President Bingu wa Mutharika received several awards for his government's food security achievements from the international community (Jayne & Tschirley, 2009). In the context of these accolades, as well as an impending election in May 2009, it was inconceivable for the government during 2008 to have admitted to a failure in the domestic supply of maize, or to permit formal maize imports to take place.

#### 4. RECURRING PATTERNS OF CRISIS AND RESPONSE AND IMPLICATIONS

Extreme seasonal price spikes in Malawi follow similar patterns, distinguished by the dominance of political over



economic considerations, and stated public positions not corresponding to evolving maize supply and stock holding. It is pertinent that the traded supply of maize on average represents about 15% of total production, a circumstance that means small fluctuations in output can cause large changes in available supply.<sup>14</sup> As summarized in Box 4, all price spikes contain the following repeated elements: political unwillingness to acknowledge a maize shortage; state agencies (NFRA, ADMARC) redouble efforts to secure supply in a short market; private traders accused of hoarding; maize exports banned; private trade in maize prohibited; ADMARC reinstated as monopoly with fixed buying and selling prices; failure to rebuild public stocks; delays in ordering imports.

In seeking to understand how this particular pathology keeps replicating itself every few years in Malawi, a first point to note is that market prices are the most accurate single indicator of the true maize availability position in Malawi at different points of the year. The maize market in Malawi is fundamentally a competitive market, with plentiful and diverse traders operating in it, and efficient spatial arbitrage reflecting local surpluses or scarcities (Myers, 2008). The market price is a more accurate predictor than production estimates that seem to have performed variably in indicating the true volume of maize available from the domestic harvest from year to year. However, the market price is not utilized as a critical indicator in food security analysis in Malawi. Rather the emphasis is on the forecast maize harvest figure, the crop estimates for substitute foods (rice, cassava), the stock position, food aid operations, and localized vulnerability identified by MVAC investigatory procedures.

**Box 4.** Recurring pattern of events in malawi seasonal maize price crises

- Fall in maize price at harvest less than average
- Maize price exhibits atypical post-harvest rise
- Fully supplied market officially declared
- This position adhered to for 3–6 months post-harvest
- Traders publicly accused of hoarding
- Actions taken to provoke release private stocks
- State marketing bodies intensify domestic buying
- Private trade in maize banned including external trade
- Monopoly of state marketing bodies reinstated
- Sales from dwindling public stocks rationed
- After 4–6 months delay, imports reluctantly ordered
- Imports arrive late due to procurement delays
- Price peaks when next harvest imminent
- Price fall accelerated by arrival late imports

Second, most government reflex action exacerbates seasonal price instability in a deficit market as predicted by the “Jayne hypothesis” stated in the introduction to this paper (Jayne *et al.*, 2006). Aggressive procurement by ADMARC or NFRA in a short market increases upward price pressures when supply is limited. Prohibiting private trade has the same effect, since it reduces spatial arbitrage, and reduces the volume of informal cross-border trade (handled entirely by private traders). In all maize shortage episodes of the 2000s, cross-border import trade helped diminish the shortage of domestic supply to a significant degree. In all episodes government openly charged the private sector with excess stock holding (“hoarding”), and efforts to get this stock released through punitive action failed to add significantly to supply. All three episodes

reveal that privately held stocks are too small to head off a price spiral created by a maize shortage, and they are less important for market supply than informal cross-border trade volumes.<sup>15</sup>

Third, the recurring patterns provide useful evidence to address the political economy questions posed in the introduction. The credible commitment approach is supported to a degree, and proves robust to repeated iterations of a similar array of circumstances. Yet, there are doubts about the even-handedness with which “government objectives” are opposed to “trader objectives” in the Tschirley and Jayne (2010) version of this approach. It is the state that is able to ban private trading outright, as well as determining whether formal imports or exports take place. Traders operate in the spaces that the regulatory environment make available to them. This on occasion may allow them to purchase public grain at low prices for resale in a rising market, but they cannot “create a shortage” by hoarding in a competitive market.<sup>16</sup> The credible commitment problem is one-sided, with traders unable to exert control over market outcomes, while government retains absolute authority over the levers that could increase market supply.

