Managing Food Price Risks and Instability in the Context of Market Liberalization

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Executive Summary

Food price instability is a perennial issue that has dogged food policy debates for decades. This interest is understandable given the importance of food staples as a wage good, their high share of national income and expenditures in low-income countries, and the political sensitivities of sharp changes in food prices for both producers and consumers.

The debate on food price instability has come to the fore again since 1990 in an environment of market liberalization. Reform of food markets, particularly public food marketing agencies, has been very slow in many countries, and in several cases reforms have been reversed. The relationship between food market reforms and food price instability is especially controversial. On the one side, reluctance to liberalize food markets relates to fears about impacts on food price instability, or that food prices have become more unstable in countries that have liberalized. On the other side, it is argued that the worst of all worlds is ‘half-way’ reform, in which the private sector is encouraged to operate in an environment where governments continue to intervene in a discretionary and unpredictable manner that actually exacerbates price instability.

Commodity price stabilization and risk management are topics that have already received considerable research and policy attention over the years, in both developed and developing country contexts. This study was motivated by the need to re-visit the nature and extent of the current food price instability and risk problem in low-income countries, and to investigate the benefits and costs of alternative policy responses. In particular, it aims to provide guidance on how to make the transition from state-dominated markets to private markets in ways that do not expose producers and consumers to the risk of unacceptable price spikes and collapses.

Five important questions are addressed.

1. What are the sources and magnitudes of food price shocks?
2. What are the magnitudes (actual and potential) of the economic and social costs stemming from food price risk and instability?
3. What is the status of food market reforms in low-income countries, and what can be learnt from the experiences to date?
4. How can countries sequence reforms in ways that promote efficient market development and protect the interests of the poor?
5. What are appropriate policy responses to food price instability and risk in a liberalizing market environment?

The objective of this report is to address these questions by harnessing the ‘best thinking’ globally, in order to outline a framework for analyzing alternative policy options—both conventional and emerging—and to carefully evaluate experiences in light of the
framework. The report also aims to share experiences of policy reform between low income countries of Asia and Africa, drawing in, where applicable, experiences from other regions, especially Latin America, where most countries have implemented extensive reforms.

The report draws extensively on the papers and discussion at an international workshop of academics and practitioners on the theme, held in Washington DC on Feb 28-March 1, 2005, and available at http://www.passlivelihoods.org.uk. However, it also draws on the broader knowledge base from both within the Bank and the wider development community.

The size of the problem

Country context defines the problem. This study has recognized the huge diversity in situations within and between countries with respect to food policy decisions. Accordingly a simple framework was developed to classify countries. The framework focuses on low-income countries where one food staple dominates in consumption (e.g., rice in Asia and Madagascar, wheat in Pakistan and the Middle East/North Africa, white maize in Eastern and Southern Africa, and millet/sorghum in Sahelian countries of West Africa). These are the countries where the poor are most exposed to sharp movements in the price of food staples, especially high prices to consumers. These countries were further classified in terms of their potential exposure to price shocks from domestic climatic events and those generated by shocks in world grain markets.

Based on this classification, rice and wheat importers, especially the least developed (e.g., Madagascar, Bangladesh, and Yemen) are most exposed to world price shocks. Many other Asian and middle income countries are also exposed to global price shocks, but given their much improved infrastructure and foreign exchange reserves, they are now in a much better position to handle such shocks than three decades ago when many public food marketing agencies were established. Landlocked countries in southern Africa that depend on maize, and to a lesser extent, other landlocked African countries (e.g., Ethiopia and some Sahelian countries) are most exposed to domestic sources of shocks from high production variability due to climatic events. These countries also have limited capacity to operate on world markets due to both high transport costs and foreign exchange constraints.

The first conclusion (perhaps obvious but often overlooked) is that food policy decisions and market reforms are highly context specific, and more attention needs to be paid to a country’s particular stage of development, food consumption patterns, agro-climatic factors, geographical situation, and institutional setup in designing appropriate food policies.

Of course, a country typology hides considerable heterogeneity within countries between rural and urban areas, and between regions and households. In general, consumption patterns of urban households, even poor households, have become more diversified over time, providing more flexibility to handle sharp spikes in the price of the dominant food staple. In rural areas, the empirical regularity that emerges in most parts of the developing world is that a majority of households are net food purchasers while grain sales are concentrated in a relatively small number of wealthier households. Moreover, the poor who are overwhelmingly net food purchasers suffer disproportionately from high food
prices. On the producer side, the impacts of low prices are at least partially offset by negatively correlated production variability.

