Overseas Development Institute

High and volatile world food prices & their implications

UKaid from the Department for International Development

Preparing for future shocks to international staple food prices

What can the international community and the UK Government do to help?

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Steve Wiggins
Julia Compton
Sharada Keats

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List of acronyms

CBOT	Chicago Board of Trade
ESF - HAC	Exogenous Shocks Facility – High Access Component (IMF)
FAC	Food Aid Convention
FAO	Food and Agriculture Organisation
IEFR	International Emergency Food Reserve
IFAD	International Fund for Agricultural Development
IGC	International Grains Council
IMF	International Monetary Fund
LIC	Low Income Country
LIFDC	Low Income Food Deficit Country
MTBE	Methyl Tertiary Butyl Ether, a transport fuel additive
NREGA	National Rural Employment Guarantee Act (India)
PRGF	Poverty Reduction and Growth Facility (IMF)
SADC	South African Development Community
SAFEX	South African Futures Exchange
SCF	Standby Credit Facility (IMF)
WFP	World Food Programme

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Summary

The 2007/08 price spike in international markets pushed up cereals prices in most developing countries, reducing the welfare of many poor and vulnerable people. The objective of this paper is to review the policy options available to deal with a similar event in the future. Though the spike of 2007/08 is thought to have been caused by a relatively unusual confluence of factors, additional pressures are likely to apply to cereals markets in the near future, making international price spikes more of a risk — although just how much is in debate.

Coming two years after the peak of the international cereals price spike in 2008, this paper benefits from a wide pool of literature on policy options for dealing with and preparing for a cereal price spike that has since accumulated. It draws on over 18 months of work and background papers written under the DFID-funded *High and volatile world food prices & their implications* project.

Three key questions are addressed:

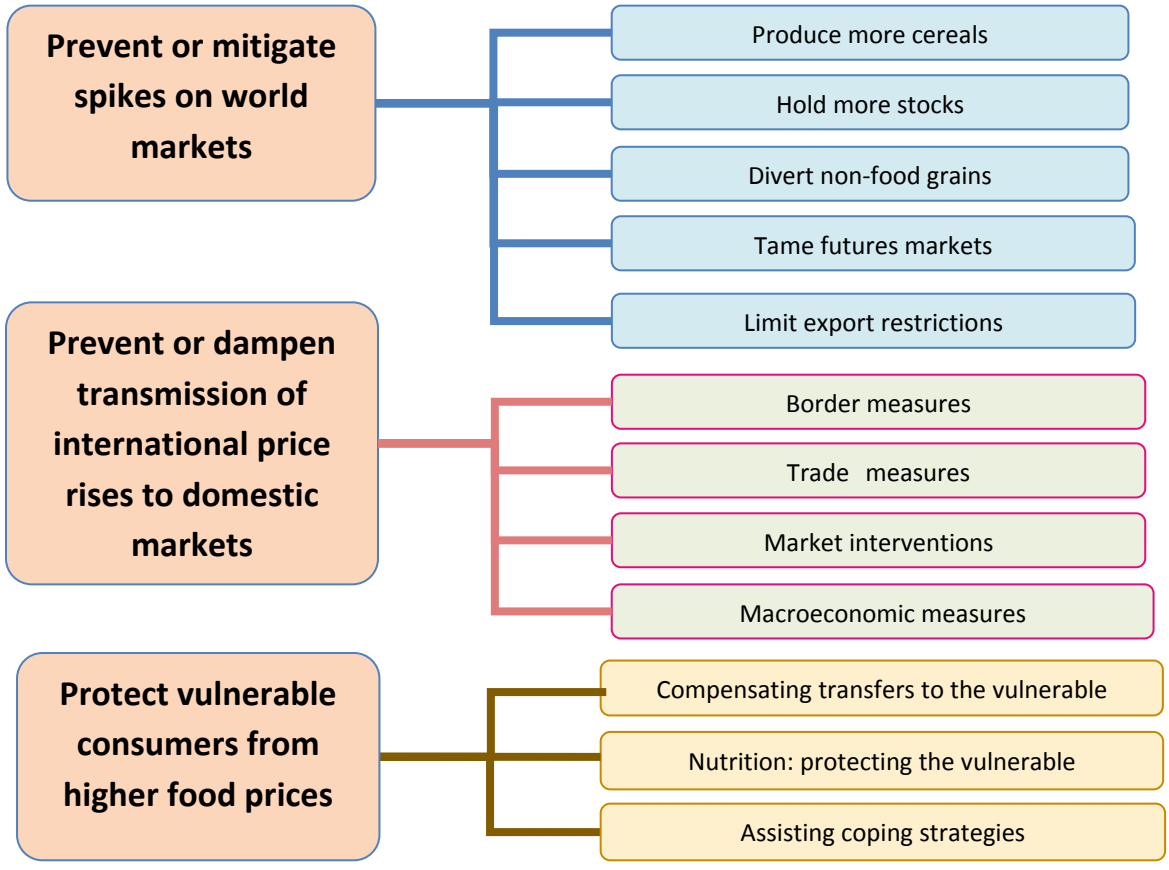
Question 1 Can price spikes on world markets be prevented? If they cannot, then

Question 2 Can countries insulate their markets from the effects of higher world prices? And if they cannot, then

Question 3 How can the poor and vulnerable be protected from the consequences of higher food prices?

The following figure sets out the broad overview of options to be discussed.

Figure A: Main options for dealing with food price spikes and their consequences



Research suggests the following answers to these three questions:

Can price spikes on world markets be prevented?

Yes, they can: above all by ensuring that stocks held are above a critical threshold of stocks-to-use. Increasing public stocks to ensure that this threshold is not breached is attractive but potentially costly. In addition, there is uncertainty over the extent to which private stocks may be drawn down correspondingly, plus uncertainty over exactly what the threshold is and over how much is ever in stock. There would also be considerable challenges in getting international agreement on sharing costs, physical storage, and rules for use of such stocks. Hence it is difficult to support proposals for increased public grain reserves at international level.

Other measures are potentially less effective. However, one novel proposal is to divert grains to human from other uses when price spikes threaten. This has yet to be developed in detail.

Can countries insulate their markets from the effects of higher world prices?

In theory there are many things governments may do to dampen transmission of international price rises to domestic markets. Some are relatively simple, rapid and quite effective: countries with surpluses can ban exports; those with sufficient public stocks can release some; and food prices can be subsidised. But the latter two are costly, while the first harms local farmers and the rest of the world.

Moreover, many measures would only be effective under conditions that are not common in low income countries (LIC), where many of those most vulnerable to higher food prices live. Most LICs have small stocks, low tariffs on imported food, low taxes on staples, and little administrative capacity to intervene in food markets. In short, they have little scope for insulating their markets.

How can the poor and vulnerable be protected from the consequences of higher food prices?

Safety nets can protect vulnerable people, but at a cost. Moreover, safety nets are all but impossible to deploy to any significant effect if they do not already exist.

Coverage is often limited: field studies of the price spike suggest that most poor and vulnerable households shouldered most of the burden of rising prices by their own efforts, although with varying degrees of success in coping and in consequent hardship.

Implications for policy

Four overall points stand out, as follows.

First, the options to deal with higher prices on world markets are markedly different for most middle-income compared to low-income countries. In the former, governments often have capacity, both financial and administrative, to mitigate price rises on domestic markets. Political factors are important here, the pressure to mitigate being high among regimes, such as China, which depend partly on stable food prices for their legitimacy. The pressure is lower among some democracies, where people do not necessarily expect the state to protect them from all market fluctuations.

For low-income countries (LIC), however, the options are limited, and, almost everything that can be done to counter a price spike is costly and administratively demanding: beyond the means of many LICS. Yet it is in these countries that the share of the population vulnerable to price spikes is highest.

Given the limited options in LICs, preventing price spikes on world markets becomes all the more important. Yet this is easier said than done. The most effective and proven option is carrying more stocks: but this will be difficult without high cost and some demanding conditions for international co-ordination and governance of enlarged public stocks. This leads to the second point.

Second, how much it is worth — in funds and political capital — to head off spikes on international markets depends on how frequent they are expected to be. Put differently, was the spike of 2007/08 a one-in-thirty-year event, the result of a 'perfect storm' resulting from a highly unusual constellation of factors; or was it confirmation that fundamental changes are taking place in world food markets so that the preconditions for spikes are more likely to be present in the future? This cannot be answered beyond doubt. Yet, that said, the many factors that led to the price spike — and the absence of any one of these would probably have prevented it — suggest that it will be rare rather than common for all preconditions to be in place.

This implies that efforts to mitigate spikes on world markets will need to be implemented only rarely. The ideal mechanism then is one that can lie dormant, and be brought into play as and when needed. This makes the option of diverting grains from animal feed and industrial use all the more attractive. Unlike enhanced public stocks that would have to be kept year upon year whether needed or not, diversion would only be necessary at unusual times when price spikes threaten. Whether this option could work, and what the early warnings could be to trigger its operation, requires urgent research.

It is not just frequency of a hazard that matters: severity is the other important consideration. This leads to the next point.

Third, although the price spike has undoubtedly led to much distress — with estimates that the numbers of hungry in the world rose from 800M to 1,000M — a sense of proportion is needed when considering what needs to be done. Some of the measures that are being proposed will do relatively little to reduce hunger. The 800M who were hungry before the spike will presumably not see their nutrition improved if world prices, or even national and local prices, could be stabilised. They are hungry not so much because prices fluctuate, but because they are poor and unable to access food, and (especially for infants) often sick and unable to make good use of it.

While some of the measures that can address price spikes will help reduce poverty as well, not all measures proposed have a dual purpose. A crusade to prevent food prices from fluctuating could miss the point, potentially using scarce funds, administrative capacity and political capital unwisely.

Fourth, the common lament of analysts is as pertinent to this case as to others: more data and evidence would help resolve controversies and design policy with more confidence. Information is still lacking on what exactly happened during the food price spike, and on the effectiveness of

existing safety nets and other measures taken in response.[1] A very small percentage of the resources granted to deal with the consequences of the spike could have paid for all the evaluations needed.

Policy recommendations

In the light of the evidence and discussions what should development actors — governments, their donor partners, NGOs — be doing?

Internationally, three specific actions can be recommended**: collecting and publishing more and better data on stocks**, focusing on the relatively few countries that hold most of the world's reserves; **funding WFP to create a small emergency stock** to prevent breaks in supply of humanitarian food aid when prices rises; and **commissioning a detailed study of the diversion of grains from livestock and industrial use**, including the mechanisms necessary, costs and benefits.

This is a fairly modest agenda, reflecting both the difficulties surrounding other options, and the likely infrequent recurrence of spikes of the 2008 magnitude. In addition, promoting agriculture to **raise the rate of increase of cereals production** is necessary to meet future demand, can help reduce rural poverty, and would encourage more stocks to be held. **Encouraging more regional trade** can reduce regional price variations, particularly when rainfall patterns are not correlated across different zones in the region, such as between southern and eastern Africa.

Nationally, the discouraging conclusion that there is little room for manoeuvre for low-income countries most vulnerable to price spikes on world markets needs some qualification. Some options are better than others; hence the following recommendations:

- Where there is scope for lowering import tariffs and sales taxes, do so. Appeal to donors and IMF to make up the temporary revenue losses;
- Use import financing, such as the IMF's exogenous shocks facility, to ensure that higher prices do not prevent supplies being procured;
- Export restrictions may well be effective, but the disincentive to domestic producers is a major drawback, as is the potential for driving world prices still higher;
- Any kind of subsidy on food prices will be expensive, but if chosen, target it to those who really will suffer hardship. Subsidising less preferred ('inferior') foods that are unlikely to attract the better-off no matter how cheap, or distributing ration cards, may be ways to do this;
- Attempts to control the market, setting maximum prices or forcing the release of private stocks, do not always work and risk alienating private trade and deterring production;
- Look to support the coping strategies of the vulnerable. At very least make sure that measures taken do not impede individual and household reactions. Where, for example, households are taking out emergency loans, channelling additional funds through micro-finance agencies or banks that reach the poor, can help keep interest rates down and meet the demand;
- Safety nets can only be expanded or intensified in times of price spikes if they are already in place. This is yet another reason to have safety nets appropriate to domestic conditions.

[1] Just a few efforts tend to be well evaluated and disseminated, so that the literature repeatedly mentions some well-known successes — conditional cash transfers in Brazil, Mexico, guaranteed employment in Maharashtra, etc.; but it is not evident how well the many other initiatives in other locations have fared.

These can then be scaled up when price spikes cannot be contained. Donors can overcome shortages of funds, but not of experience and capacity; and,

- Most safety nets deployed to counter the effects of the spike focused on compensating transfers to households, and to a lesser extent, on nutrition. Interventions in education, health care and financial systems — all areas affected by the spike — deserved more consideration.

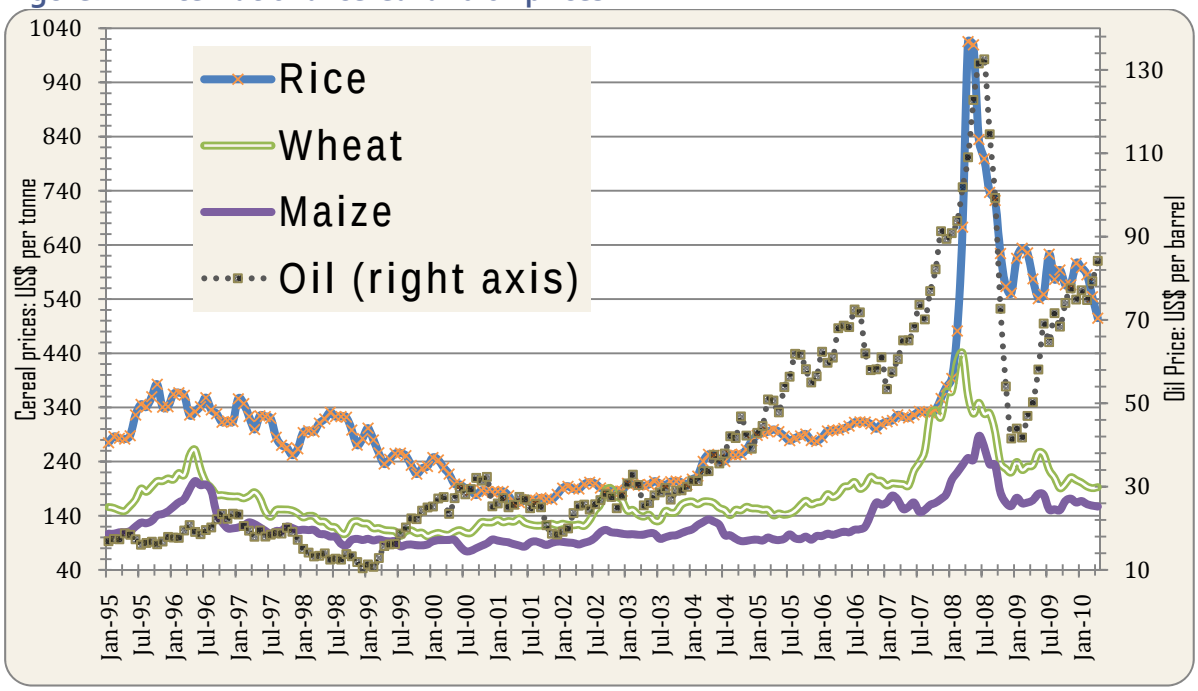
Key recommendations

Measure	Measures specific to spikes	Measures that reduce risks of spikes but which also have other aims
Can spikes on world markets be prevented? International actions	Collect and publish more accurate information on grain stocks. Focus on the twenty or so countries that hold most of the world's grain stocks Work to incorporate food price shocks into Disaster Risk Reduction Strategies Provide resources to WFP to hold an emergency reserve of 300–500kt of cereals to prevent disruptions to humanitarian supplies when international prices rise Commission detailed study of the potential for diversion of grains from animal feed and industrial use, and how this might work	Promote agricultural development to raise growth rate of cereals production Encourage freer trade in cereals regionally
Can transmission from world to domestic markets be dampened? National actions	Lower import tariffs and sales taxes when possible. Appeal to donors and IMF to make up revenue losses Subsidies on food prices will be expensive, but if chosen, target to those who really will suffer hardship — either by subsidising inferior foods, or introducing a ration card to vulnerable Resist temptations to control prices by fiat, force sale of private stocks, or to restrict food exports: the risk of taking away incentives to domestic farmers is too great.	As above: • Promote national agricultural development where there is capacity to expand at reasonable cost Look to exploit the gains from regional trade with neighbouring countries
Can the vulnerable be protected? National actions	Look to support the coping of the vulnerable. At very least make sure that measures taken do not impede individual and household reactions. Scale up existing safety nets. Consider, in addition to compensating transfers and nutrition, actions in education, health and finance	Have safety nets already in place so that they can be expanded and scaled up as and when needed

1. Introduction

The spike in the prices of cereals on world markets that took place in 2007/08 was an unwelcome shock that took most observers and participants in the markets by surprise. Between January 2007 and the peak of the spike in the first half of 2008, maize prices rose by 74%, rice prices by 224% and wheat prices by 124%. These were the largest increases in cereals prices seen since 1973/74, 34 years before: they also happened over a short period.

Figure 1.1.International cereal and oil prices



Source: IMF Primary Commodity Price data. Rice: 5% broken, fob Bangkok. Wheat: U.S. #1 Hard Red Winter, fob Gulf of Mexico. Maize: U.S. #2 yellow, fob Gulf of Mexico. Oil: Average of U.K. Brent, Dubai, and West Texas Intermediate.

The price spike on international markets pushed up cereals prices in most developing countries, directly hurting the many poor and vulnerable who have to buy in part or all of their staple food from the market. In addition, for low income countries with substantial food imports, the rising cost of imported cereals ate into foreign exchange reserves. Moreover, many consumers found that after paying for food, they had less to spend on other goods and services, thus depressing economic activity. The spike caused some traders, consumers and governments— prompted by fears that prices might go even higher, or that there would simply be no cereals available on the world market— to hoard, stock up in tight markets, and restrict exports, thereby exacerbating the initial rise in prices.

The price spike was thus a sharp shock that prompts three questions:

Question 1 Can price spikes on world markets be prevented? If they cannot, then

Question 2 Can countries insulate their markets from the effects of higher world prices? And if they cannot, then

Question 3 How can the poor and vulnerable be protected from the consequences of higher food prices?

These are the subjects of this paper. Table 1.1 provides a broad overview of options to be discussed.

Although the spike of 2007/08 was caused by multiple conditions, as set out in the next section, these did not necessarily include all the factors that might apply in the future. Additional future pressures on cereals markets are likely to include:

- ***Increased oil prices*** as and when peak oil is reached. Higher oil prices will push up the costs of nitrogenous fertiliser and fuel for farm machinery;
- ***Increasing water scarcity*** in areas where copious use of water for irrigation conflicts with rising demands from industry and human use in fast-growing and urbanising economies; and,
- ***Climate change*** that will probably see rainfall belts and temperatures change, the loss of some valuable coastal lands to incursions by high tides, changed incidence of pests and diseases, and more variable climate with more frequent extreme weather events.

These suggest that not only may higher agricultural prices be inevitable in the medium term — although perhaps by not more than 10–30% for most goods, but also that more variable harvests are likely to increase potential for price spikes. Hence the need to consider countervailing policy is all the stronger.

Two years on from the peak of the international cereals price spike in 2008, this paper benefits from the debates and associated literature[2] on policy options for dealing with and preparing for a cereal price spike.

One key way this paper differs from other contributions is in the (relatively narrow) focus on *international* grain price spikes and their implications for vulnerable countries and people[3]. Another is the effort to identify precisely the areas where donor governments and other concerned parties in the international development and humanitarian communities can contribute.