Nor does credible commitment provide a complete account of public sector decision making in the maize market in Malawi, a country which has been described as an archetype of a neopatrimonial state (Booth *et al.*, 2006). Policy decisions stated to be for a particular purpose may disguise the opportunities for personal enrichment they open up. This most obviously pertains to the rundown of national strategic stocks that occurred in 2001–02 (Cromwell & Chintedza, 2005). The varying exercise of absolute control over maize buying, selling, and stocking also provides multiple rent seeking openings within the public bodies involved, particularly in a rising market. The grain trading association (GTPA) seems not to offer a way forward for rule-based market management since many of its members have dual interests as politicians and traders.

Fourth, the narrative reveals the significance of advances in social protection ideas and practice in limiting the severity of outcomes when extreme seasonal price spikes occur. In 2001–02 social protection coverage was weak and fragmentary, and famine ensued. In 2005–06, a wide variety of humanitarian and safety net operations were in force, and formal vulnerability assessments enabled these to be targeted to those most in need. This broadening scope of social protection continued to apply in 2007–09 when a rapidly expanding social cash transfer scheme provided additional coverage.

The presence of improving social security for the most vulnerability does not diminish the need for rule- rather than discretion-based food market management in Malawi and other countries possessing similar configurations of food policy decision making. Extreme price spikes create avoidable hunger and famine for large numbers of poor and vulnerable people, and they undermine newer social protection approaches by eroding the purchasing power of social cash transfers. It is rare in both rich and poor countries for the level of a social cash transfer like a pension or a child grant to be adjusted within a fiscal year to compensate for changing prices, and even annual changes are not always automatic. Thus although a broader and more stable social protection policy can act to some degree as a failsafe mechanism in an unstable price environment, ultimately this approach to avoiding hunger is limited, too, in the face of extreme seasonal price changes in staple foods.



## NOTES

1. Using Sen's (1981) terminology, the lack of purchasing power over food that can occur in the lean season is a failure of "exchange entitlement" over food. The measurement of this in vulnerability assessments in southern Africa is often referred to as estimating the "missing food entitlement".
2. Adverse coping behaviours include reducing food consumption below nutritional needs (skipping meals; having only one meal per day), and sales of household assets in order to purchase food (Corbett, 1988; Devereux, 1999).
3. The important role of politics in determining food policy decisions and outcomes in Africa can be traced back to the seminal work of Robert Bates (Bates, 1981a, 1981b).
4. These are the figures consistently used by FEWSNET (see note 7 below) to describe maize consumption in Malawi (FEWSNET, 2007), although some other authors consider the dietary proportion to be too high (Jayne, Mangisoni, & Sitko, 2008).
5. Since the food crisis of 2001–02 (described in the next section) informal cross-border maize trade in Malawi has been monitored by the regional food security early warning programme, FEWSNET. In all years, domestic maize prices in Malawi have been higher than its neighbours at prevailing exchange rates, and the net inflow of maize has been positive, in the second half of the decade ranging between 61,000 tons in 2009–10 to 156,000 tons in 2005–06 (FEWSNET, 2010).
6. The calculation of this average involves isolating seasonal from other price effects, using a grand seasonal index method described in Goetz and Weber (1986).
7. FEWSNET is an internet based food security early warning network funded by USAID (<http://www.fews.net/Pages/default.aspx>). Monthly food security reports are produced for countries prone to food insecurity crises. The narrative parts of this paper are based in part on monthly FEWSNET reports on Malawi from 2001 to 2009.
8. Data on cross-border movements of maize suggest, however, that an export ban on maize was irrelevant since the flow was almost entirely inward (estimated 40,000 tons inflows *vs.* 260 tons outflows) (FEWSNET, 2010).
9. Some innovative social transfer projects were implemented in this period including the Food and Cash Transfer (FACT) and Dowa Emergency Cash Transfer (DECT) projects conducted by CARE Universal with funding from DFID in 2004–05 and 2005–06 (Devereux, Mthinda, Power, Sakala, & Suka, 2007). The latter project was particularly interesting since it experimented with indexing the monthly level of cash transfers to the price of maize, thus avoiding the erosion of purchasing power as maize prices rose to their seasonal peak in February 2006.
10. A key feature noted by these researchers was that the 2007–09 maize price surge in Malawi was decoupled from the 2007–08 world food price crisis, with prices continuing to rise through the second half of 2008 and into 2009 when world maize prices declined rapidly to near pre-crisis levels.
11. Exports were made to Swaziland, Lesotho and Zimbabwe totalling some 350,000 tons by November 2007 (including a WFP purchase of 32,000 tons).
12. Deliveries under the 400,000 ton Zimbabwe contract were halted at 302,000 tons.
13. The GTPA was created in 2006 with donor support in order to provide a forum in which private traders and the government could resolve strategic food policy issues. Unfortunately, members of parliament with trading interests were able to (and did) join GTPA, thus weakening its mandate to act as a lobby independent of the political interest of the government in power (Manda, 2010, Chapter 6).
14. This describes what economists call a 'thin' market, prone to volatile prices due to the sensitivity of traded supply to small changes in production (Hayenga, 1978).
15. Trader behaviour is, in fact, predictable. They supply a private service (interseasonal crop storage and marketing) in pursuit of a commercially viable rate of return on capital deployed, most of which is tied up in stocks.
16. Speculative hoarding is an unlikely occurrence in a competitive crop market with few barriers to entry (Myers, 2008). This is because the price effects of excessive purchases and sudden sales causes hoarding to reduce rather than increase returns to storage for the majority of market participants.

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## APPENDIX A

See Appendix Table 1.

Table 1. *Malawi nominal and real maize prices 2000–09 (MK/kg)*

Month	2000–03			2003–06			2006–09		
	Year	Nom.	Real	Year	Nom.	Real	Year	Nom.	Real
July	2000	5.49	5.87	2003	10.17	6.95	2006	18.76	8.35
August		5.15	5.67		10.44	7.09		19.30	8.36
September		5.36	5.39		10.83	6.95		20.39	8.62
October		5.51	5.28		12.62	7.41		21.32	8.58
November		6.32	5.61		14.05	8.25		22.19	8.67
December		6.45	5.57		13.83	7.88		22.24	8.74
January	2001	7.21	5.96	2004	15.97	9.13	2007	21.18	8.50
February		7.35	5.94		16.61	9.67		19.22	7.89
March		7.53	6.16		19.12	11.32		18.21	7.75
April		7.53	6.21		16.66	10.20		16.03	6.89
May		7.16	5.94		13.44	8.20		14.26	6.28
June		7.94	6.80		12.96	7.50		14.61	6.11
July		9.27	7.88		13.63	7.79		15.63	6.49
August		13.14	11.19		14.00	7.78		16.86	6.80
September		17.11	13.87		15.73	8.53		18.04	7.09
October		18.91	15.73		15.86	8.17		20.76	7.76
November		19.67	16.74		17.29	8.63		24.11	8.72
December		24.60	21.30		17.53	8.72		28.67	10.41
January	2002	31.00	22.17	2005	17.88	9.03	2008	34.18	12.68
February		32.48	22.57		17.61	9.03		39.69	15.09
March		28.96	20.21		17.36	9.17		43.53	17.08
April		18.62	13.23		15.93	8.46		35.41	14.00
May		15.16	10.89		16.39	8.67		32.83	13.25
June		14.10	10.45		18.00	9.00		37.94	14.50
July		15.16	11.26		18.68	9.22		48.72	18.47
August		16.15	11.95		20.55	9.83		55.52	20.43
September		16.29	11.42		23.15	10.78		53.38	19.08
October		16.74	11.76		29.11	12.85		54.33	18.45
November		18.42	12.67		32.77	13.97		57.81	19.07
December		19.94	13.51		34.34	14.65		63.47	21.04
January	2003	18.34	11.51	2006	41.68	18.20	2009	69.22	23.50
February		19.03	11.74		50.67	22.44		70.57	23.28
March		17.22	10.90		45.95	21.06		65.27	21.63
April		13.39	8.67		27.46	12.68		45.36	15.41
May		10.51	6.93		19.07	9.00		34.08	11.92
June		9.47	6.47		18.31	8.19		32.98	11.93

Note: Prices are monthly national average prices collected from 38 markets. Real prices are nominal prices divided by the CPI (2000 = 100).

Source: Ministry of Agriculture and Food Security, Agro-Economic Survey Unit.