The paper is structured to provide a concise overview on policy options under each of the three questions mentioned above. Though there are certainly areas of feedback between these levels[4], they are first examined in relative isolation. More detail on each type of option is available in the annex.

[2] See, for example, Demeke et al (2008), Wright (2009), Galtier (2009), IMF (2008), Oxfam International (2008), Abbott (2009). Further references and online Resource Library associated with this project at; http://www.odi.org.uk/resources/libraries/details.asp?id=1&title=food-prices.

[3] Sharp price spikes caused by country-specific (or regionally-specific) effects may be much more common in certain developing country markets than they are on global markets. On a country level, policy responses for dealing with such volatility understandably overlap with those for dealing with imported instability from international markets, but this remains a wider topic beyond the scope of this paper. Preparing for and dealing with an international price spike already entails a broad and challenging range of – sometimes complementary, sometimes conflicting – options.

[4] For example, surrounding stocks (who holds them, where, and decisions about release and targeting)

Table 1.1. Potential policy responses to food price spike

MAIN AIM	GENERAL RESPONSE	INDIVIDUAL MEASURES	COMMENTARY
Prevent or mitigate price spikes on world markets	Produce more cereals	Invest in agricultural research, infrastructure Raise prices to farmers, or reduce taxation	Medium term response: consensus on this
	Hold more stocks	International/Regional/National Emergency response stocks [500kt, WFP]	Effective but costly, difficult to co-ordinate internationally.
	Divert grains from livestock or industry		Promising, but not an option for most LICs; Largely untried
	Tame futures markets	Control markets: limit trading or traders, close them Create virtual reserve for counter-trading	Not clear that this would have any effect on spot prices
	Limit export restrictions	Internationally / improve regional trade coordination	Very difficult to hold countries to this
Prevent or mitigate transmission of international price rises to domestic markets	Border measures	Reduce import tariffs Restrict exports	Only effective for countries that have either food exports, or high import duties on staples
	Trade measures	Import facilitation Barter Hedging on futures & options markets Exploit scope for regional trading	Import facilitation seems to correct market failure Barter: largely political Hedging: promising, but technically difficult, politically vulnerable Regional trading: general point relevant especially in Africa
	Market interventions	Tame market: Control prices by fiat; Release private stocks, prevent hoarding Work with market: Release public stocks [Open Market Operations,] Reduce food taxes, Subsidise staple food prices — may be targeted or rationed Rapid production response: prices, inputs	Tame market: Low cost, politically tempting, but difficult to enforce Work with market: Effective but costly Production response: depends on production cycles, public capacity
	Macroeconomic measures	Revalue currency, Restrict money supply	Few developing countries have capacity; Unlikely to be used for these purposes: both measures risk deflation
Protect vulnerable consumers from higher food prices	Compensating transfers to vulnerable	Cash or food; for work or training; or not Raise wages, public sector	Transfers can be effective, but require administration to be in place; targeting always difficult Raise wages: costly, many of vulnerable not in public jobs
	Nutrition: protect the vulnerable	School feeding; Supplementary feeding to infants, young children, and mothers; Micronutrient supplements; Home gardens	May be good for wider purposes Require administrative capacity
	Measures to assist coping	Facilitating re-entry of children who have to drop out of school; Refinancing micro-finance or popular banks to meet additional demand for credit	Meets needs Meets needs but can encourage indebtedness or unwise agency spending

2. Policy options at the international level

2.1 Learning from the causes of the price spike

The 2007–08 spike in food prices had many causes, described by the head of the World Food Programme as a 'perfect storm'. These can usefully be seen as arrayed in two dimensions: through time, with causes divided into those that applied in the medium, short and very short terms; and, a spectrum running from things that are largely matters of chance, to outcomes of complex economic systems where intervention can produce unexpected and unwelcome results, to matters that are much more clearly under the control of specific human agents and especially the actions of governments. Table 2.1 sets out the causes accordingly.

Table 2.1 Causes of the 2007/08 price spike

	Conditions arising over the medium term	Short-term triggers	Reactions to the initial price rises
Largely chance		• Poor harvests, esp. wheat in Australia, Russia, Ukraine	
Complex economic outcomes	• Slow-down in growth of cereals production from mid-1980s onwards to c. 1% a year • Rising oil prices raise costs of production, making biofuel production more attractive • World economic growth pushing up the prices of all commodities • Depreciation of the US dollar		
Specific decisions and policy	• Reduction in public stocks leading to much lower stock-to-use ratios from 2000 onwards • Index fund investments in commodities? [Much debated]	• US Energy Act 2005 leads to switch from MTBE to ethanol as a fuel additive	• Export restrictions, bans • Reduced import tariffs • Restocking in tight markets by traders, consumers, government agencies

Source: ODI project briefing on "What caused the food price spike of 2007/08?"

Looking at the second dimension helps answer the question of whether these factors could have been avoided and how easily.

Chance events: harvests will always fluctuate and thus there will be shortfalls on world markets from important export regions from time to time. Technical advances may reduce these to some extent — irrigation, for example, makes losses to drought less likely — but fluctuations cannot be completely eliminated. For world markets, overall stability of supply is likely to improve as more countries trade cereals and sources of supply are diversified. Against this, climate change is likely to increase the variability of harvests.

Conditions arising in complex economies: three of the four factors listed here arise from the workings of economies as a whole. Policies directed at economic growth, employment, inflation,

trade, energy supply, etc. are not going to be changed by considerations of averting price spikes on cereals markets. For current purposes, then, these factors can be seen as exogenous.

One point in this group, however, is amenable to agricultural policy: the rate of increase of cereals production. The slow-down in output increases since the mid-1980s responds to several factors, an important one being the low prices of cereals that have applied for most of the time since the mid-1980s, itself a consequence of the success in rapidly raising cereals output from the early 1960s to the mid-1980s. There are other factors, however, including in some countries reduced public investment in agricultural development and in particular, under-investment in public agricultural research.

Policy and specific decisions: action to avert spikes can clearly be taken here. Decisions on stocking, trade, and perhaps the operations of futures markets are all elements that can be readily changed.

2.2 Policy options for mitigating price spikes

The main options for preventing or mitigating price spikes include:

- raising cereals production;
- holding more public stocks or having more information on stocks;
- diverting grains from animal and industrial to human use;
- curbing futures markets for cereals; and
- limiting export restrictions.

In addition, to ensure that food aid for humanitarian purposes continues uninterrupted through price spikes, there are proposals to create a small emergency grain reserve under the control of the World Food Programme (WFP).

Table 2.2 summarises the proposals: Appendix A includes more details of the proposals, their advantages and drawbacks.

Table 2.2 Options for containing price spikes on international markets for cereals

Measure proposed	For	Against
Raise growth rate of cereals production Increase public investment, improve farmer incentives	Effective in medium term In some countries this might also reduce rural poverty.	Cost —but elements such as agricultural research are comparatively inexpensive Does not automatically protect against spikes, unless accompanied by large increases in volumes stored.
Internationally co-ordinated public grain reserves UN agreement that countries hold public stocks as percentage of annual use Mechanism to release such reserves to world market when world price exceeds a threshold	If discipline could be maintained, could be effective	As public stocks rise, private storage falls Decisions on price thresholds, fraction to be stored are difficult. Location of reserves may be contentious Commitment and discipline of countries: would they release stocks when prices are rising and domestic fears mount? Cost: if 70M tonnes additional in store, could cost US$15 a tonne/yr = US$1.05 billion a year
Regional and national grain reserves To allow physical response to rising prices at regional or national levels	Tried and tested at national level At national level, no problem of commitment and discipline Public-private partnerships in national stockholding could help reduce costs.	Costly: given that fluctuations nationally or regionally are greater than those internationally, must cost more than internationally co-ordinated stocks Temptation to use stocks for patronage. Creates uncertainty for private traders who now have to deal with additional policy risk
More and better information on storage	Relatively low cost Not clear how much this would encourage more holding of private stocks	Difficulties of getting accurate reports on stocks: FAO not optimistic
Diversion of grain from industrial and animal feed to human use Government buys call options, or agrees to compensate other users when diverting grains to human use in specified crises. Could also modify biofuel mandates to require diversion in crises	Probably feasible at national level: similar schemes apply to water and electricity in USA Lower cost than storage	Cost of call options: perhaps a margin of US$100 a tonne needed [difference between value of grain in feed or industry versus food during spike]. Globally this may mean food to feed perhaps 100M persons — say 6 months supply = 100kg a head = 10M tonnes, so, total cost = US$1G. Proposal not yet developed in detail
Limit speculative investment on futures markets	Demonstrates government concern	Not clear that rising futures prices push up spot market prices, so scheme may not be needed. Reduces market efficiency
Virtual reserve for futures markets Club of G8 + 5 + prominent grain exporters promise to provide funds when needed Global intelligence unit forecasts prices in medium and long run, sets price bands, advises technical commission that authorises short positions to be taken in futures markets when necessary to combat speculative attacks	Intelligence unit generates additional information to the benefit of private trader	Ditto + Much depends on quality of global intelligence unit panel advising on operations, and on courage of technical commission to avoid political pressures and to take prompt action when indicated. Otherwise, scheme could run out of funds as private traders take advantage, profiting at the expense of public funds. Cost: US$12–20G envisaged when needed
Prevent export bans Probably under WTO rules, exporting countries pledge not to apply export bans or prohibitive taxes for exports	No cost, straightforward Would have done much to calm the spike in rice markets	Getting agreement and commitment, discipline
Emergency physical reserve, 300–500,000 tonnes	Facilitates rapid response on part of WFP. Replaces 'voluntary facility' IEFR has become with something more reliable.	Cost – but not very costly. Bilaterals will have to give up some control to WFP.

Of these proposals, that to ***raise cereals production*** would help in the medium term: given the expectations that biofuels may place additional demands on world grain production, and given that in some countries boosting agricultural output will likely help reduce rural poverty, there are good reasons to pursue this.

Holding more stocks would provide a strong counter to pressures that lead to spikes: since the 1950s there is no record of spikes in years when stock-to-use ratios of grains have exceeded 20%. Yet the costs and difficulties of increasing public stocks are high: in costs of storage, in getting political agreement on who holds what stock, at whose costs, and with what rules for use of stocks. There is also the possibility that when spikes threaten, those holding stocks may not release them on world markets. There are technical questions also about the level of stocks that would be needed, how much and when they should be released, and about the extent to which private stocks might be correspondingly reduced, safe in the knowledge that public stocks are in place. The temptation to use stocks for price stabilisation rather than just mitigating spikes would be high; and while this temptation exists, or is thought to exist, private traders are likely to spend time second-guessing the decisions of public stock managers.

Public stocks thus present a conundrum: they have a high chance of preventing price spikes, but they are costly and there are several awkward issues in their management; so much so, that their promise may be illusory.

Simply increasing ***information on grain stocks*** could be useful and while not simple, is neither impossible nor that costly. How much this would reduce the possibility of stock-to-use ratios dipping below thresholds — by encouraging private storage as ratios fall — is, however, not clear.

Diverting grains from animal feed and industrial to human use may be neither tried nor tested, but potentially could be a less expensive way to offset pressures in markets than storage. Without more detailed work to explore how this might work in regional or international markets, and indeed in national markets, it is difficult to be sure how effective or how inexpensive it might be. Amongst the issues to examine are: whether this would be feasible beyond the national level — it is easy to see political agreement on diverting grains to alleviate hunger amongst domestic constituents, but less easy to do so if the beneficiaries live in distant lands; and to what extent grains for livestock and industry can readily be used for human food, or would be acceptable.

Action to ***curb futures markets*** may be ineffective, since it is far from clear that speculation played a substantial, or indeed any, part in the 2007/08 price spike. Increased regulation of futures markets may impair their working; while the proposal for an international fund to sell short on futures markets and prevent speculative bubbles forming risks betting public money managed by committee against more agile private traders — a lot of money could be lost.

Given their apparent impacts on the rice market, agreeing to ***limit use of export restrictions*** would be useful, but getting agreement and sticking to it look difficult. It is hard to imagine governments with many vulnerable consumers acutely sensitive to prices of staple foods would give up this option when spikes threaten. It may be better to reduce the chance of these conditions arising in the first place.

Finally, the proposed ***emergency reserve*** of 500,000 tonnes or less of cereals for the World Food Programme (WFP) and other food aid suppliers to ensure that their supplies are not affected by spikes seems justified.

2.3 Conclusions about mitigating spikes on an international level

Although there are ways to reduce substantially the possibility of price spikes on world markets — above all by ensuring that stocks held are 20% of use, most are costly. Moreover, getting international agreement on reserves and the discipline to stick to rules of their use will not be easy. There is, moreover, the potential for major undertakings that avert conditions that arise — in recent experience — less than once a decade. The most intriguing proposal here is that of diverting grains to human from other uses: since it promises to cost substantially less than holding more public stocks, it deserves to be explored in detail.

3. Insulating a country from international price movements

What if price spikes on international markets cannot be avoided? This chapter examines the strategies open to developing country governments in preparing for similar disruptions to food pricing and supply in the future. Specifically it focuses on a) preventing or mitigating transmission of international price spikes to domestic markets, and; b) preventing disruptions to supply at the country level that may occur as a result of international price hikes.

When prices spike on international cereals markets, domestic prices of food staples are likely to rise since, in the absence of trade barriers or public policy that counters market forces, countries that import food staples will have to pay the higher international prices, while those that export will see domestic prices rise towards the international level. High transport costs will to some extent offset transmission of international prices for importing countries, although they may well amplify price movements locally for exporting countries; see Box 2A.

Box 2A: Asymmetric transmission of international price changes when transport costs are high and fixed

Consider the case of an inland African country that produces maize but where transporting maize to and from the world market costs US$50 a tonne. If the world price of maize is US$100 a tonne, then import parity price is thus US$150 while export parity price is just US$50. Thus there can be a wide spread of local prices between which there will be neither imports into nor exports from this country, and local prices will be determined by domestic supply and demand.

Now, if the world price of maize were to double to US$200 a tonne, then the import parity price becomes US$250 and the export parity price US$150 a tonne. Import parity price has risen by only 67%, while the export parity price has tripled.

Hence the degree of transmission from changes in world market prices will be different when transport costs are high, depending on whether the country is a net importer or net exporter of the commodity.

Can national governments take action to prevent domestic prices from rising? Table 3.1 shows the measures countries might consider, summarises their pros and cons. More information about individual measures is available in the Appendix, section 2.

Table 3.1 Options for dampening price spikes on national markets for cereals

	Measure	For	Against
Not trading	Self-sufficiency – avoiding international trade	Potentially effective. Removes risk of adverse policy from trading partners	Usually very costly since it forgoes the gains from trade. It also requires governments to invest substantial portions of their budgets in agriculture. In small countries, self-sufficiency will require large stocks to be held
	Macro-economic policy	Rise in exchange rate could dampen price rise	Risks creating a trade deficit and slowing growth Not a realistic option for most LICs
Trading – Border Measures	Export restrictions	Can dampen prices Reassures the populace	Only applies in countries with export surplus, and may be inefficient where borders are porous Depresses incentives to farmers in-country May exacerbate international price spikes
	Import liberalisation	Simple to implement Can lower prices	Many countries have only low tariffs on imports of staples, so not feasible Loss of government revenue May be difficult to reverse
	Import facilitation[5]:	Can maintain supply if private or public traders lack funds	May be costly May be subject to unexpected delays May be attached to excessive conditionalities
	Hedging with futures and options	Should reduce variability & cost of importing over the medium-term	Difficult to sell politically
	Barter & seeking special deals	Useful where forex is short Can allow countries to deal with exporters who have restrictions	Lack of transparency and reversibility
Trading –Market Measures	Price controls by fiat	Low cost to the government Show government to be acting	Discourages local production, exacerbating the problem Can be difficult to enforce
	Release of stocks for purposes of price stabilisation	Response can be rapid Cheaper than purchasing from international market at times of international price spikes	Stockholding can be costly in infrastructure, spoilage, and locked-up capital Reduced incentive to private sector storage (particularly where state rules about procurement and release are not transparent or predictable) Temptation to be used for patronage
	Removal of food / fuel tax	Rapid, simple to do	In many developing countries there is little scope to reduce taxes on staples Reduces government revenue
	Use of food / fuel subsidies	Effective	Can be very expensive – particularly fuel subsidies. Lack of targeting may mean benefits leak heavily to those who do not need them[6]
	Divert feed / fuel to food	Potentially lower costs than other measures	Only feasible in countries with major use of grain for animal feed and industry – mainly middle income and above, and not the lowest income most vulnerable Untried
	Regulating speculation	Can be politically popular May dampen escalation of prices to some extent	Few developing countries have futures markets for staples Removes a risk management tool for producers Likely to have little effect on prices
	Limiting private stocks	Can be politically popular as it scapegoats 'hoarders'	Discourages private stockholding and may exacerbate shortages in the future
	Help with farm inputs	Can increase productivity and production of food or cash crops	Much depends on timing – expensive if comes too late. May attract unfair rent seeking
	Raise farm procurement price	Removes a large element of producer risk and encourages investment	Much depends on the timing

[5] This refers to two separate types; credit to traders and help from international bodies such as IMF

[6] Some forms of import facilitation, such as subsidies to private traders or importers, combined with agreements on at what price they should release supplies to the market, as was seen in Sierra Leone in response to the international food price spike (see Wiggins et al, forthcoming) can be considered food subsidies.

3.1 Withdrawing from trade

Of these proposals, ***self-sufficiency with minimal trade*** is the most drastic way to insulate local markets from international price variations. But for most if not all developing countries, the cost would be high[7]. To make this work, a country needs not only to produce all its staple food at whatever cost that may be, but also to keep sufficient stocks to cover variations in domestic harvests. To be sure, costs come down for large countries that have several agricultural zones so that harvests may not fail across the whole country. In practice, only countries such as China, India and Indonesia, all large with many agricultural zones, have been able to become independent of international trade in cereals.

3.2 Trading, but dampening spikes

3.2.1. Macroeconomic measures

The ***macroeconomic policy*** of raising exchange rates and interest rates is simply not an option in the toolbox of many low income countries for responding to a food price spike. As Lustig (2009) describes, it is excessive to use the "heavy artillery" of macro-economic management for the purposes of dampening grain import costs.

3.2.2 Border measures

Few developing countries have much scope for using border measures to dampen international price movements, other than those with significant exports where export restrictions can be effective. The evidence suggests that capacity for using border measures to dampen price spikes is mixed. ***Import liberalisation*** has little room to manoeuvre in most cases. ***Export restrictions*** may have more effect, but will tend to exacerbate the global problem, and can have serious negative impacts on farmers' incentives nationally.

Import facilitation takes two main forms – either state or private food import financing. In the first, governments may seek additional funds from a multilateral to compensate for unexpected increases in food prices. In the second, the state may provide additional funds to private importers who need credit to be able to import at higher prices. Both facilitate increased supply to the country, and should dampen price rises for locals, though they cannot reverse price rises that have already occurred.

It is possible to hedge the cost of food imports on international commodity exchanges, using either ***futures or options***. Hedging can potentially save import bills[8] for relatively modest premia. Yet these instruments are rarely used in the developing world, either by state agencies or private traders. Partly that arises from the technical demands, but mostly it seems to be because they are unfamiliar, can be construed as gambling — rather than the insurance to which they more properly analogous, and thus a political liability.

[7] Possibly at the expense of other sectors also associated with food security, for example health and education.

[8] For example, Egypt imported an estimated 7M tonnes of wheat in 2007-08, just when wheat prices were skyrocketing. According to World Bank calculations (World Bank / FAO / IFAD 2009) the country might have saved over US$600M had they bought options.

Supplies may also be secured by ***barter*** or other forms of special government to government deals[9], but these tend to fall into the category of 'last resort' rather than being strategies a country might want to consider in a strategy for preparing for international price spikes.

3.2.3 Market measures

Even if higher world prices cannot be mitigated at the border, they may be countered by measures to influence domestic markets. Those with the most potential to dampen prices are ***release of stocks***, ***use of subsidies***, and under certain conditions ***price controls by fiat***. Stocks and subsidies, although potentially highly effective in stemming local prices rises, are expensive. Price controls, in comparison, may not cost anything, but can be very hard to enforce, and may well deter local production. Some form of rationing will probably be needed, with attendant political administrative difficulties.

Other market measures include: ***removing food or fuel taxes,*** but in many countries such taxes are often small, so can only have a marginal effect; and ***Restricting private stockholding*** — a measure that may not be effective, since hoarding may not be the problem, and which is otherwise potentially harmful, as it hurts incentives for private parties to stock in the future and puts a heavy onus on government to hold and manage high stock levels[10].

An intriguing option is ***diverting grains destined for feed or fuel to food.*** This, however, is only an option where substantial proportions of grain go to livestock or distilleries, and this only applies in middle income countries, and not low income countries where people are more likely to be vulnerable to price spikes. For middle income countries, however it is an option that deserves exploring in terms of how it might be made operational.

Production response programmes can lower prices: the question is just how quickly they can be made to work — they can be relatively fast in countries that have two or more harvests a year; and what needs to be done to get the response. The latter may require state agencies facilitating access to inputs or offering an attractive guaranteed price to farmers; both of which may be expensive and administratively demanding.

3.3 Conclusions about dampening spikes on a national level

In sum, while there may be in theory many things governments may do to dampen transmission of international price rises to domestic markets, there are few easy options — and especially for low income countries, that lack both funds and administrative capacity to carry out many of these measures.

Some measures can be relatively simple, rapid and quite effective in dampening prices: banning exports in countries with surpluses; releasing stocks when sufficient public stocks are held; and, subsidising food prices. But the latter two are costly, while the first harms local farmers and the rest of the world.

[9] For example, Sierra Leone and a number of low income food deficit countries secured rice from India in special deals, at a time when India had banned or restricted exports with high floor prices (for more detail see Wiggins et al., forthcoming)

[10] Wright (2009) wrote, "Much of the stabilizing benefits of a price-band scheme are furnished by competitive private storage in a free market in which there is no fear of punitive measures against "hoarding" or other perceived offenses."

Moreover, many measures would only be effective under conditions that are not common in low income countries, those with the largest shares of population most vulnerable to higher food prices. Most LICs have small stocks, low tariffs on imported food, low taxes on staples, and little administrative capacity to intervene in food markets. In short, they have little room for manoeuvre.

4. Mitigating impacts of food price rises on the poor

Only a small minority of developing countries, most notably China, India and Indonesia, succeeded in keeping staple food prices low on domestic markets during the world food price spike. Many poorer countries were unable to keep prices down, even if they were in some cases able to cushion the full impact of international price rises by using measures reviewed in the previous chapter (Demeke et al. 2008).

This chapter thus focuses on what can be done to help poor and vulnerable households to cope with rising food prices. The main instruments available are: cash and food transfers, including employment on public works (Grosh et al. 2008); and, since this responds to a food crisis, home gardens for poor people to grow more of their own food, mainly by providing free or subsidised inputs such as seeds. Whatever measures are used, the challenges include identifying and correctly targeting areas and groups in need and designing appropriate responses in rapidly-changing situations.

Before reviewing potential public responses, the experience of the price spike on the poor is reviewed because understanding the ways in which high food prices can affect the poor helps when designing effective surveillance and policy responses.

4.1. Lessons from the 2007-9 price spike[11]

4.1.1. How did the price spike affect the poor?

Rising food prices hit most poor households hard. The amount of grain that could be bought for a casual labourer's daily wage declined by more than half in countries as diverse as Guinea and Afghanistan. Terms of trade for pastoralists selling animals also declined dramatically, for example in Kenya and Djibouti. Many cash crop producers, such as cotton farmers in West Africa and tea workers in Bangladesh, also saw their purchasing power decline as world prices of these commodities did not keep up with food prices. Petty food traders and traditional brewers (in Africa, many of these are poor women) were caught in a credit crunch: their normal wholesalers were less able than usual to provide grain on credit, while the price of wholesale grain rose faster than they could pass on in higher retail prices to their poor customers. Some women reportedly gave up trading and took to arduous and low-paid occupations such as breaking stones.

Higher food prices probably only benefited the minority of small farmers who produce food surpluses in most developing countries. Agricultural wages did not rise fully to meet food price rises in the studies reviewed, with some exceptions such as Liberia, owing to post-war agricultural recovery, and rice-growing areas of Asia.

[11] This section draws heavily from the review of impacts by Compton et al (forthcoming) and the review of country-level policy responses in Wiggins et al (forthcoming), where more detail and references can be found. A caveat: rigorous research studies and evaluations are thin on the ground, and further research would be useful to confirm provisional conclusions.

A few professions such as miners, as well as producers of certain cash crops such as sugarcane, were less affected, due to simultaneous soaring world prices of their commodities. Many salaried employees — including civil servants, who form a large fraction of the salaried workforce in some countries — were also partly protected as many were able to negotiate for improved wages to compensate for the price rises. However, the overall picture is of a major economic shock which increased poverty and inequality.

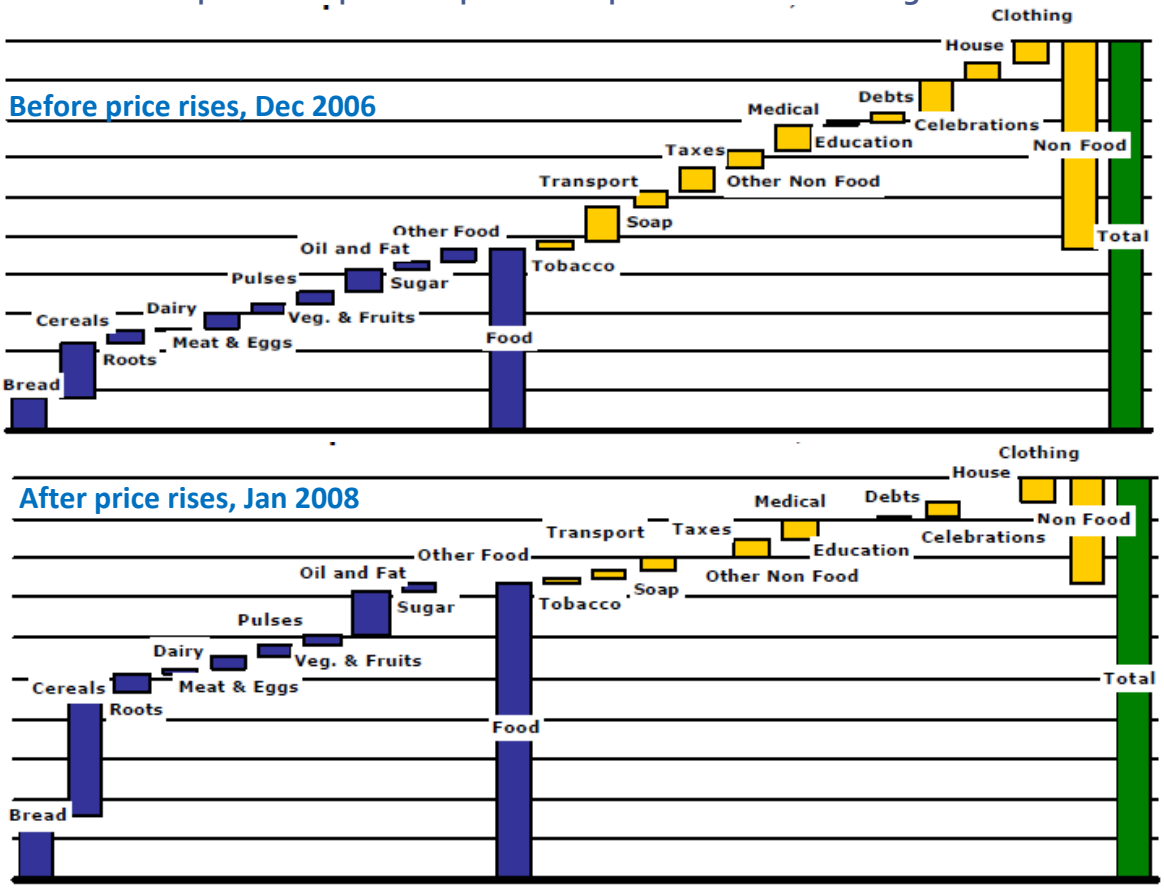
Households' overall purchasing power dropped rapidly. In poor households where 40% or more of the budget is normally spent on food, a rise in food prices has an effect similar to an overall drop in purchasing power. Figure 4.1 depicts an example from Afghanistan,[12] showing how:

> 'The proportion of expenditures on food has greatly increased, particularly for cereals, bread and oil. There has consequently been a reduction in expenditures on non-food items particular on transport and taxes, debts and housing rents are not paid at all. The level of debt is thus assumed to have sharply increased. (Forsén & Subran 2008)

Surveys in 2008 found that a large majority of households in nearly all developing countries ranked high food prices as the largest economic shock to household income — more serious than rising fuel prices, illness, or job loss, for example.

[12] Note that the authors did not even observe the worst of the food price rises, since the second survey (during the price spike) took place in January 2008 when wheat prices had doubled from their Dec 2006 levels. According to prices from GIEWS (originally WFP Afghanistan), they went on to increase by the same amount again over the next few months, peaking in May at levels 200% higher than in 2006, remained high (at or above January 2008 levels) into the first few months of 2009.

Figure 4.1 Food price rises reduced purchasing power. Average percentage composition of household expenditure pre- and post- food price rises in urban Afghanistan



Source: Forsén & Subran 2008.

Poor people reacted to food price rises rationally, cutting spending and protecting household assets (including human capital, such as education) wherever possible. Nevertheless the food price spike is likely to have led to increased inequity, and potentially-irreversible increases in poverty for a minority of poor families. Nearly all households cut back on a wide range of expenditure items (see Figure 4.1 above) and ate lower-quality, and generally less nutritious, food. Many poor households went hungry. Many urban households consumed more street food (cheaper than home-cooked, due to economies of scale).

However responses varied by locality, and there was no standard sequence of 'coping'. Children's education, for example, was protected more in some areas than in others, yet some studies found very high (over 50%) school drop-out rates. Whether children are able to return to school later or not depends on the school system as well as the job market, gender and family circumstances; previous studies have found that a significant number of children never return to school, affecting their lifetime prospects. Some 1–4% of households in about half the country studies reviewed reported selling or mortgaging productive assets, including land, to buy food: a small minority but which still represents many thousands of people. Short-term attempts to 'cope' with price rises may have led to an increase in long-lasting poverty for a substantial minority of households and individual

children. However, more detailed reporting would have been useful to understand the poverty and policy implications better.[13]

Little information was collected on gender-specific impacts of the crisis. Price rises reportedly took a toll on women's time: for example in going further to shop for cheaper food, extra preparation and cooking time for cheaper foods such as root crops, and in some cases women taking on extra work to make ends meet. In some areas girls' education may have been affected more than boys: for example one study in Bangladesh (Raihan 2009) covering four rural secondary schools found that girls' enrolment rates fell by nearly twice as much as boys (by 10.7% and 5.6% respectively) in 2008 compared to 2007. In another Bangladesh study (Sulaiman et al. 2009), the percentage of wasted (malnourished) girls reportedly increased more than the percentage of wasted boys — but it is not clear if this gender difference was statistically significant, and the picture is further confused because the reported percentage of wasted boys was higher than that of girls before the rise in food prices.

A minority of households (under 10% in most surveys reviewed) reported selling assets to buy food. In some cases — such as the sale of jewellery, recorded from Cambodia — these assets are owned by women, so their sale may have gender implications (Quisumbing et al. 2008); however more research would be useful, for example to find out whether any later recovery of household finances leads to assets being restored equally across the family.

In the poorest areas and those most dependent on a single main staple food, food price rises had significant impacts on nutrition, particularly in infants and small children. The few available high-quality nutritional surveys which have comparable data before and after the food price rises (e.g. Bangladesh, Mauritania, Cambodia) showed very significant rises (of the order of 50%) in numbers of underweight, wasted and in some cases stunted children,[14] indicating serious long term impacts on these children's future health and potential.

The major factor in increasing child malnutrition was probably that many households reported making savings by cutting back on high-nutrient complementary (weaning) foods for infants and small children, which are critical for growth and development, and instead feeding children from the family pot. At the same time there was a general decrease in the overall diversity of household diets, with less expenditure on animal products, fruit and vegetables. Forced cuts in expenditure on healthcare, together with reduced time for childcare, and in a few cases reductions in the use of soap, water (which is purchased by many poor urban families) and footwear[15] , may also have

[13] This point is expanded in Compton et al. (forthcoming). Most studies reviewed neither recorded coping strategies in sufficient detail to understand their implications fully, nor followed standard methods that would have allowed better comparisons across locations.

[14] Wasting is an indicator of acute malnutrition, defined as weight for height below minus two standard deviations from the median weight for height of the standard reference population. Stunting, an indicator of chronic undernutrition, is defined as height for age below minus two standard deviations from the median height for age of the standard reference population. Stunting is an important predictor of child development [and] associated with reduced school outcomes (UNICEF 2009b).

[15] Sandals protect children from hookworms which enter through the skin and attach to the guts, leading to malabsorption and anaemia.

contributed to lower hygiene, more infections, and hence malnutrition — although no studies could be located which directly investigated this in the context of the food price spike[16].

No decreases in maternal weight for pregnant women and mothers were reported during this crisis, in contrast to several previous international economic crises. However, there is a long lag before reduced micronutrient intake translates into weight loss, or into serious health conditions such as anaemia and increased maternal deaths. Despite early pleas for improved micronutrient surveillance during the food price crisis (Klotz et al. 2008) no direct measurements of this can be found. However there is ample evidence from surveys that dietary diversity declined worldwide when food prices rose, and research has established clear links between household dietary diversity scores and micronutrient intake in women and young children (Arimond & et al. 2010); suggesting that higher food prices probably led to widespread increased micronutrient malnutrition.

There is insufficient reported information on whether poor consumer households resorted to growing more of their own food. This is important, as many national and international responses to the food crisis focused on increasing production. Although most of these programmes were related to stimulating greater food production by farmers, in many countries support was also given to poor net consumer households to 'grow their own', for example through providing them with seeds and tools, or vouchers for agricultural inputs. Very few households in the studies reviewed reported 'planting more food crops' as a coping strategy for increased prices — although this may simply be because they didn't think to mention it to interviewers.

4.1.2. What sources of support did poor people get following food price rises?

Local social networks were of limited help. In most poor countries, people depend on family, neighbours, friends and religious organisations to 'borrow' food or cash in time of need. Children may be sent to a neighbour's house to eat, or to the countryside to stay with relatives who have a bit more food. However, social solidarity was no panacea in a time of rising food prices which hit everyone's pocket. Many poor households reported calling on others' help, but relatively infrequently[17], and they often also reported that the help they had given to others had decreased, as their means were more limited. There is little recorded information about local impact of support from religious organisations, but some of them did provide important help to the poor; however in some cases this was reported to be limited to members.

Most poor households in poor countries did not receive any direct help from the state or international agencies during the period of highest food prices. In a few countries which already had social protection programmes in place (e.g. cash transfers and employment programmes), such as Mexico, Brazil, India, Indonesia, Bangladesh and Ethiopia, these programmes were geared up (with varying degrees of speed and coverage) to meet the increasing needs. In some countries, such as Bangladesh, Indonesia and the Philippines, a substantial minority were able to buy subsidised government grain. But in many countries, including across most of Sub-Saharan Africa, such benefits

[16] One survey in Cambodia did record increased diarrhoea levels in small children along with undernutrition, but sorting out cause and effect is notoriously difficult.

[17] Compton et al. (forthcoming) discusses the difficulties in interpretation. Many surveys say that around a third or more of poor households reported borrowing food or cash from relatives or friends, but in the few surveys where frequency is asked, numbers drop. For example in a 2008 survey in urban Haiti, 18% of the most food-insecure households people reported borrowing food/cash 'rarely', but only 8% 'often', and 65% said that they 'never' asked for help from their social networks (Haiti CNSA 2008).

only reached a small fraction of people in need. Most countries simply were not able to put in place or scale up safety net programmes at the speed required.

A large number of poor people depended on private sector credit and (to a much lesser extent) savings to buy food over the main crisis period. Many of the surveys reviewed (e.g. Burundi, Cambodia, rural Nepal, the Philippines and Yemen) reported that well over half of poor households used credit as a major coping mechanism. Sources of credit varied: while some families managed to get food on credit from traders — many of whom who were themselves struggling with cash flow — it was more common to take a cash loan from either a microfinance agency, where available, or a local money lender. In places where financial systems were poorly developed and uncompetitive, this resulted in high interest rates and increased indebtedness. In contrast, where financial systems for the poor function well, they can be a vital support system in helping households cope with temporary shocks such as high prices (Cohen & Sebstad 2001).

4.2 Public responses to food price rises

Governments reacted swiftly to rising food prices, although as will be seen there were limits to what many could achieve, especially those that did not have widespread safety nets already in place.. Nearly three quarters of countries in the sample of 98 reviewed by Wiggins et al. (forthcoming 2010) reported introducing or scaling up one or more of the following safety nets in 2008:

- Cash transfers — nearly half of the sampled countries already had cash transfer programmes in place and these were also scaled up as much as possible. Some countries, for example Bolivia (Cuesta & Jaramillo 2009), started up new national cash transfer programmes;
- Food stamps or rations;
- Sales of subsidised food to targeted households or in poor neighbourhoods;
- Food for Work public works employment;
- School feeding;
- Supplementary feeding for infants and mothers; and,
- Gardens, providing seeds, tools, to allow households to grow more food.

International agencies provided food (both general rations and high-nutrient foods for vulnerable groups) — three quarters of these countries received support from the World Food Programme (WFP), home gardening inputs and direct financial support and technical advice for many social transfer programmes, as well as wider government budget support which funded such programmes indirectly (ALNAP 2008 Annex 6; IMF 2008; UN High Level Task Force on the Global Food Security Crisis 2008, 2009).

These were not the only options for protecting those vulnerable to greatly increased staple food prices: Table 4.2 includes these and other potential options.

Table 4.2 Options for mitigating effects of higher food prices on vulnerable groups

Measure proposed	For	Against
Compensating transfers to vulnerable:		
• Cash transfers	Flexible, gives recipients choice Can be simple to administer	Need to be targeted Some may use funds unwisely
• Wage increases to public sector staff	Flexible, gives recipients choice Simple to administer	Only reaches formal workers on public payroll: many of vulnerable in informal jobs
• Additional loans, at low interest	Flexibility of money, recipients have choice	Lending agencies need to be in place Either personal indebtedness, or agencies may incur high rates of bad debt
• Food transfers: rations, subsidised sales	Highly visible form of support	Need to be targeted or rationed Logistically costly, especially for people in more remote areas: food needs storage, transport
• Public works programmes paid in cash, food or both	Can be self-targeting Helps create useful public works	No good for those unable to work Some of the poor and vulnerable may lack time to participate Need list of potential public works ready if programme is to be started or scaled up rapidly
Nutrition:		
• School feeding	Helps protect vulnerable children from hunger Incentive to go to school, may improve learning	Does not reach more vulnerable infants Children from very poor homes who need additional food are less likely to attend school
• Supplementary feeding to infants, mothers	Can be highly effective in protecting the nutrition of the most vulnerable to malnutrition	May be difficult to arrange, unless experienced local organisations are in place Needs to be targeted to those in need
• Micronutrient supplements	Helps protect against often already widespread micronutrient deficiencies	Only deals with micronutrients when protein-calorie nutrition may be endangered
• Home gardens	Facilitates coping, active response May create sustained additions to household incomes	Only useful for those with access to land, and often water Increased demand on labour of women and children, potentially schoolchildren Delays before extra food is produced
Measures to assist coping		
• Facilitating the re-entry of children who have to drop out of school	Limits the long term damage of price shocks	
• Refinancing micro-finance or popular banks to meet additional demand for credit with low interest rates	Meets needs	May encourage indebtedness. Could encourage agencies to make unwise loans

4.2.1. Reaching the vulnerable: targeting

While it is possible to protect everyone against higher food prices by untargeted safety nets, for most developing countries and especially low-income ones, the cost would be too high. Hence for efficiency and economy, measures need targeting to those who would otherwise suffer hardship and long-term damage to their livelihoods or personal capabilities.

Targeting the poor is extremely difficult at the best of times (see Grosh et al. 2008 for a thorough review of targeting). Indeed, a study of 122 social assistance programmes in 48 countries, found that in a quarter of the cases targeting was actually regressive, leading the authors to conclude that “a

random allocation of resources would have provided a greater share of benefits to the poor" (Coady et al. 2004ab).

For many countries, there was no ready mapping in place. Exceptions would be countries with existing targeted safety nets, such as Mexico with its *Oportunidades* conditional cash transfers and Southern African countries that since 2002 have national vulnerability assessment committees (VAC) that monitor the state of food security precisely for purposes of guiding food and other aid to those in need.

In particular, information on vulnerable urban populations was thin in most poor countries. Most existing food security surveillance systems were focused on rural areas, normally the most vulnerable to droughts and poor harvests. In 2008, urban populations were among the first to be affected by rising prices of imported food, although subsequently price rises rapidly affected rural poor net consumers as well. The most vulnerable urban groups — often casual labourers and petty traders —can also be challenging to count and map.

Dependence on a single staple made some groups vulnerable, see Box 4A.

Moreover, there were and are no internationally-agreed methods and indicators for assessment of need and thresholds for action. Different agencies used different methods and thresholds (ALNAP 2008), Box 3; Maxwell et al. 2008). For example, household food consumption and insecurity is measured in different ways by WFP and FAO. This was recognised, and initial meetings to promote harmonisation of methods were held in 2008 (WFP/FAO 2008ab). Some very useful work is also underway on developing proxy indicators: for example correlating dietary diversity scores and nutritional outcomes (Arimond et al. 2010); and devising a universal 'Reduced Coping Strategies Index' that should, when fully calibrated, enable robust comparisons between levels of food insecurity in different locations (Maxwell & Caldwell 2008). However, such indicators were not applied in a systematic and comparable way in the needs assessments carried out in 2008.

Even for countries that had targeted schemes, the food price spike raised the question of identifying at short notice the 'new poor' who due to food price rises may now be newly eligible for support.

Box 4A: Who would be most vulnerable to higher food prices?

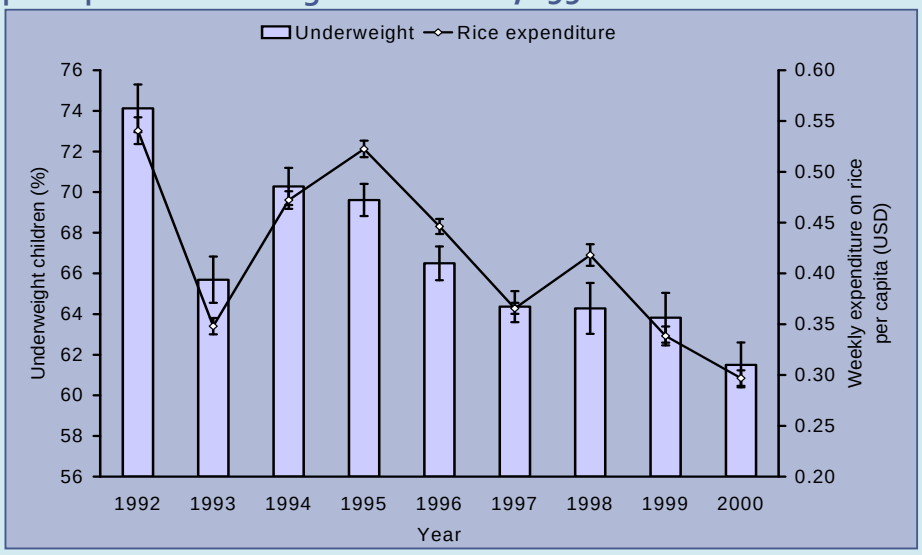
Amongst those on low incomes, who spend large fractions on buying in food, the groups most affected by higher food prices have some predictable characteristics. These include:

- urban and rural groups dependent on imported cereals and their close substitutes, and
- areas and groups highly dependent on a single tradable cereal.

Dependence on a single staple is particularly important: poor populations highly dependent on a basic staple with no easily-accepted substitutes — such as rice in much of Asia, millet in Niger or maize in Zambia or poor parts of Mexico — are highly vulnerable to nutritional impact when prices rise.

In Bangladesh, a long-term study (Torlesse et al. 2003) showed that because households effectively buy their rice first and then all their other food with the money left over, child nutritional levels are inversely linked to rice expenditures (Figure 4A). Graphs from Médecins Sans Frontières clinics in Niger also show child admissions to emergency feeding centres closely following on annual rises in millet prices (ACF-IN/MSF 2009).

Figure 4A Percentage of underweight children and weekly expenditure on rice per capita in rural Bangladesh in June, 1992-2000



Source: Torlesse et al. 2003

Note: Underweight children were those aged 6-59 months with Z-score weight-for-age less than -2 SD.

In contrast, in areas of Uganda or West Africa where populations eat a variety of staples, including locally-produced root crops or cooking bananas, the effects of rising world grain prices were much attenuated. Diversity of producing areas, and having more than one rainy season a year, also help in these cases.

4.2.2. Reaching the vulnerable: preparation and capacity

Both governments of developing countries and international assistance agencies were caught largely unprepared by rapidly-rising world food prices. Few warnings of the likely poverty impact of rising international food prices were given ahead of time, and there appeared to be little linkage between these few isolated warnings and early warning systems linked to international food crises, which were mainly geared up to tracking droughts and natural disasters.

For example, in 2005, a report by the World Bank, together with DFID's Food Group, set out the factors likely to drive up world prices in the near future, and put together a typology of countries

vulnerable to both international and domestic food price rises. However, this prescient report (World Bank 2005) did not appear to lead to any practical contingency planning. Once international food prices started rising rapidly in late 2007/early 2008, and during 2008, at least six separate exercises were carried out by international agencies to identify vulnerable countries for further surveys and international support; not one of these referenced this earlier work.

Few national or international contingency plans were in place for this kind of economic shock. The few contingency funds in place were sometimes overwhelmed by the scale of the food price rises. For example, Ethiopia's Productive Safety Net Programme (PNSP) includes a 20% contingency fund which can be tapped by regional governments in the event of a crisis, but it had already been largely committed by the time food prices rose:

> 'Unfortunately, due to the severity of the crisis and the lower than normal harvest after poor rains, these [contingency funds] had been exhausted by June 2008. The funds were used to support those households suffering from food shortages but who were not enrolled in the PSNP. This made it more difficult for the PSNP to respond to its target group as food deficits emerged. From June 2008 onwards, everyone in need was reliant on humanitarian assistance alone.' (Hobson 2009).

Although FEWSNET had previously proposed a process[18] and a useful manual (FEWS 2000) for contingency planning for food crises, it appears mainly to have been developed with droughts and humanitarian disasters in mind, and is not clear that it was used for the world food price spike.[19] Many countries already have disaster risk reduction plans in place, but economic shocks such as food prices are not normally included.

Few existing social protection systems had clear plans in place for responding to rapidly rising prices. Rising prices present an existing social protection scheme with the issue of whether and how to compensate existing clients of the scheme for their reduced purchasing power when prices rise. Linking scheme benefits to some measure of price inflation is almost unknown outside a few wealthy countries, as it can expose poor governments to unforeseeable and unmanageable calls on their budgets (Grosh et al. 2008). Moreover, food price inflation can vary quite a lot by location, so indexing schemes by national measures such as the consumer price index may result in inequitable outcomes. In 2008, many existing social transfer schemes struggled with these issues.

Some governments managed to make effective and politically acceptable temporary increases in payments. For example, Chile made one-off additional compensation payments to members of four existing schemes, and Mexico made additional payments to recipients of regular social transfer programmes which were then discontinued when food prices went down (Grosh et al. 2008).

Otherwise, in countries with thin food markets, increasing benefits risked driving local inflation up even further. For example the government of Ethiopia raised wages in its existing PNSP cash for work programmes, but faced difficulties in setting fair wage levels in the face of widely differing local inflation rates, while many programme participants wanted to be paid in food rather than cash

[18] http://www.fews.net/ml/en/info/Pages/plancpp.aspx

[19] The contingency plans recommended by OCHA [http://ocha.unog.ch/drptoolkit/PContingencyPlanning.html#a] are also normally focused on natural disasters. ALNAP (2008) reviewed early lessons from the food price crisis and recommended better contingency planning. Several authors (e.g. Alam Iqbal & Haque 2009) have also called on their own countries to put better contingency plans in place.

(Hobson 2009). India's National Rural Employment Guarantee Act (NREGA) currently faces very similar issues.[20]

Plans or no plans, many developing countries lacked capacity to put in place safety net programmes or scale up existing ones. Governments of many poor countries — especially fuel importers already hit by rising world oil prices — did not have the funds to afford massive increases in social programmes.[21]

> 'At the start of the crisis, some countries such as Indonesia, Mexico and Tunisia had a strong fiscal stance and did not face a terms of trade problem. Some had a reasonably good fiscal stance but suffered terms of trade shocks (including Burkina Faso, Ethiopia and Honduras) and/or political crises (including Kenya and Pakistan). Some countries, such as Mongolia and Zambia, had a weak fiscal stance but have experienced favourable terms of trade movements. Finally some countries such as Burundi, Eritrea, Grenada, Haiti, Jamaica and Nepal had weak fiscal positions compounded by terms of trade shocks' (Grosh et al. 2008, citing World Bank calculations).

Moreover, the food price shock showed that it is almost impossible to mount an effective safety net promptly, if there is not already in place an existing one or something very similar. Even Mexico, with a decade of running a conditional cash transfer programme reaching millions of rural households, struggled to scale up by more than a small fraction of the existing effort. Donors may have had the funds, but they could not overcome low national capacity in the short run. Moreover, their response was often delayed.[22]

4.2.3. Specific safety nets

Table 4.1 lists various ways in which vulnerable people can be offered compensating transfers, and some of their merits and drawbacks. All can be useful in particular circumstances; but perhaps the most important point is that is next to impossible to use these in response to a price spike if existing schemes, or something very similar, are not already place.

Of the nutrition interventions, only supplementary feeding offers a complete counter to the potential harm of a price spike; but this again is not that simple to organise unless there is existing experience and capacity. The other interventions offer part responses, although they have merits in addition to those of responding to price spikes.

None of these measures is inexpensive; most of them are administratively demanding, especially if targeting is to be effective.

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[20] http://business.rediff.com/report/2010/mar/15/nrega-should-have-a-coherent-wage-policy.htm

[21] The cost and macroeconomic burden of some of the measures taken by countries in 2008 is reviewed by the IMF (2008). Both the IMF and the World Bank took measures to support country budgets and extend low-cost loans already in place (IMF 2008); however it was also found that some existing financing instruments such as the IMF's Exogenous Shocks Facility [http://www.imf.org/external/np/exr/facts/esf.htm] were inadequate, and new instruments were developed in 2008/9 including the World Bank's Global Food Crisis Response Fund [http://go.worldbank.org/2VMOHRKEY0] and the IMF's Standby Credit Facility [http://www.imf.org/external/np/exr/facts/scf.htm]. It would be useful to review the experience with these, including the effects of any policy conditionality (Molina & Muchhala 2008).

[22] Many international programmes only became active on the ground after world food prices had already started to fall. For example only 6 of 39 country projects listed in the World Bank Global Food Crisis Response Programme — which was by no means the slowest aid response - were signed off before August 2008, and none before the end of May 2008 [http://www.worldbank.org/foodcrisis/pdf/GFRPProjectStatus.pdf]. The EC Food Facility was only approved in December 2008, for implementation over three years [http://ec.europa.eu/europeaid/how/finance/food-facility_en.htm].

Measures in the final category, those to assist coping, apparently were not used that often in response to the 2007/08 price spike. It is not known why: providing support through financial systems may well be a useful option in countries where micro-finance and popular banks have reasonable coverage of vulnerable households.

4.2.4. Conclusions about mitigating impacts of price rises on the poor

Three conclusions stand out from this section:

- Safety nets in response to rising prices are all but impossible to mount to any significant effect if they do not already exist. Hence the risk of price spikes becomes another reason to encourage developing countries to have in place a set of safety nets appropriate to their conditions. These can then be scaled up when price spikes cannot be contained. Donors can overcome shortages of funds, but not of experience and capacity;
- Field studies of the price spike, however, suggest that most poor and vulnerable households shouldered most of the burden of rising prices by their own efforts, although with varying degrees of success in coping and in consequent hardship. There may then be ways to work to enhance the effectiveness of household responses, but that has not necessarily been the first consideration when considering policy; and,
- Information is still lacking on what exactly happened during the food price spike, and on the effectiveness of safety net measures implemented in response. The tendency is for just a few efforts to be well evaluated and disseminated, so that the literature repeatedly mentions some well-known successes — conditional cash transfers in Brazil, Mexico, guaranteed employment in Maharashtra, etc.; but it is not evident how well the many other initiatives have fared.

6. Conclusions and discussion

6.1 Summarising the argument

To recap, the answers to the three questions posed can be summarised as follows:

Can price spikes on world markets be prevented?

Yes, they can: above all by ensuring that stocks held are above a threshold of stocks-to-use, perhaps around 20%. Increasing public stocks to ensure that this threshold is not breached is highly attractive. To do so, however, would be costly, there is the uncertainty over the extent to which private stocks may be drawn down correspondingly, plus uncertainty over exactly what the threshold is and over just how much is ever in stock, and considerable challenges in getting international agreement on sharing costs, physical storage, and rules for use of such stocks. Hence it is difficult to support proposals for increased public grain reserves.

Other measures look to be less effective. There does however remain the intriguing proposal of diverting grains to human from other uses when price spikes threaten that in principle offers a more economical way of deploying what are in effect hidden grain reserves. This proposal, however, has yet to be developed in detail.

Can countries insulate their markets from the effects of higher world prices?

In theory there are many things governments may do to dampen transmission of international price rises to domestic markets. Some are relatively simple, rapid and quite effective: banning exports in countries with surpluses; releasing stocks when sufficient public stocks are held; and, subsidising food prices. But the latter two are costly, while the first harms local farmers and the rest of the world.

Moreover, many measures would only be effective under conditions that are not common in low income countries (LIC), where many of those most vulnerable to higher food prices live. Most LICs have small stocks, low tariffs on imported food, low taxes on staples, and little administrative capacity to intervene in food markets. In short, they have little room for manoeuvre.

How can the poor and vulnerable be protected from the consequences of higher food prices?

Safety nets can protect vulnerable people, but at a cost. Moreover, safety nets are all but impossible to mount to any significant effect if they do not already exist.

Coverage is often limited: hence field studies of the price spike suggest that most poor and vulnerable households shouldered most of the burden of rising prices by their own efforts, although with varying degrees of success in coping and in consequent hardship.

6.2 Discussion of implications

Four overall points stand out, as follows.

First, the options open to developing countries to deal with higher price on world markets are markedly different for most middle-income compared to low-income countries. In the former, governments often have capacity, both financial and administrative, to mitigate substantially price rises on domestic markets. Whether or not they do so depends primarily on politics: some regimes depend on stable food prices, amongst other things, for their legitimacy —China, Indonesia under Suharto, would be examples; while in others, typically democracies, stable food prices matter less, since people do not necessarily expect the state to protect them from all market fluctuations — although even here, governments probably set considerable store on ensuring that spikes do not occur on local markets, even if lesser fluctuations are accepted.

For low-income countries (LIC), however, the options are limited. Even then, almost everything that can be done to counter a price spike is costly and administratively demanding: beyond the means of many LICS. Yet it is in these countries where the share of the population vulnerable to price spikes is highest.

Given the lack of room for manoeuvre in these countries, preventing price spikes on world markets becomes all the more important. Yet this is easier said than done. The most effective and proven option is carrying more stocks: but this will be difficult without high cost and some demanding conditions for international co-ordination and governance of enlarged public stocks. This leads to the second point.

Second, how much it is worth — in funds and political capital — to head off spikes on international markets depends on how great the risk of these is. Put otherwise, was the spike of 2007/08 a one-in-

thirty-year event, the result of a 'perfect storm' resulting from a highly unusual constellation of factors; or was it confirmation that fundamental changes are taking place in world food markets that mean that conditions that threaten spikes will happen more frequently in the future? This cannot be answered beyond doubt. Yet, that said, the many factors that led to the spice spike — any one of which had it been absent would probably have prevented it — provide more support for seeing conditions leading to price spikes as rare rather than common.

This implies that whatever needs to be done to mitigate spikes on world markets, will not be needed most of the time. The ideal mechanism then is one that can lie dormant, and be brought into play as and when needed. This makes the option of diverting grains from animal feed and industrial use all the more attractive. Unlike enhanced public stocks that would have to be kept year upon year whether needed or not, diversion would only be necessary at unusual times when price spikes threaten. There is thus a need for more detailed work to explore whether this option could work and what would be the early warnings that would trigger its operation.

Frequency of hazard is not the only consideration, there is also severity; which brings in the next point.

Third, although the price spike has undoubtedly led to much distress — with estimates that the numbers of hungry in the world rose from 800M to 1,000M — a sense of proportion is needed when considering what needs to be done. Some of the measures that are being proposed will do relatively little to reduce hunger. The 800M who were hungry before the spike will presumably not see their nutrition improved if world prices, or even national and local prices, could be stabilised. They are hungry not so much because prices fluctuate, but because they are poor and unable to access food, and (especially for infants) often sick and unable to make good use of it.

While some of the things that can address price spikes will help reduce poverty as well, not all measures proposed have a dual purpose. A crusade to prevent food prices from fluctuating could miss the point, potentially using scarce funds, administrative capacity and political capital unwisely.

Fourth, the common lament of analysts is as pertinent to this case as to others: more data and evidence would help resolve controversies and design policy with more confidence. Information is still lacking on way exactly happened during the food price spike, and on the effectiveness of safety net measures implemented in response.[23] Very small percentages of the resources granted to deal with the consequences of the spike, can pay for all the evaluations needed.

6.3 Policy recommendations

And so to the nub of this paper: in the light of the evidence and discussions what should development actors — governments, their donor partners, NGOs — be doing?

Internationally, three specific actions can be recommended: collecting and publishing more and better data on stocks, focusing on the relatively few countries that hold most of the world's reserves; funding WFP to create a small emergency stock to prevent breaks in supply of

[23] Just a few efforts tend to be well evaluated and disseminated, so that the literature repeatedly mentions some well-known successes — conditional cash transfers in Brazil, Mexico, guaranteed employment in Maharashtra, etc.; but it is not evident how well the many other initiatives in other locations have fared.

humanitarian food aid when prices rises; and commissioning a detailed study of the diversion of grains from livestock and industrial use, including the mechanisms necessary, costs and benefits.

This is a fairly modest agenda, reflecting the difficulties surrounding other options. In addition, promoting agriculture to raise the rate of increase of cereals production is necessary to meet future demand, can help reduce rural poverty, and would encourage more stocks to be held. Encouraging more regional trade can reduce regional price variations, particularly when rainfall patterns are not correlated across different zones in the region. A prime example here is integrating the grain markets of Southern and Eastern Africa, where rains in equatorial zones are not related to those in zones closer to the Tropics.

Nationally, the discouraging conclusion that there is little room for manoeuvre for low-income countries most vulnerable to price spikes on world markets, needs some qualification. Some options are better than others; hence the following recommendations stand out:

- In terms of early preparedness, try to incorporate economic shocks and price spike scenarios into Disaster Risk Reduction strategies
- Where there is scope for lowering import tariffs and sales taxes, do so. Appeal to donors and IMF to make up the temporary revenue losses;
- Use import financing, such as the IMF's exogenous shocks facility, to ensure that higher prices do not prevent supplies being procured;
- Export restrictions may well be effective, but the disincentive to domestic producers is a major drawback, as is the potential for driving world prices still higher;
- Any kind of subsidy on food prices will be expensive, but if chosen, target to those who really will suffer hardship. Subsidising less preferred ('inferior') foods that are unlikely to attract the better-off no matter how cheap, or distributing ration cards may be ways to do this;
- Look to support the coping strategies of the vulnerable. At very least make sure that measures taken do not impede individual and household reactions. Where, for example, households are taking out emergency loans, channelling additional funds through micro-finance agencies or banks that reach the poor, can help keep interest rates down and meet the demand;
- Safety nets can only be expanded or intensified in times of price spikes if they are already in place. This is yet another reason to have safety nets appropriate to domestic conditions. These can then be scaled up when price spikes cannot be contained. Donors can overcome shortages of funds, but not of experience and capacity; and,
- Most safety nets deployed to counter the effects of the spike focused on compensating transfers to households, and to a lesser extent, in nutrition. Interventions in education, health care and financial systems — all areas affected by the spike — deserved more consideration.

If these are things to do, attempts to control the market, by setting maximum prices or forcing the release of private stocks, do not always work and risk alienating private trade and deterring production; and hence need to be used with caution, if at all.

Table 6.1: Recommended measures in summary

Measure	Measures specific to spikes	Measures that reduce risks of spikes but which also have other aims
Can spikes on world markets be prevented? **International actions**	Collect and publish more accurate information on grain stocks. Focus on the twenty or so countries that hold most of the world's grain stocks Work to incorporate food price shocks into Disaster Risk Reduction strategies Provide resources to WFP to hold an emergency reserve of 300–500kt of cereals to prevent disruptions to humanitarian supplies when international prices rise Commission detailed study of the potential for diversion of grains from animal feed and industrial use, and how this might work	Promote agricultural development to raise growth rate of cereals production Encourage freer trade in cereals regionally
Can transmission from world to domestic markets be dampened? **National actions**	Lower import tariffs and sales taxes when possible. Appeal to donors and IMF to make up revenue losses Subsidies on food prices will be expensive, but if chosen, target to those who really will suffer hardship — either by subsidising inferior foods, or introducing a ration card to vulnerable Resist temptations to control prices by fiat, force sale of private stocks, or to restrict food exports: the risk of taking away incentives to domestic farmers is too great.	As above: • Promote national agricultural development where there is capacity to expand at reasonable cost • Look to exploit the gains from regional trade with neighbouring countries
Can the vulnerable be protected? **National actions**	Look to support the coping of the vulnerable. At very least make sure that measures taken do not impede individual and household reactions. Scale up existing safety nets. Consider, in addition to compensating transfers and nutrition, actions in education, health and finance	Have safety nets already in place so that they can be expanded and scaled up as and when needed

References

Abbott, P. 2009. Development Dimensions of High Food Prices. OECD / Purdue University. Available at: http://www.oecd.org/dataoecd/19/41/42972908.pdf

ACF-IN/MSF, 2009.*One Crisis May Hide Another Food Price Crisis Masked Deadly Child Malnutrition. A Briefing Paper by Action Contre la Faim and Médecins sans Frontières on the occasion of the UN High Level Meeting on Food Security for All*, Available at: http://www.docstoc.com/docs/19848232/One-Crisis-May-Hide-Another-Food-Price-Crisis-Masked-Deadly-Child [Accessed March 6, 2010].

AfDB. Jan 2002. *Guidelines for the Use of Risk Management Products*. African Development Bank.

Ahmed, Z. & Camilla Nestor, 2009. Elevated Food Prices — Impact on Microfinance Clients. *MICROBANKING BULLETIN, ISSUE 18, SPRING 2009*, 6-8.

AlamIqbal, B. & Haque, S., 2009.Indian Food Crisis: Worst Is Not over. *World Applied Sciences Journal*, 7(8), 1065-1070.

Alderman, H. & Lindert, K., 1998.The Potential and Limitations of Self-Targeted Food Subsidies. *World Bank Res Obs*, 13(2), 213-229.

ALNAP, 2008.*The Global Food Price Crisis: Lessons and Ideas for Relief Planners and Managers*, Active Learning Network for Accountability and Performance in Humanitarian Action (ALNAP). Available at: http://www.alnap.org/pool/files/alnaplessonsfoodpricecrisis.pdf [Accessed April 16, 2010].

Anderson, K; Masters, W.A.; Kurzweil, M.; & Valenzuela, E. Dec 2008. *How far has Africa come in reducing its anti-agricultural policy bias?* University of Adelaide, Working Paper Series No 0066.

Arimond, M. & et al., 2010.*Dietary Diversity as a Measure of the Micronutrient Adequacy of Women's Diets in Resource-Poor Areas: Summary of Results from Five Sites.*, Available at: http://www.fantaproject.org/publications/wddp_countries2009.shtml.

Bhutta, Z.A. et al., 2008. What works? Interventions for maternal and child undernutrition and survival .*The Lancet*, 371(9610), 417-440.

Bryld, E., 2003. Potentials, problems, and policy implications for urban agriculture in developing countries. *Agriculture and Human Values*, 20(1), 79-86.

Clay, E.J. 2003. Responding to Change: WFP and the Global Food Aid System. Development Policy Review 21 (5-6): 697-709

Clay, E.J. July 2010. A Future Food Aid or Food Assistance Convention? ODI Background Paper on Food Aid No. 6

Coady, D., Grosh, M.E. & Hoddinott, J., 2004a.*Targeting of transfers in developing countries: Review of lessons and Experience*, World Bank Publications.

Coady, D.P., Grosh, M. & Hoddinott, J., 2004b.Targeting Outcomes Redux. *World Bank Research Observer, Vol. 19, No. 1, pp. 61-85, Spring 2004.* Available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=873729 [Accessed February 18, 2010].

Cohen, M. & Sebstad, J., 2001.*CAN MICROFINANCE REDUCE THE VULNERABILITY OF CLIENTS AND THEIR HOUSEHOLDS?*, World Bank. Available at: http://siteresources.worldbank.org/INTPOVERTY/Resources/WDR/stiglitz/Cohen.pdf [Accessed April 19, 2010].

Collins, S., 2009.Improving access to RUF [Ready to Use Foods]. Available at: http://www.fantaproject.org/downloads/pdfs/D3.S8.Collins.pdf.

Cotula, L. March 2010. *Deals can be good news when not made behind closed doors*. The Observer.http://www.guardian.co.uk/environment/2010/mar/07/africa-land-grab-food-water

Cuesta, J. & Jaramillo, F., 2009.Taxonomy of Causes, Impacts and Policy Responses to the Food Price Crisis in the Andean Region. Available at: http://idbdocs.iadb.org/wsdocs/getdocument.aspx?docnum=1936582 [Accessed February 4, 2010].

Dana, J; Gilbert, C.L. & Shim, E. 2006.*Hedging grain Price risk in the SADC: Case studies of Malawi and Zambia*. Food Policy 31: 357– 371.

Deb, U; Hossain, M & Jones, S. 2009.*BIDS Policy Brief Number 0905*.May 2009, Dhaka.
Demeke, M; Pangrazio, G; Maetz, M. Dec 2008. Country responses to the food security crisis: Nature and preliminary implications of the policies pursued. FAO ISFP. Online: http://www.fao.org/fileadmin/user_upload/ISFP/pdf_for_site_Country_Response_to_the_Food_Security.pdf
Dorosh, P., Ninno, C.D. & Sahn, D.E., 1994.*FOOD AID AND POVERTY ALLEVIATION IN MOZAMBIQUE: THE POTENTIAL FOR SELF-TARGETING WITH YELLOW MAIZE*, Available at: http://www.cfnpp.cornell.edu/images/wp50.pdf [Accessed April 19, 2010].
Duflos, E. & Gähwiler, B., 2008. Impact and Implications of the Food Crisis on Microfinance: CGAP Survey of 45 Leading MFIs. *CGAP*. Available at: http://www.microfinancegateway.org/gm/document-1.9.31226/55897.pdf [Accessed March 31, 2010].
FAO, 2009.*The State of Agricultural Commodity Markets 2009: High food prices and the food crisis - experiences and lessons learned*. Food and Agriculture Organisation of the United Nations. Available at: ftp://ftp.fao.org/docrep/fao/012/i0854e/i0854e.pdf.
FEWS, 2000. *FRAMEWORK FOR FOOD CRISIS CONTINGENCY PLANNING and RESPONSE*, Famine Early Warning System. Available at: http://www.reliefweb.int/rw/lib.nsf/db900sid/LHON-64GJME/$file/FEWS_Framework_for_food_crisis_July_2000.pdf?openelement [Accessed April 15, 2010].
Forsén, Y. &Subran, L., 2008.*Wheat price increase and urban programming in Afghanistan, January 2008: Rapid assessment mission report for WFP*, World Food Programme Afghanistan. Available at: http://documents.wfp.org/stellent/groups/public/documents/ena/wfp179713.pdf [Accessed March 2, 2010].
Galtier, F. Nov 2009. *How to manage food price instability in developing countries?* CIRAD/UMR MOISA, Montpellier.
Grosh, M. et al., 2008.*For Protection and Promotion: The Design and Implementation of Effective Safety Nets* illustrated edition., World Bank Publications.
Hadley, S., 2009. Seasonality and access to education. Institute of Development Studies, University of Sussex, UK. Available at: http://event.future-agricultures.org/index.php?option=com_docman&task=doc_download&gid=37&Itemid=44.
Haiti CNSA, 2008. Haiti: Impact de la crise alimentaire sur les populations urbaines de Port-au-Prince. Available at: http://documents.wfp.org/stellent/groups/public/documents/ena/wfp201129.pdf [Accessed February 25, 2010].
Headey, D.; Malaiyandi, S; Fan, S. August 2009. Navigating the Perfect Storm: Reflections on the Food, Energy, and Financial Crises. IFPRI Discussion Paper. Washington DC.
Hobson, M., 2009.The food price crisis and its impact on the Ethiopian Productive Safety Net Programme in 2008.*Humanitarian Exchange Magazine*, (42). Available at: http://www.odihpn.org/report.asp?id=2997 [Accessed April 16, 2010].
IMF, 2008a.*Food and Fuel Prices—Recent Developments, Macroeconomic Impact, and Policy Responses*. Washington D.C.
IMF, 2008b.*Food and Fuel Prices—Recent Developments, Macroeconomic Impacts, and Policy Responses: An Update*. Washington DC. Sep 19, 2008
IMF 2009.*Factsheet: The Poverty Reduction and Growth Facility (PRGF)*. July 31, 2009. http://www.imf.org/external/np/exr/facts/prgf.htm
IMF 2010a.*Factsheet: IMF Standby Credit Facility*. Jan 11, 2010. http://www.imf.org/external/np/exr/facts/scf.htm
IMF 2010b.*Impact of High Food and Fuel Prices on Developing Countries—Frequently Asked Questions*. Last updated Feb 11, 2010. http://www.imf.org/external/np/exr/faq/ffpfaqs.htm
IMF 2010c.*Factsheet: The Exogenous Shocks Facility – High Access Component (ESF-HAC)*. March 25, 2010. http://www.imf.org/external/np/exr/facts/esf.htm

Ivanic, Marcos, Will Martin, Aaditya Mattoo and Arvind Subramanian (2008) *"Likely Consequences of Attempted Price Insulation in the Global Agricultural Markets,"* mimeo, World Bank.

Jayne, T.S.; Chapoto, A; Minde, I & Donovan, C. 2008. The 2008/09 food price and food security situation in Eastern and Southern Africa: Implications for immediate and longer run responses. MSU International Development Working Paper No. 97.

Klotz, C. et al., 2008. Nutrition in the Perfect Storm: Why Micronutrient Malnutrition will be a Widespread Health Consequence of High Food Prices. *Sight and Life*, (2/2008), 6-13.

Lustig, N. March 2009. Coping with Rising Food Prices: Policy Dilemmas in the Developing World.CGD Working Paper Number 164. CGD, Washington

Lynton-Evans, J. 1997. Strategic grain reserves—Guidelines for their establishment, management and operation. FAO. Agricultural Services Bulletin 126.

Makhotla, L. & Hendriks, S., 2004. Do home gardens improve the nutrition of rural pre-schoolers in Lesotho? - Development Southern Africa. *Development Southern Africa*, 21(3), 575 - 581.

Mascie-Taylor, N. 2010.*Drivers of Undernutrition and Hunger in South Asia*. Presentation to the Food Security in South Asia Seminar at The Humanitarian Centre, University of Cambridge, Feb 27th, 2010

Maxwell, D. & Caldwell, R., 2008.*The Coping Strategies Index: A tool for rapid measurement of household food security and the impact of food aid programs in humanitarian emergencies*, CSI Field Methods Manual, CARE and World Food Programme.2nd Edition. Available at: http://documents.wfp.org/stellent/groups/public/documents/manual_guide_proced/wfp211058.pdf [Accessed March 2, 2010].

Maxwell, D. et al., 2008. *Good Practice Review: Emergency food security interventions. Commissioned and published by the Humanitarian Practice Network at ODI. Number 10*, HPN, Overseas Development Institute, London UK. Available at: http://www.odihpn.org/documents%2Fgpr10.pdf [Accessed March 16, 2010].

McCord, A. & Farrington, J., 2008.*Digging holes and filling them in again? How far do public works enhance livelihoods?*, Overseas Development Institute UK. Available at: http://www.odi.org.uk/resources/download/2571.pdf [Accessed April 19, 2010].

Minot, 2010. Transmission of World Food Price Changes to Markets in sub-Saharan Africa. Report prepared for DFID. Washington, DC.

Mitra, S. & Josling, T. January 2009. Agricultural Export Restrictions: Welfare Implications and Trade Disciplines. International Food & Agricultural Trade Policy Council. IPC Position Paper. Molina, N. & Muchhala, B., 2008. The World Bank and IMF response to the food crisis: will lessons be learned? *Bretton Woods Project Update 62*. Available at: http://www.brettonwoodsproject.org/art-562450 [Accessed April 19, 2010].

Oxfam International, 2008. Double-Edged Prices: Lessons from the food price crisis: 10 actions developing countries should take. Available at: http://www.oxfam.org.uk/generationwhy/cgi/process_comp/photos/2008/10/bp121_double-edged-prices_-final_-13oct08.pdf [Accessed March 11, 2010].

Quisumbing, A., Meinzen-Dick, R. & Bassett, L., 2008.Helping Women Respond to the Global Food Price Crisis. Available at: http://www.ifpri.cgiar.org/sites/default/files/publications/bp007.pdf [Accessed February 19, 2010].

Raihan, S., 2009.*Impact of Food Price Rise on School Enrolment and Dropout in the Poor and Vulnerable Households in Selected Areas of Bangladesh*, Published by UK Dept for International Development (DFID). Available at: http://www.bracresearch.org/publications/monograph_dfid1.pdf [Accessed March 31, 2010].

Rapsomanikis, G. March 2009. Managing food markets through stocks during the 2007-2008 price episode: Evidence and recommendations. Policy Brief No. 1; Policies for the Effective Management of Food Price Swings in Africa.FAO.

Rapsomanikis, G. March 2009. Improving access to food during price swings: Trade measures, consumer subsidies and food safety nets. Policy Brief No. 2; Policies for the Effective Management of Food Price Swings in Africa.FAO.

Rapsomanikis, G., 2009. *The 2007–2008 food price episode: Impact and policies in Eastern and Southern Africa*, FAO COMMODITIES AND TRADE TECHNICAL PAPER 12,. Available at: ftp://ftp.fao.org/docrep/fao/012/i0984e/i0984e00.pdf [Accessed February 12, 2010].

SARPN. 2004. Scoping study towards DFIDSA's Regional Hunger and Vulnerability Programme

Shaw, D John. 2007. World Food Security: A history since 1945. Palgrave Macmillan.

Slater, R. & Dana, J. 2006. Tackling vulnerability to hunger in Malawi through market-based options contracts. Humanitarian Exchange Magazine. Available at: http://www.odihpn.org/report.asp?id=2790

Staatz, J.M; Dembélé, NN; Kelly, V & Adjao, R. 2008. Agricultural Globalization in Reverse: The Impact of the Food Crisis in West Africa. Background paper for the Geneva Trade and Development Forum, Sep 17-20, 2008. MSU

Sulaiman, M., Parveen, M. & Das, N.C., 2009. *Impact of the Food Price Hike on Nutritional Status of Women and Children*, Dakar: BRAC Research and Evaluation Division. Available at: http://wwww.bracresearch.org/monographs/Monograph_38.pdf.

Timmer, C.P, & Slayton, T. Arson Alert: Philippines is Playing with Fire! Again! Dec 2009. Centre for Global Development, Washington D.C.

Torlesse, H., Kiess, L. & Bloem, M.W., 2003. Association of Household Rice Expenditure with Child Nutritional Status Indicates a Role for Macroeconomic Food Policy in Combating Malnutrition. *Journal of Nutrition*, 133(5), 1320-1325.

UNCTAD. 1995. Using Risk Management in Grain Trade: Implications for Developing Countries, Prepared by UNCTAD for Intergovernmental Group on Grains meeting organised by FAO June 1995.

UNICEF. 2009. Tracking progress on child and maternal nutrition: A survival and development priority. UNICEF November 2009, New York.

UN High Level Task Force on the Global Food Security Crisis, 2009.*PROGRESS REPORT April 2008-October 2009*, Available at: http://un-foodsecurity.org/sites/default/files/09progressreport.pdf [Accessed March 30, 2010].

UN High Level Task Force on the Global Food Security Crisis, 2008.*THE UN SYSTEM REPONSE TO THE WORLD FOOD SECURITY CRISIS (as of September 2008)*, Available at: http://www.un.org/issues/food/taskforce/FACT_SHEET.pdf [Accessed March 30, 2010].

UNICEF, 2009a.*Humanitarian Action Report 2009 (HAR)*, Available at: http://www.unicef.org/har09/files/HAR_2009_FULL_Report_English.pdf [Accessed March 30, 2010].

UNICEF, 2009b.*TRACKING PROGRESS ON CHILD AND MATERNAL NUTRITION: A survival and development priority*, United Nations Children's Fund (UNICEF). Available at: http://www.unicef.org/nutrition/files/Tracking_Progress_on_Child_and_Maternal_Nutrition_EN_110309.pdf [Accessed April 19, 2010].

WFP, 2008.*WFP's Operational Requirements, Shortfalls and Priorities for 2008*, World Food Programme. Available at: http://ocha-gwapps1.unog.ch/rw/RWFiles2008.nsf/FilesByRWDocUnidFilename/EGUA-7KXPNZ-full_report.pdf/$File/full_report.pdf [Accessed February 5, 2010].

WFP/FAO, 2008a. Interagency Workshop Report: Measures of Food Consumption, Harmonising Methodologies. Available at: http://documents.wfp.org/stellent/groups/public/documents/ena/wfp196629.pdf [Accessed March 29, 2010].

WFP/FAO, 2008b.Powerpoint presentations from Interagency Workshop Report WFP - FAO Measures of Food Consumption - Harmonizing Methodologies

Rome, 9 - 10 April 2008. Available at: http://home.wfp.org/stellent/groups/public/documents/ena/wfp196627.pdf [Accessed March 29, 2010].

Wiggins, S. & Levy, S., 2008.*Rising food prices: A global crisis. Action needed now to avert poverty and hunger,* London: Overseas Development Institute UK. Available at: http://www.odi.org.uk/resources/download/1009.pdf [Accessed April 19, 2010].

Wiggins, S.; Keats, S & Compton, J. 2010. What caused the food price spike of 2007/08. ODI Report. London

Wiggins, S.; Compton, J.; Keats, S., & Davies, M. Forthcoming. *Country responses to the food price crisis 2007/08. Case studies from Bangladesh, Nicaragua, and Sierra Leone*. ODI Report. London

Wood, B., Nelson, C. & Nogueira, L., 2009. Food Price Crisis: Welfare Impact on Mexican Households. *Presented at the International Agricultural Trade Research Consortium Research Symposium, Seattle, Washington, June 22–23, 2009.*, 37 pp.

Wright, B. August 2009. International Grain Reserves: And Other Instruments to Address Volatility in Grain Markets. Policy Research Working Paper 5028, World Bank.

World Bank. 2005. *Managing Food Price Risks and Instability in an Environment of Market Liberalisation*. The World Bank. Agriculture and Rural Development Department. Washington DC

World Bank. 2007. World Development Report 2008: Agriculture for Development. World Bank, Washington.

World Bank/FAO/IFAD, 2009. *Improving Food Security in Arab Countries*, Washington DC: World Bank. Available at: http://siteresources.worldbank.org/INTMENA/Resources/FoodSecfinal.pdf

APPENDIX: POLICY OPTIONS

1. PREVENTING FOOD PRICE SPIKES ON INTERNATIONAL MARKETS

1.1 CEREALS PRODUCTION

The slowdown in production cereals, and especially the three main grains of maize, rice and wheat,[24] from an average of 2.8% a year from 1961/63 to 1984/86, to just 1.1% a year from 1984/86 to 2004/06 forms the backdrop to falling grain stocks. Cereals consumption has been growing faster, but not that much faster: an average of 1.7% a year from 1994/97 to 2006/09.

Sooner or later, supply needs to expand at the same rate as consumption. Raising the average annual rate of increase in production from 1.1% to 1.7% should be readily achievable. Key policies to ensure this include adequate investment in the public goods that support farmers: roads, irrigation; rural education, health, water; and especially agricultural research and extension. In some countries, and particularly in some parts of Africa, removing policies that reduce incentives to farmers can help as well.

Increasing production will reduce pressures to release stocks on to markets, allow some stocks to be rebuilt, as well as creating more capacity to react to changes in the markets.

1.2 CEREALS STOCKS

1.2.1 HOLD MORE PUBLIC STOCKS TO AVERT PRICE SPIKES

Low stocks in themselves do not directly cause price spikes, but when stocks are low, there is little capacity to react to sudden changes in supply or demand, other than by sharp changes in prices. The evidence is compelling: the three main price spikes seen on world cereals markets in the last fifty years — 1973/74, 1995/96[25] and 2007/08 — have coincided with low stock-to-use ratios.

It is axiomatic that if cereals stocks can be maintained above a critical threshold, then price spikes can be averted. So one option would be to increase publicly held stocks of cereals, held for purposes of dealing with moments when price spikes threaten. Stocks could be held either internationally by an agency created for this purpose, regionally by the relevant regional organisations for economic co-operation, or nationally with an agreement amongst major stock holders on how stocks would be managed.[26]

Problems arise with any type of public stock held to avert price spikes:

- The critical threshold below which stocks are too low to defend the market against a spike is not well defined, even if it probably lies somewhere in the range from 15% to 20% of annual use. Shocks to demand or supply that create spikes are by their nature difficult to predict, vary in magnitude, so that the ideal stock would need to vary as well. This might imply setting the threshold to be held at a conservatively high level; but this would exacerbate the next problem;

[24] These currently make up more than 85% of all cereals produced.

[25] A less serious event than the other two. Prices of maize rose by 90% from January 1995 to the peak in the first half of 1996, rice prices by 30% and those of wheat by 70%.

[26] There is also a proposal that a stock of between 300k and 500k tonnes of cereals be created to ensure that agencies such as the World Food Programme have ready access to supplies for emergency food aid. Since this is not concerned with averting price spikes, it is not discussed further here.

- Holding stocks is costly. Even in the best stores, grain can cost US$15 a tonne a year to store.[27] If, say, an additional 5% of the world's annual use of cereals were to be stored, this would equate to storing another 105M tonnes at a cost of more than US$1.5G (billion) a year;
- Increasing public stocks may lead to private stores being reduced. The exact rate of substitution may not be known, but it is feared to be quite high. Hence to get another 100M tonnes or more of grain in store might require a far greater quantity being publicly funded, thus driving up costs;
- Management of public stocks ideally needs to be transparent and predictable if the existence of large public stocks is not to increase risks to traders. At worst, with large public stocks grain traders may spend time and money trying to anticipate the moves of public grain managers, instead of focusing on demand, supply, markets and logistics.

  Management also needs to be effective. Stock managers need to be able to judge if and when to release stocks, and by how much. The objectives would need to be clear and simple: to prevent sudden spikes. Releasing stocks to dampen minor price rises that respond to changes in demand and supply is probably unwise: it dampens market signals, and above all reduces incentives for farmers to react to tighter markets by increasing production. Keeping the objective so clear might be difficult to sustain. If conditions that threaten a spike only emerge once a decade, in the intervening years both managers and their political masters will be tempted to find other uses for the stocks, such as price stabilisation; and,

- Governance and location of stocks. An international stock would require international agreement amongst the main countries producing and consuming cereals, arrangements for governance including possibly a managing agency, and sources of funding. Regional stocks would face the same hurdles, although perhaps on a lesser scale. In both cases, location of stocks may be difficult to agree: ideal locations would be in cool climates close to major ports; but that might mean stocks being held largely in OECD countries that might not be acceptable to developing countries who could fear that control of stocks could be used to their disadvantage.

  Holding stocks nationally avoids some of these drawbacks, but still requires international agreement on which countries would agree to hold how much additional stock and the rules for use of the additional reserves.

None of these problems is insuperable — after all some countries do hold large national cereals stocks — but it is difficult to see world leaders finding the political will and funds to create a global stock to avert price spikes.

1.2.2 Better information on stocks

The alternative to public stocks is encouraging private stocks and their effective management. That is largely a matter for private enterprise. One possible public stimulus might be collecting and publishing ***better data on stocks*** held: as Wright (2009) has argued, confidence in markets could be increased were there more and better information on stocks.

[27] Storage costs for maize in Iowa, USA.

FAO is not optimistic that better information can be generated without considerable extra effort and cost —partly since there are so many stock holders, and partly since some grain market participants would see their stocks as commercial secrets. This may be unduly pessimistic: obliging those operating storage of significant scale to report holdings at a few critical times in the year does not sound onerous, especially for independent stores containing grain held by various parties so that the reporting requirement would not require the owners to be identified. Given that some countries are able to collect such data, the obstacles cannot be so great.

1.2.3 An emergency reserve to guarantee humanitarian food aid

One consequence of the price spike was that food aid agencies, above all the World Food Programme (WFP), found that their budgets could no longer command sufficient supplies of food.[28] Hence it has been proposed (Von Braun & Torero 2009) that an emergency reserve of 300,000 to 500,000 tonnes of grain[29] be held, decentralised and positioned strategically in or near developing country regions, to be managed by the WFP and used solely for humanitarian and emergency response. To cover the cost of restoring the grain, an emergency fund plus financing facility would be attached.

This proposal is similar to the creation of an International Emergency Food Reserve (IEFR), part of the Food Aid Convention (FAC) that was set up in 1975 after the 1973 food crisis, and has a minimum annual target of 500,000 tonnes. In 1991, WFP set up the Immediate Response Account within the IEFR; a US$30 million cash fund to purchase food commodities close to sources of emergency need. The IEFR has however not lived up to expectations. It suffers from the wider systemic food aid problems including pro-cyclicality and lack of predictability, and has become what Shaw (2007) describes a "voluntary facility" for donors to provide emergency relieve as food stocks or funds kept in their own countries, rather than a financial or physical reserve. Contributions to IEFR can bypass the WFP, so it is not a fully multilateral system. Modalities of the IEFR agreed by donors have not been respected: contributions have not been announced in advance; they have been tied to particular commodities or emergencies; they have fluctuated considerably; and, they have fallen short of requirements (Shaw 2007). Clay (2003) contended that the IEFR's flexibility had "provided a way for donors to coordinate and consolidate their responses to major natural disasters, and potentially sensitive humanitarian crises in particular", and that this "donor-directed use of the IEFR has been the key factor in the enormous expansion of WFP's role as the multilateral channel for emergency food aid in the 1990s." In this sense, the IEFR has drifted considerably from its humble origins; reaching a certain potential; just not its own.

Hence a different reserve can be justified. The main obstacle is cost. If 500k tonnes had to be stored, at US$15 per tonne this would be US$7.5M each year; plus the cost of the grain donated or procured, and administration costs. At the moment, it is not apparent that any stakeholders are lobbying strongly for this option. On the face of things, it seems a modest proposal, one that might

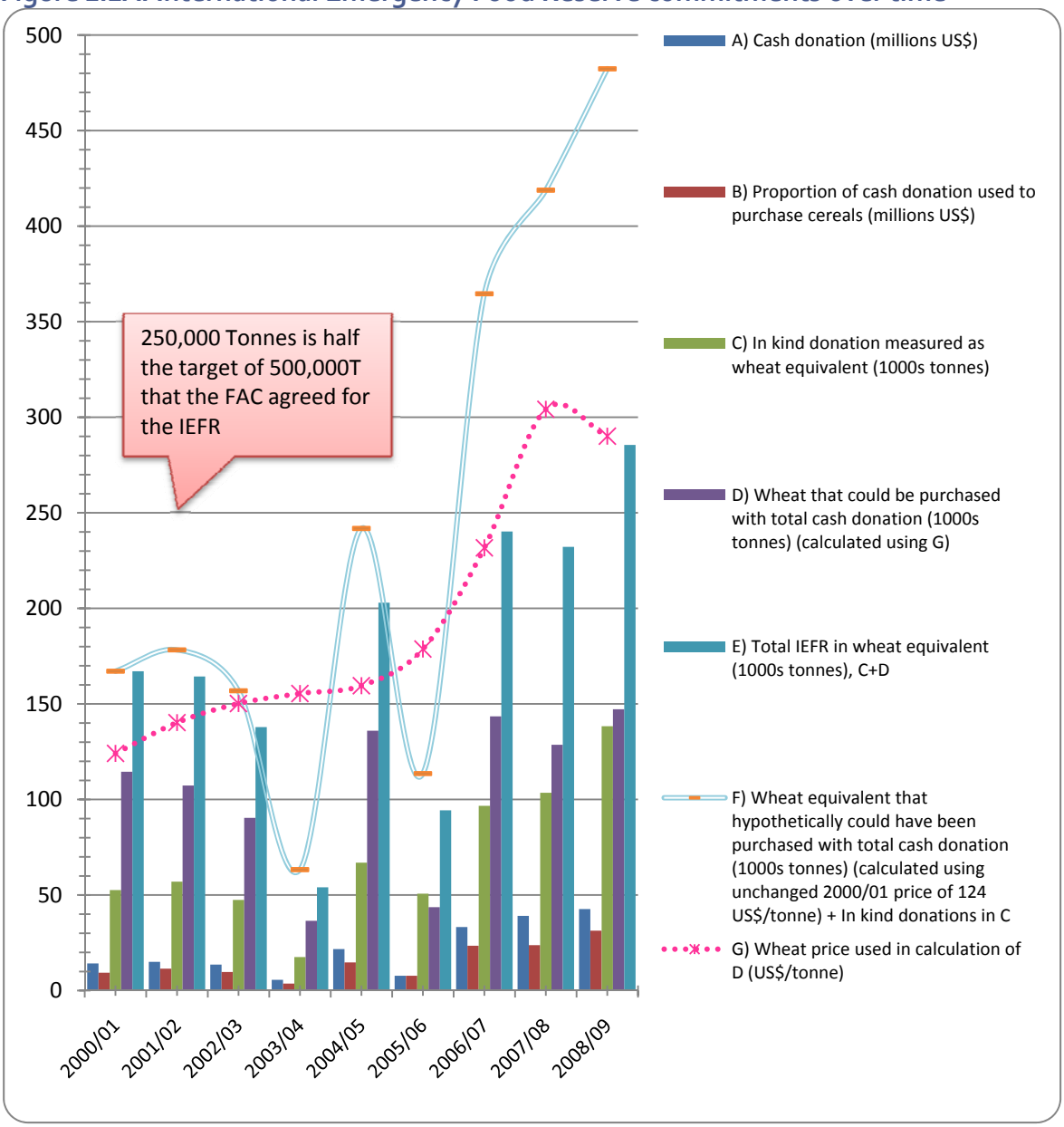
[28] For example, Mitra & Josling (2009) quoted WFP's Executive Director admitting WFP was "having trouble buying the stocks we need for emergency operations."They also described press reports indicating export restrictions (specifically the Pakistan wheat export ban) had held up supplies to feeding programmes in Somalia and Afghanistan, forcing WFP to find a new supplier which created "months-long delays"

[29] This amount is about 5% of current levels of food aid flow. More analysis would probably need to go into determining the exact amount, as well as to the positioning of stores.

be considered in a revised Food Aid or Food Assistance Convention[30] however the detail may be difficult.

Although contributions have improved noticeably in recent years, the fact remains the IEFR's voluntary commitment of 500,000 tonnes has not been met in the last several years on record, see figure below, and even with large cash donations it is difficult to purchase

Figure 1.1A: International Emergency Food Reserve commitments over time



Sources: Final Annexes of www.foodaidconvention.org's operational reports for IEFR contributions. FAO for International wheat prices. **Note**: Had prices remained constant at the 2000/2001 level of about 124US$/tonne, the total potential wheat would have almost reached the IEFR target in 2008/09 (line F). As it was, column E represents the impact of the high prices on what donors money was worth in food equivalent.

[30] On this subject, Clay (2010) recently concluded "It is apparent there is limited interest in purely cosmetic relabelling [of a Food Aid Convention] and that balance of concern and intent amongst stakeholders, including both governments and civil society, has shifted from adaptation towards a radical reconfiguring of institutional arrangements. However what appears missing is an informed basis for negotiation if this is to go beyond adaptation."

This might even be something that the private sector could be approached to support if governments are not prepared to. The next step could be to speak with some of those responsible for procurement in WFP to see what the WFP position may be, as this does not appear to be publicised. For instance, before embarking on this strategy, it would help to know to what degree the international food crisis contributed to delays in emergency food aid delivery, and what the impact of this delay might have been. This is important because there are common reasons for delay in emergency aid — owing for example to other logistical setbacks, political concerns, infrastructural damage, violence, delays in carrying out vulnerability assessments, and so forth — to which it might be useful to compare the setbacks to emergency food provision caused by high international food prices specifically (and their associated ills such as export bans), as part of a benefit-cost assessment of the new small emergency reserve stock proposed.

1.3 Diverting grains from animal and industrial use to humans

Increasingly grain is produced not for food, but for animal feed and industrial use. In recent years, for example, more than 600M tonnes of the three main cereals, or about one third of production, have been used as animal feed [USDA data]. To this can be added grains used for distilling to biofuel, at least another 100M tonnes of US maize alone in 2009.

Cereals fed to livestock or distilled amounts to a hidden reserve, since in times of rising prices, livestock feeding and ethanol production could conceivably be scaled back to allow more supplies to the food market. Wright (2009) has thus proposed that governments buy call options from domestic producers of feed or fuel crops that can be switched to human consumption in the event of specified crises. Alternatively, cereals could be diverted by agreement between industry and government, with compensation paid to feedlot operators and distillers for interrupted supply. Similarly government biofuel mandates could be suspended or revised to require diversion in crises. The operation would be similar to that used in some countries to ensure essential supplies of key services, such as water where irrigation is suspended to guarantee urban water supplies during droughts, and electricity where non-essential uses are interrupted when blackouts are imminent.

Although there is — to our knowledge — no detailed proposal for such arrangements, they are attractive since the costs are probably lower than those of storage, and intervention in the market is temporary: rather than keeping stocks in all years, these arrangements would only apply as and when spikes threatened.

Drawbacks include:

- It assumes that maize, and other grains, kept for feed, fuel, and food are good substitutes. Maize being prepared as silage, for example, could not readily be diverted to human use;
- Costs may be lower than stocks, but they could be substantial. Whatever the modality, feed millers and ethanol operators would expect to get compensation for switching supplies. This could be of the order of US$100 a tonne during an emerging price spike: the difference between the market value and that at which poor people could access grain. If, say, 100M additional persons were at risk of hunger — roughly the number indicated by Ivanic & Martin (2008) from modelling, and they were to be offered the chance to obtain at prior prices6 months supplies, around 100 kg grain, then the cost becomes US$1 billion; and,
- The scheme looks most feasible at national level where a government undertakes to divert grain to reduce a spike in domestic grain prices. It is less clear how this might be done

internationally: even the most altruistic country is unlikely to divert grain from home markets to the international market to bring down prices. It could thus only apply internationally if there were agreement amongst the largest grain consuming countries to do this, with a cost-sharing formula, and agreement on the threshold at which grain might be diverted. There would also be a moral hazard of one or other of the countries defaulting as and when a price spike threatened.

Nevertheless this proposal deserves more study to define the details of how it might operate nationally, regionally and internationally. The apparent lower costs than stocking and the limited intervention in markets make it sufficiently attractive to do so.

1.4 CURB SPECULATIVE INVESTMENT ON FUTURES MARKETS

Perhaps the most contentious proposal is that of countering speculation on futures markets to avert price spikes: contentious since there is disagreement over the role of speculation in forming the 2007/08 price spike.

Briefly, the arguments over speculation can be summarised as follows:

- ***For:*** there was a massive move of investment funds into commodity futures, including those for cereals, in the years preceding the price spike. Unlike short-term speculation that acts as a foil for commercial hedgers by assuming price risks, the investment funds were looking for longer-run gains and were thus exclusively buying call options with no countervailing put options. Hence with heavy pressure on the demand side, the price of options was pushed upwards. This then dragged spot market prices upwards;
- ***Against:*** the investment funds moved much earlier than the price spike and by 2006 most of the increases had already taken place, yet the price spike was still to happen; rice prices spiked far more than those for maize and wheat, yet there is very little trading in rice futures; statistical tests to link levels of speculative investment and spot prices are inconclusive; and, the link between futures and spot prices can only apply if speculators physically take grains and store them, but there is no evidence of this during price spike: on the contrary, stocks were low.

Nevertheless, some are sufficiently convinced that speculation was a factor that they either took action or proposed it. The options include:

- Banning or suspending futures markets in times when spikes seem to be forming. India, for example, stopped the (small) futures markets trading in rice and wheat in early 2008;
- Limiting the extent to which investment funds can participate in futures markets or restricting activity only to registered commercial traders and to (regulated) risk-taking speculators; and,
- Establishing a virtual reserve to counter speculative pressure. As proposed by IFPRI (Von Braun and Torero 2009), this consists of four components: a club of countries committed to supplying funds; a fund (not actual but promissory[31]) to be used in the event of intervention becoming necessary; a Global Intelligence Unit[32] responsible for forecasting prices in medium to long term, setting price bands based on such forecast models, and advising on interventions when prices move significantly outside the bands; and a High Level Technical

[31] This seems to omit the need for posting margins, the costs of which could mount rapidly in a futures market where prices are rising, if they are to maintain their positions.

[32] Housed in an institution with price forecasting modelling capacity and drawing on analytical capacity of "specialized organizations (such as FAO, the U.S. Department of Agriculture, IFPRI, and the World Grain Council)"

Commission with full autonomy to decide whether or not to approve sales in a futures market.

All these assume speculation in futures markets affects spot market prices, and this is contested. It is far from clear that the measures would prevent spice spikes. Moreover, most of these ideas other than the virtual reserve, risk curbing futures markets that fulfil useful functions for farmers, traders and processors.

There are also substantial objections to the virtual reserve, as follows:

- The scheme has been assessed as costing, when needed, between US$12 and US$20 billions — enormous sums by any measure. If these funds were just capital to play the markets, then perhaps the real cost is the opportunity cost of the funds tied up, but there are reasons to worry, as follow;
- Price stabilisation schemes such as buffer stocks appear on paper to be self-funding since stocks are bought up when prices are low and released when high. But the dismal history of these shows that they usually, and sooner rather than later, run out of capital — apparently since, contrary to intuition, prices do not settle towards the middle of the price bands set (Wright 2009). Might this scheme fall prey to the same processes? It might since…
- … the scheme sets a technical unit reporting to a commission that approves market operations against experienced traders who can act in minutes on their individual judgment in markets where prompt action matters. This is surely a mismatch. The traders should be able to run rings round the commission and make money in the process, at public expense. In a nightmare scenario, the US$12 billions are lost to smart traders able to make quicker and more agile decisions than the commission. Almost as bad, traders would no doubt spend time that should be focussed on market fundamentals second-guessing the commission. It could thus introduce yet more uncertainty into the market, not less. Much clearly depends on the quality of the intelligence unit and the alacrity and courage of the technical commission. The history of international buffer stocks, professionally managed, does not inspire confidence.

1.5 LIMITING EXPORT RESTRICTIONS

Arguably nothing contributed more to the sharp spike in rice prices that started in late 2007 than India's announcement in September of restrictions on rice exports, followed in February 2008 by a ban on exports of non-basmati rice (Timmer 2009). Other rice exporters including Vietnam took similar measures; while discussion of possible restrictions by the world's largest rice exporter, Thailand, sent tremors through the market.

It is thus not surprising that preventing such restrictions has been proposed— see, for example, Lin 2008, Wright 2009. Practically, this would involve modifications to WTO rules — even if some important grain exporters, such as Kazakhstan, Russia and the Ukraine, are not members of WTO.

The proposal addresses a major concern and would cost little to implement. The problems arise in getting agreement on this. Although export restrictions form part of the remit of the WTO, existing rules impose few constraints on members. Even if there were rules to limit export restrictions, it is questionable whether exporters would honour them if they feared rising domestic prices.

BOX A1: REGIONAL COOPERATION TO ENHANCE FOOD SECURITY

The food price spike of 2007/08 rekindled interest in regional food (and to some extent financial) reserves as a food security strategy.

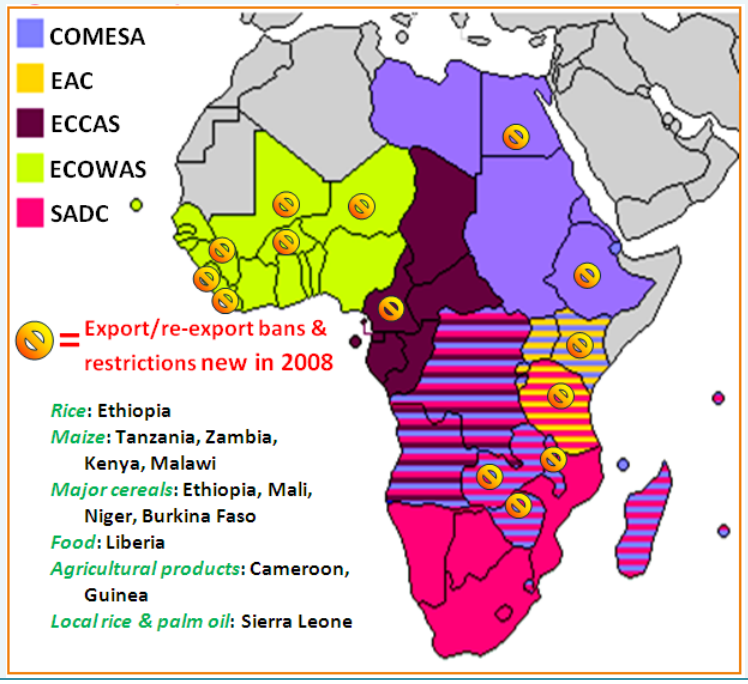
Examples include:

- **The Southern African Development Community (SADC)**. In response to the 2007/08 price spike it has revived plans, last discussed in the aftermath of the food crisis that began in 2002, to launch a strategic grain reserve for Southern African countries. Various models are being proposed and negotiated, including a reserve of 500,000 tonnes run by a board, as well as a cash component for countries that do not have any surplus to contribute. The food/cash balance will be about 75%/25%, and the reserve is proposed to include a combination of cereals housed across several countries in the region to facilitate access. Officials hoped the facility would be operational by mid 2009 (Viatte et al., 2009). This has not transpired.
- **The Association of Southeast Asian Nations (ASEAN)** has renewed its plan to establish an emergency rice reserve, originally under the ASEAN Food Security Reserve Agreement (AFSR) of 1979. This agreement has never been operational. Efforts are currently underway to create a functioning and larger ASEAN reserve.
- **Latin American Food Sovereignty**. Bolivia, Cuba, Nicaragua and Venezuela agreed in 2008 to create a USS100M fund to finance multilateral cooperation on food sovereignty, which is supposed to involve some building of grain or food reserves (Viatte et al, 2009), though it is not clear exactly what stage this has reached.
- **South Asian Association for Regional Cooperation (SAARC)** created a Food Security Reserve in November 1987. Each member was entitled to draw on foodgrain reserves in an emergency, however price and other repayment conditions were not specified beforehand, but were rather to be "the subject of direct negotiations between the member countries concerned". Steps to modify this system began at a SAARC summit in 2004. A formal document was endorsed by SAARC in 2006, scheduled to be ratified in July 2007. Only 4 member countries ratified this by July 2008, and the SAARC Regional Food Bank was still not in place at the end of 2008 (Dorosh, 2009).
- **Inter-State Committee on Drought in the Sahel (CILSS)** FAO (1980) noted a proposal by **CILSS** (Inter-State Committee on Drought in the Sahel) to establish a regional reserve in the Sahel. Interest in this was again sparked after the 2007/08 crisis and CILSS is exploring a mechanism whereby countries voluntarily contribute a certain percent of production to a regional stock. Details are still being worked out.

Another mechanism for supporting regional cooperation that could be equally or more successful than regional reserve strategies (or used in a complementary fashion together with regional reserve strategies) is the improvement of regional trade. In Africa for example, many country borders divide food surplus and food deficit areas, leaving clear scope for countries to benefit from transnational trading in foodstuffs. Agricultural workers also benefit from increased trade or at the very least advanced notice of implementation of trade restrictions, since this improves market participation.

As a strategy against spikes, improving regional trade coordination has a lot of promise, especially in Africa, but also in Asia and within Latin America. In particular, efforts to discourage countries from implementing export bans as a kneejerk reaction to rising prices should be pursued. The figure below shows where export bans and restrictions were newly implemented in 2008 for Africa— and may not be a comprehensive list of all such new restrictions.

FIGURE A1: EXPORT RESTRICTIONS IN 2008 AND AFRICA'S REGIONAL ECONOMIC COMMUNITIES



Sources: Map from Wikimedia Commons; information on export bans from FAO GIEWS (Dec 2008) and Staatz et al. 2008
Notes: This may not be a complete list. The colours represent active **Regional Economic Communities** in Africa over the 2007-08 period. **COMESA** = *Common Market for Eastern and Southern Africa*. **EAC** = *East African Community*. **ECCAS** = *Economic Community of Central African States*. **ECOWAS** = *Economic Community of West African States*. **SADC** = *South African Development Community*

2. DAMPENING PRICE SPIKES ON A NATIONAL LEVEL

Even without spikes, unpredictability and volatility in international prices amplifies risks for import dependent countries[33]. Galtier (2009) classified three types of price instability facing domestic markets: 1) Natural instability caused by natural variation in production levels — owing for example to weather; 2) Imported instability, and; 3) Endogenous instability arising from expectations of market actors[34]. This section focuses on the second—imported instability.

2.1 AVOIDING INTERNATIONAL TRADE ALTOGETHER

Perhaps the most important decision that national governments take is that of ***whether to trade or not.*** While there are good reasons to trade staple foods with production determined largely by comparative advantage — it should result in food being produced at the lowest cost, the more countries that trade the less the amount of variation in total supply — arguments for relying on trade often depend on the 'small country assumption': that is, that the country trading is small and its trading decisions have little or no impact on world markets.

Large countries, on the other hand, may reasonably fear that relying on world markets to cover a small domestic deficit would result in additional demand on the world market that would drive prices up. This is the situation faced by countries such as China and India. It is thus understandable that neither country has accepted that it rely on the international markets for regular or even emergency staple food supplies. Both countries intervene extensively in domestic markets for staples, hold large domestic grain reserves, and control trade in grains. This comes at high cost, but

[33] Many low income import dependent countries – for example, several landlocked countries in Sub-Saharan Africa – tend to have much higher price volatility than that seen on international markets in 2007/08, owing predominantly to local factors. For example, World Bank (2005) estimated that for more than 25% of variability in producer maize prices in Botswana, Ethiopia, Mali, Niger, and Nigeria could be explained by instability in domestic maize production. This paper does not deal with this issue, but focuses specifically on the risks stemming from international price spikes.
[34] The panic seen on international rice markets in early 2008 can largely be attributed to this type.

politically is probably unavoidable. China and India are not the only large countries to set domestic self-sufficiency in staples as a major goal: Indonesia[35] and Japan are two other large nations with similar policy aims.

Withdrawing from international trade is usually only feasible if the country ***(a)*** is large enough to have different producing regions within its borders that reduce the risk of heavy harvest failure, ***(b)*** has the expertise and administrative capacity to monitor the state of cereals production, run large public stores, and to conduct open market operations on domestic cereals markets; and ***(c)*** can afford the cost, above all the cost of storage.

If these conditions are met, then this can be effective — evidence suggests that China saw one of the lowest increases in domestic grains prices during the 2007/08 spike. It may well also be politically and socially attractive, especially if the citizenry is not aware of how much the system costs. Clearly the political advantages are higher in countries where the price of internationally traded staples forms a substantial part of consumer budgets.[36]

On the question of the range of measures a country can take in combating a price spike on the national level, self-sufficiency is the elephant in the room. Options to use trade and dampen price pass-through are by-the-by for countries which are food self-sufficient. The increasing interest in food sovereignty and national food self-sufficiency following the 2007/08 food price spike shows how many are convinced by this argument. As discussed in section 3.1., there are clear reasons for some large countries with more than one producing region within their borders to aim to produce the vast majority of their staple food needs— China and India, with 20% and 17% of the global population respectively, are the classic examples of such special cases.

With the food crisis of 2007/08, a number of other countries have set self-sufficiency targets in key staples. Senegal's GOANA[37]initiative is an example. This initiative aims to increase Senegal's self-sufficiency in rice from current levels of around 20% to 100% by 2015.

Even if Senegal were to produce all the rice it needs in Senegal, production would be at a cost and harvests would vary. This would mean it would either have to keep very large national stocks, or switch again to imports to make up for local deficits— options which might as much or more, or be just as unstable as growing little rice and regularly importing large quantities.

The example of Senegal is particularly relevant to this discussion because it reinforces the understanding that **hunger is not a function of availability alone**. Senegal achieved one of the fastest reductions in prevalence of under-five stunting[38] in West Africa[39], decreasing by almost

[35]Though the Indonesian experience has exposed limitations of this strategy when weathering international crises, since their buffer stock ran out over the 1997-98 Asian financial crisis. (Gérard 2000, quoted in Galtier, 2009)
[36] It applies all the more so when the staples pass through relatively little processing so that the retail price largely reflects the cost of the bare cereal. In OECD countries, in contrast, the rises in grains prices made only small differences to retail prices of staples since the share of cereals in the costs of products such as bread on the shop shelf are low — perhaps 10% for the wheat in the bread, the rest being incurred in milling, baking and distribution.
[37]Major Agricultural Offensive for Food and Abundance (from the French, Grande offensive agricole pour la nourriture et l'abondance)
[38] An indicator of chronic malnutrition
[39] Of the countries for which nationally representative under 5 stunting data is available over the period, Ghana was the next best performer, reducing stunting levels only 5.4%—from 33.5% in 1993 to 28.1%—in 2006 (see Annex A in Wiggins & Keats, 2009)

fourteen percent (from 33.7% to 20.1%) from 1993 to 2005— a period over which agricultural growth per capita was relatively stagnant. Potentially there are large budget trade-offs to be made with increasing investment in agricultural production— and countries must be cautious if resources for agriculture impoverish other areas that are equally important for food security, such as access (poverty reduction), and utilisation— an unhealthy person cannot absorb food, however abundant or affordable.

2.2 MITIGATING THE TRANSMISSION OF INTERNATIONAL PRICES FOR COUNTRIES TRADING IN GRAINS

2.2.1. MACROECONOMIC MEASURES

In theory, a country could cushion the impact of higher world prices by raising the value of its currency against the dollar. It might even also raise interest rates to restrict the money supply to prevent inflation.

To our knowledge no countries did so in response to rising world food prices, and it is not hard to see why. Revaluing a currency deters exports, encourages imports, and hence risks an imbalance of trade. For countries with freely convertible currency, governments can only raise its value by buying it in exchange for dollars; and that means having substantial foreign exchange reserves. Restricting the money supply risks deflation.

In sum, too many other important goals are at stake with macroeconomic measures, for them to be deployed merely to cushion imported food price inflation for which there are other options, as will be explained.

2.2.2. USING BORDER MEASURES TO INFLUENCE VOLUMES OR PRICES OF TRADED GOODS

Export restrictions come in the form of tariffs, bans, quotas, or floor prices on exports and re-exports. Countries restrict exports to maintain domestic supply and prevent local prices rising to international levels. Export restrictions may also bolster consumer confidence in food availability. Moreover, export restrictions do not have a cost to government and can be implemented fairly promptly.

Export restrictions are likely – particularly in the short term — to have the desired effect, more so where adequate funds are available for enforcement, storage, and so forth. In countries with long and porous borders and neighbours commanding higher prices, however, trade may not decrease appreciably in response to export restrictions and so the effect is less.

While consumers gain from export restrictions, net sellers or traders of the product in question lose from export bans. Any kind of export restriction can also damage producer incentives[40] and stunt growth and development in the longer run.

Moreover, such actions exacerbate price increases and instability on world markets. With fewer countries exporting to the world market, traded volume decreases, which all else being equal, will

[40] Perhaps more so when implemented in an ad hoc way, because this increases uncertainty for producers.

make prices rise[41] and increase volatility of prices. Uncertainty, particularly where a product is thinly traded to begin with, exacerbate these problems.

Measures on imports include reducing tariffs and quotas, facilitating additional imports, and hedging on commodity markets. ***Reducing or eliminating import restrictions*** would dampen price rises— but only significantly for cases where tariffs were large to begin with, and cut heavily[42]. Generally speaking however, countries lack scope to take significant action on import tariffs since under trade liberalisation, most tariffs on imported cereals are relatively low, at 20% or less[43]. Furthermore, there are costs to lowering import tariffs. For example, IMF (2008) estimated at least 8 countries[44] lost at least half a percent of GDP responding to the crisis with food tax rate reductions— among these import tariff reductions.

Import facilitation may be necessary to allow private traders strapped for funds to import now more costly food. In this case, governments may correct a market failure by providing private traders with the extra credit they need[45].

Similarly, it may be necessary for state importers. Food import financing which allows importation to continue where it would otherwise have stopped, thereby increasing supply to the country, should result in a dampening price rises nationally—though unless the measures are combined with some form of subsidy, they don't negate the price rises that have already occurred[46].

IMF offers facilities to help governments deal with sudden shocks such as increased food import prices, although to date these have been little-used, and doubt remains as to how they might function in a rapidly responsive or precautionary capacity faced with rapidly rising food prices— see Box A2.

Barter and other special deals between governments also exist. A government rich in assets but poor in cash reserves might use barter of commodities to secure supplies of staples or related assets; or a country might enter into a special deal to maintain imports when private traders take their supplies elsewhere to fetch better prices.[47]

This type of measure tends to be tailored to particular situations when and where needed. For example, over the 2007/08 spike, although India restricted rice exports, special deals were arranged to allow certain low income countries — including Bangladesh and Sierra Leone among others— to

[41] For example, Ivanic et al, 2008 (as cited in Lustig, 2009) showed that developing countries trying to offset a 50% increase in world prices of maize, rice, wheat, and soybeans using policy responses designed to restore domestic prices could cause international prices to increase by another 10 to 30 percent.
[42] "Given that high tariffs on food grains are generally undesirable for both efficiency and equity reasons (most poor households, including rural households, are net food purchasers), variable tariffs are unlikely to be useful for managing world price spikes." (World Bank, 2005)
[43] In most developing countries, successive rounds of liberalisation have decreased import tariffs to very low levels; for example, over the 2007/08 crisis, Bangladesh could only remove a 5% tariff on rice, with minimal effect on domestic prices given the extent of international price rises.
[44] Liberia, Morocco, Grenada, Senegal, Niger, Seychelles, Guyana, Solomon Islands (Liberia removed a $2.10 consumer tax on 100 pound bags of imported rice).
[45] The government of Bangladesh for example used this strategy in 2007/08, leading to a surge in private imports (see Wiggins et al. forthcoming for more detail)
[46] Furthermore there may be a drawback to countries which are unable to access such facilities, if those that do import great quantities at higher prices and further drive up the international prices.
[47] In Sierra Leone in 2008 traders diverted supplies they had ordered, already on the high seas, to neighbouring countries where rice prices were higher.

import Indian rice at specially negotiated rates. Being off-market and often opaque, such deals can invite corruption and rent-seeking.[48]

BOX A2: INTERNATIONAL FOOD FINANCING FACILITIES

In 1979, with the memory of the 1973/74 crisis still fresh, the IMF posited countries should avoid decreasing consumption over a crisis by either 1) drawing on existing reserves; 2) increasing commercial imports; or 3) using additional aid. Limitations on the first two options for poorer countries led to a focus on the third, and in May 1981 the IMF established a Food Financing Facility designed to address short-term balance of payment deficits in the event of crop failures or price spikes.

FIGURE A2 ADDITIONAL FINANCING UNDER PRGF ARRANGEMENTS FOR FOOD/FUEL PRICE SHOCKS (MILLIONS US$)

Under new PRGF arrangements	2008
Burundi	17.9
Djibouti	3.7
Mali	28.9
Niger	14.5
Under existing PRGF arrangements	
Benin	14.4
Burkina Faso	14.0
Central African Republic	12.9
Grenada	2.3
Guinea	33.2
Haiti	25.4
Kyrgyz Republic	13.8
Madagascar	28.4
Malawi	16.1
Nicaragua	10.1
Total	235.4

Source: IMF 2008b, pp 14. **Note**: as of August 2008, a total of 78 LICs are eligible for PRGF assistance

The facility, which existed under the ESF (Exogenous Shocks Facility) for many years, was never used. According to Shaw (2007), "terms for accessing the facility were set too high to make it attractive or acceptable". Where countries had existing balance of payment weaknesses, they could not access the facility without a parallel fund-supported adjustment programme. It was also criticised for not being flexible enough to be used on a precautionary basis.

The IMF has three explanations for why it wasn't used over the 2007/08 shock: a) some potential users had PRGF (Poverty Reduction and Growth Facility) arrangements in place and augmented these rather than using another facility— see adjacent table for a list from Sep 2008; b) the strengthened economic policies of many LICs meant they had accumulated foreign exchange reserves they could use as a first line of defence; and c) that many LICs experienced improved terms of trade despite increases in world food and oil prices.

After the food and fuel crises of 2007/08, the IMF altered their ESF to make it more flexible and accessible to LICs, and the ESF-HAC (High Access Component) was born. It is to be phased out by 2011, and has been replaced by the SCF (Standby Credit Facility). The SCF is superior to the older facilities because it…

> *"… provides support under a wider range of circumstances, allows for higher access, carries a lower interest rate, can be used on a precautionary basis, and places greater emphasis on the country's poverty reduction and growth objectives."* IMF 2010a

In addition, the European Commission is currently exploring options for more flexible compensatory financing facility in the wake of the 2007/08 food crisis, and should be releasing their findings soon.

Sources: Shaw 2007;IMF 2008b, 2009, 2010a,b,c

Instances of this strategy were noted over the 2007/08 crisis— for example, Malaysia reportedly signed a barter deal with North Korea, Cuba and Russia to swap palm oil for fertiliser and machinery[49].Venezuela reportedly bartered oil for supplies of food from Portugal, and rice from Ecuador in the first half of 2008[50]. Barter may be attractive to governments for a few reasons. Firstly, it locks in relative prices (though the governments still have to negotiate). Secondly, it takes matters off the market and gives the government control— which can increase popularity of the individuals

[48] For example, allegations of corruption surrounding Indian rice deals over 2007/08 exist; see: http://www.outlookindia.com/printarticle.aspx?250566.The Philippines too conducted special government-to-government deals on importing with Vietnam, allegedly involving corruption (see Timmer & Slayton, 2009)

[49] See news report at: http://farmlandgrab.org/2724

[50] http://www.stratfor.com/memberships/116605/analysis/global_market_brief_venezuela_resorts_bartering

or party involved. Finally, it can be configured to look like altruism or be used as sheer patronage. For example, Venezuela is believed to win political allies with promises of cheap oil and gas.

The last border strategy discussed here is ***hedging*** using futures contracts or call options[51], which are market-based contracts[52]. ***Futures contracts*** allow buyers to lock in a price for the delivery at a future specified date of a particular volume of commodity, though they do not necessarily require physical delivery. They are usually negotiated for a period up to 18 months, but sometimes up to 36 months. For developing countries it is rarely useful to take delivery of standardised futures contracts such as those offered on CBOT (Chicago Board of Trade) or SAFEX (South African Futures Exchange), but participation in these markets allows for negotiation of a better basis[53] when sourcing product from their usual suppliers, thereby reducing overall price risk.

Futures do however require an initial outlay of cash as a security deposit, called the margin[54], and may require more margin payments if prices rise. This is one of the disadvantages of futures contracts, though it may be more of a problem to private traders than to governments which have fairly ready access to large amounts of cash.

If prices fall, contrary to expectations, the importer may be criticised for locking in what becomes (with hindsight) a disadvantageous price.

A ***call option***, which tends to mature over a time period of up to one year, has the advantage of providing a *right* to purchase, rather than an *obligation*— removing some of the more obvious drawbacks associated with futures contracts. Options are comparable to insurance. A 'premium' is required to purchase the option, which protects buyers from adverse developments in prices—sharp price rises in the case of an importer. If prices end up moving down, buyers can allow the option to expire and forfeit the cost of the premium.

Although hedging instruments like futures and options have attracted interest as price risk management tools, notably for their ready availability and because they are perceived to be (on average) less costly than other options such as large inventory stores, they are not much used despite having existed for decades. Hedging on futures markets has political risks as well. When prices fall rather than rise, contracts and options lose taxpayers money to (foreign) traders. To the uninformed, it looks as though government is gambling with public funds.[55]. In addition, there is essentially no futures market for rice; overwhelmingly the main staple for about half the world's population.

[51] Forward contracts, another hedging tool, are similar to futures contracts but not exchange-traded or defined on standardised assets, so they must be arranged over-the-counter with commodity trading houses or financial institutions; they are also riskier for this reason and more difficult to back out of since to do this a third party must be found to purchase the position.
[52] For the commodity in question these specify *precisely*: prices, volumes, quality, and delivery period and tend to be standardised by the commodity exchanges, though they can also be bespoke.
[53] The basis is the difference between the country's import price and the reference price on the futures market—usually composed of transport (and other transaction costs), currency value differential, and difference in competitive pressure (UNCTAD, 1995 *in* Lynton-Evans, 1997; Appendix II)
[54] For futures contracts the margin is usually about 5 to 15% of the value of the contract.
[55]Losses in one year may be hard to sell to voters on the basis that spending will on average be lower or less variable over five or ten years.

Reviewing futures and call option hedging strategies in Southern Africa, some of them technically quite sophisticated, Dana *et al.*(2006) concluded that while they could reduce costs and overall variability of costs, other more fundamental improvements— clear policy, transparent execution of such policy, and reduced transport costs— would likely deliver more than hedging. The World Bank is also hesitant to recommend developing country governments use such strategies[56]:

> "work should focus on analytical support and capacity building to facilitate adoption of these [market-based risk management] instruments [for food staples] by the private sector and to promote the emergence of necessary institutions and intermediaries. Extreme caution should be used in promoting use of these approaches by public food marketing or strategic reserve agencies." (World Bank, 2005, xvii)

In qualitatively ranking potential users of futures and options, World Bank (2005, p. 46) thought they would be most useful for large-scale traders and processors, moderately useful for large-scale farmers and public food (or strategic reserve) agencies, and of low usefulness to small-scale farmers, traders and processors; and to consuming households.

3.2.3. MARKET MEASURES TO ADJUST SUPPLY AND OR PRICES ON DOMESTIC MARKETS

These measures include control of prices by fiat; restricting financial speculation or private stocking; releasing stock; removing food taxes; universal subsidisation of food; diversion of feed/fuel to food; and boosting production response.

Government can ***control prices by fiat***, by setting and publishing a legal maximum consumer price for cereals. Although the only costs are those of enforcing the rule, the danger is that if prices are set too low, farmers paid a price commensurate with the controlled price will simply not produce enough and shortages will arise in the market. Rationing will then be necessary, either administratively by measures such as ration cards, by queuing, or through a parallel market.

Enforcement can also be difficult— not least in developing countries where markets may be small and scattered. Traders may also interpret rules in order to sell in slightly different forms or sizes. For example, Broudic (2008) reported that although the Government of Liberia set a ceiling price for 50 kg bags of rice in 2008[57], most poor people were paying about 26 percent above this— because they tend to purchase smaller measures (such as by 400g cup) more frequently, rather than larger measures occasionally. With hundreds of vendors in markets across the country, monitoring and enforcement of controlled prices becomes practically impossible.

Despite such difficulties, there is some indication that price controls by fiat can be partly successful— for example, Sierra Leone pursued this strategy in 2008, coupled with import facilitation, and managed to dampen rice price increases in Freetown to about 70 percent over a period when international prices were almost tripling. This strategy did however cost the government as traders who were reportedly selling rice at below cost sought and received significant compensation from the government (see Wiggins et al. forthcoming for detail). There was

[56] There is also an issue of timing of benefits from such schemes. Evidence suggests hedging is very likely to save governments money over a period of say ten years – but justifying losses in one year on the idea of future gains may seem to the public eye too close to state gambling with public money. Malawi circumvented this in 2005 by using donor (DFID) funds to pay the premium on call options for maize imports, which resulted in considerable savings (Slater & Dana, 2006)
[57] US$30 at wholesale level and US$31 at retail level

also leakage to neighbouring countries which were commanding higher prices because their governments had not implemented price controls or had not done so as effectively as the government of Sierra Leone[58].

Moves to ***restrict speculation and limit private stockholding*** are among the most controversial of market measures. Economists are particularly divided over the role (if any) financial speculation plays in price spikes. Furthermore, very few developing countries however have futures markets in the first place. Regardless, restricting financial speculation on commodity markets is a politically popular option as it shows governments concern. It also allocates a certain degree of blame.

For similar reasons, limiting private stockholding, or outlawing 'hoarding' is popular with certain governments. However, long-run negative consequences of scapegoating private traders may be severe— particularly in many developing country markets where the private sector is already operating in an uncertain and high-risk business environment. Forcing private traders to release stock damages their incentives to hold stock in the future— which in turn places a strong onus on the government to have sufficient stockholding capacity to make up for private sector reluctance to stock in sufficient quantities.

Release of public stocks is another widely practiced type of market measure. When sufficient public stocks are available, this is an attractive option since it can be used rapidly, works with the market, and in practice is highly effective in holding down prices. It may even induce private traders to release their stocks as well, since there is no point in holding on once public stocks begin to be released, so that prompt and clear public action can leverage additional effort from private traders.

To do so, however, stocks have to be there in the first place. Holding public stocks can be expensive, especially in the humid tropics, and public stocks may deter private stocking[59]. There may also be a temptation to use stocks for patronage, as has been documented many times in the past.

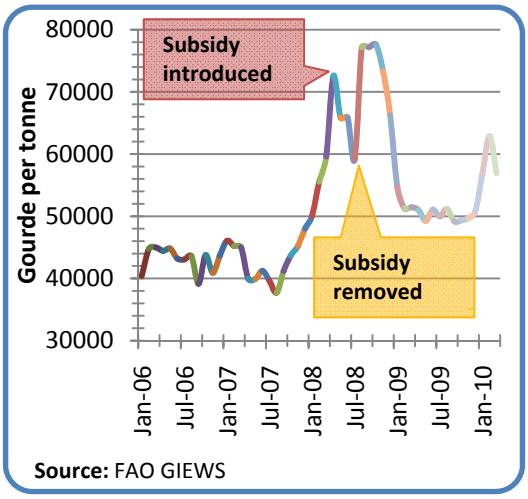
Promising new strategies in public-private partnerships in holding or managing of public stock in order to overcome or manage some of these constraints and costs deserve exploring. For example, the private grain trade company OLAM will be managing Mozambique's strategic grain reserve. There is also an interest in exploring potential to use warehouse receipt systems[60] for strategic grain reserves, particularly in Africa[61]. It should be noted in this context that strategic grain reserves can serve a range of functions depending on size— with small ones for targeted emergency feeding, and larger ones for managing markets— including procurement. This creates a certain ambiguity—for those managing strategic reserves as well as the discussion of reserves in the three-tier framework of this paper[62].

[58] See Wiggins et al. 2010 for more detail.
[59] Particularly where governments are not clear about triggers for procuring and releasing stock. Cases of governments not announcing their intentions in advance, announcing intentions they do not follow through with, or changing their plans at the last minute have been documented, particularly in Eastern and Southern Africa with respect to maize.
[60] These are mentioned in the revised CFA draft box on Food Reserves pp31, stating: "The warehouse receipts schemes may also be considered as a cost-effective means to maintain food reserves and which also simultaneously provide additional benefits including in the form of enhanced market efficiency, easing access to rural finance and facilitating trade."
[61] CAADP documentation stresses the importance of national emergency reserves as part of a food security strategy.
[62] At a country level there are further technical considerations, including for example, optimal size of rolling stock, and how it should be financed. Size will depend on risk – climate conditions, dependency on the staple in question, number of

Removal or reduction of food taxes is another option, but not a powerful one since taxes on staples are rarely substantial, if they exist at all.[63]

Subsidies on food have the advantage that they do not depress incentives to producers, but they can be (very) costly. Costs can rise even more if subsidised food is then either exported— as it was from Haïti to the Dominican Republic in 2008— or used as animal feed.

FIGURE 3.1A RICE PRICES IN HINCHE, HAÏTI



To reduce costs of subsidies and ensure that they go to those who need them, they may be targeted, using, for example, ration cards: but this raises administrative costs. In some cases, food subsidies may be self-targeting: as can be the case when the subsidy applies to an inferior food of little interest to better-off consumers. An example would be subsidies on roughly milled maize when most consumers prefer a finer ground version.

Nonetheless, evidence suggests that in some cases it may be effective. Haiti's responded to rising prices of the main staple, rice, and political unrest in early 2008 by subsidies. Though untargeted, it was quick, and had fewer "errors of exclusion… than would have been expected from the [planned] employment generation, agricultural input and food assistance programmes, as these often do not reach the poorest households in Haïti."(Grosh et al. 2008, p.449). Nonetheless, the subsidy only lasted a few months owing to fiscal constraints and leakages to the neighbouring Dominican Republic.

See Figure 3.2 showing Haïti rice prices, which spiked again clearly with the removal of the subsidy.

The option of ***diverting grains for feed or fuel to food*** was outlined in section 2.3.This probably has limited application in low income countries since most grain is destined for food. Success also depends to a degree on timing— mainly at which point in the growing season(s) a trigger for diverting supplies arrives, since it would not be much good for example if the maize were already harvested whole-crop and fermenting.

different producing regions in the country, geographic location of the country, economic, infrastructural, and political situation. A number of country typologies of vulnerability have been suggested on such criteria (or their proxies). See for example World Bank, 2005; de Janvry & Sadoulet, 2008

[63]Taxes on fuel may be reduced, as was frequent over the recent crisis. This method may also be an option in future crises even if fuel prices do not spike concurrently with food prices—since fuel represents a portion of transport and production budgets, and thus savings on fuel costs can reduce margins on food (ensuring such marginal savings are passed to consumers is a more complex proposal).

Rapid food production programmes are the last category of market measures. These include help with inputs such as fuel, seeds, fertiliser, technology, irrigation, or credit; as well as offering to buy marketed output at an attractive and guaranteed price.

Success of these strategies depends very much on timing. If done early enough in the planting season, such stimuli can work and get more supply on the markets relatively quickly. It also helps if there is more than a single season. If responses are delayed, however, there is a danger that they could be pro-cyclical; leading to a glut of produce flooding the market when prices are already on the way down, and contributing to collapsing prices.

It also helps if the public agencies have the capacity to supply inputs or administer a support price.

Agricultural production programmes can also be adopted in the medium-term as a way to prepare for future food crises, or to increase resilience of countries to exogenous shocks in general. IMF stated:

"Beyond the current price boom, the most effective response for developing countries is to seize the opportunity and step up efforts to encourage expansion of domestic agricultural production by improving infrastructure, distribution and storage systems; increasing competition; providing a stable regulatory environment and access to financing; and removing trade barriers. This will increase productivity and food supply." **Source: IMF 2010b**

3. Experiences with safety nets

Public works schemes, if well-designed and managed, do have some potential for 'self-targeting' in as much as only those people in greatest need will take the work). Despite teething problems, some corruption and disputes about design and management, India's NREGA appears to have made a major difference during the food price crisis, for example by preventing distress migration[64]. Bangladesh has now introduced its own version of NREGA and other countries are likely to follow.

However, public works schemes may not be suitable for some of those most severely hit by rising food prices (families with many dependents, the old, the ill and the disabled).[65] Furthermore, it is difficult to scale up such schemes quickly unless there are already infrastructure schemes designed and ready to build, and skilled technicians available to supervise the work: in the absence of these pre-conditions there is a risk that the scheme will result in poor quality work and value for money (McCord & Farrington 2008). Works designed in haste may not be maintained either.

While the value of cash declined for recipients, it also became much more expensive to provide them with food. The long-standing debate about providing cash versus food took a new twist during the food price spike. As mentioned above, some recipients of social transfers who had previously been happy with cash started to ask for food. A further concern was that where markets were weak, local food purchases by international agencies combined with cash transfers might cause local food inflation.

Subsidising inferior foods, such as yellow maize, rough-milled cereals, or broken rice (Dorosh et al. 1994), has the attraction of being self-targeting, but likely to be politically unpopular (Wiggins & Levy 2008). Cheaper food may be a relatively inefficient way to transfer to the poor:

[64] http://www.thehindu.com/2008/05/31/stories/2008053154170900.htm

[65] Several countries e.g. in southern Africa have attempted to provide complementary jobs to public works, such as childcare, that can be done by less-strong people (Grosh et al. 2008), but these are unlikely to cover the numbers in need.

> 'even the most favourable self-targeted commodities will only distribute a half to two thirds of benefits to the poorest 40% of the population, while the most successful means-tested transfer programs have the potential to deliver more than 80% of benefits to the poorest two quintiles.' (Alderman & Lindert 1998; Grosh et al. 2008)

In Mexico, conditional cash transfers gradually replaced an earlier subsidy on maize tortillas which was seen as less efficient (Wood et al. 2009).

The financial sector in many countries was not developed enough to respond to the needs of the poor for credit. In countries such as Bangladesh with quite well-developed financial systems for the poor, these were heavily drawn upon, while in countries lacking these systems poor people faced crippling interest rates from local moneylenders. Lack of credit facilities — together with the soaring cost of fertiliser — was also a key reason that very few poor farmers could take advantage of soaring food prices (Oxfam International 2008; FAO 2009; Rapsomanikis 2009).

Nutrition took second place to 'food security' almost everywhere during the food price spike. The lack of a political demand for better nutrition, together with the complexities of improving nutritional status[66], meant that maintaining poor households' access to their main staple foods took precedence, for most governments and international agencies, over keeping nutritional levels high. UNICEF championed nutrition and — with partners — provided emergency supplementary high-nutrient rations for some high risk groups (UNICEF 2009a).

Some governments and their international partners, particularly FAO, also promoted ***home gardens*** (both urban and rural) as a route to a more diverse diet at low cost: attractive since even in urban areas, many households have access to a small plot of land. However the main constraints in increasing production for home use are normally land security and harassment by officialdom; irrigation water supply; and theft (Bryld 2003).

The provision of seeds and tools as in Sierra Leone, or vouchers for inputs as in Nicaragua (Wiggins et al forthcoming) does not automatically address these issues — some of which (such as theft) are more common when food prices rise. Moreover, home gardens do not always lead to improved nutrition — or even the production of high nutrient crops — and may need to be accompanied by nutrition advice and education (Makhotla & Hendriks 2004). For all these reasons, home garden programmes promoted during the crisis need careful evaluation.

One area of nutrition work which has grown significantly since the food price spike is the provision of high-nutrition Ready-To-Use Foods[67] for small children at high risk of under-nutrition (formerly such foods were used mainly in treatment of severely malnourished children). Collins (2009) reviews some of the practical challenges in local production and marketing of such foods.

[66] In brief: people don't always prefer the most nutritious foods, and nutrition is affected by hygiene, health and caring practices as well as food consumption.

[67] http://www.validinternational.org/demo/ruf/about.php and http://www.unicef.org/supply/files/5._Prevention_and_Treatment_of_Moderate_Acute_Malnutrition.pdf