**This leads to a second major conclusion that food policy should generally emphasize impacts of food price instability on consumers, both rural and urban, rather than producers and paying particular attention to the poorest and most vulnerable consumers.**

*How significant are food price shocks?* At the global level, variability in world grain prices remains significant, with coefficients of variation around trend of 20-30% for rice, wheat and white maize. Although there is no evidence that variability has increased (indeed prices were most unstable in the 1970s) there is concern that changes in world markets, especially reduced stock holding of major producers (China, USA and the EU) and rapid growth in demand in Asia, may lead to both higher and more unstable prices in the future.

The evidence on the magnitude and frequency of price instability in domestic food markets, actual and potential, is limited. In general, producer prices for wheat and maize in importing countries have been more stable than international prices, reflecting the effects of transactions costs in transmitting international prices into domestic markets, as well as continuing policy interventions in many countries that insulate domestic markets from world prices. There is also no convincing evidence to date that domestic food price instability has increased over time in the sample of countries reviewed.

Domestic price instability tends to be highest in two groups of countries. The first are Latin American countries where macroeconomic shocks, especially sharp exchange rate devaluations, have resulted in highly unstable prices in a number of cases. The second are countries in Africa, especially landlocked countries where the wedge between export and import prices is high due to high transport costs and poorly developed market infrastructure. This high import/export parity wedge, combined with high domestic production variability, increases the impacts of domestic shocks, especially drought, on prices, especially for countries close to self-sufficiency in a normal year. Uncertainty created by unpredictable government interventions in food markets and imports is an additional contributing factor, particularly in Southern Africa.

Under a full market liberalization scenario, food price shocks, whether from global or domestic sources, are potentially significant in many situations. For example, in Ethiopia the price wedge between import and export parity, has allowed maize prices to fluctuate from about $50 to nearly $250 per ton in recent years in Addis Ababa, and probably more in remoter regions. Likewise, countries depending on rice imports have faced world export prices varying from $340 per ton in 1996 to a low of $170 per ton in 2001, and back to over $300 per ton in 2005.

*What are the costs of price instability?* Instability in food prices may lead to a number of costs, including loss of economic efficiency, detrimental impacts on the welfare of the poor, including under-nutrition and reduced survival rates, and macroeconomic instability that retards economic growth. There is little consensus and generally weak evidence on the magnitude of these various costs. Effects on economic efficiency are probably not large in most cases. The most persuasive case is for costs of high prices on household food insecurity and malnutrition, and the effects of severe food price shocks on macro-
economic performance. These costs could be significant in certain situations—the poorest countries with poor infrastructure and weak capacity to import, dependence on a single dominant staple, and susceptible to drought—all characteristics of several landlocked countries of Africa.

Learning from policy reforms

The record of implementing food market reforms in low, and even many middle income countries, is at best mixed. On the one side, some countries (e.g., India) have maintained the old parastatal system more or less intact, but mounting costs have made most of these systems unsustainable. On the other side, some countries (Bangladesh, Mali, and Mozambique) have introduced and sustained significant reforms that have enabled them to weather a major natural disaster at much lower costs than in the past and with tolerable levels of price instability. Notably, these countries have exploited trade opportunities, especially regional trade, as the main mechanism to stabilize domestic grain prices.

Many countries have introduced partial reforms which have scored some successes, such as increasing private trade and reducing prices to consumers, but are stuck in the reform process between old parastatal models and private market-led approaches. In this situation, discretionary interventions to meet an emergency (or even just a declaration of the intention to intervene), are especially destructive in undermining private incentives. But important lessons have been learned. For example, many countries have not paid sufficient attention to designing an orderly sequence of reforms that systematically increases the roles of the private sector and builds confidence in a market-based approach. Nor has sufficient attention been given to political economy aspects associated with vested interests in maintaining the status quo, and how to navigate a reform program that takes account of these realities.

Moving forward: Broader policy options

Policy choice takes place within a set of constraints formed by the political system and limitations on availability of public funds. This forces governments to make explicit trade-offs in allocating public expenditures and it is imperative that these trade-offs are made in ways that enhance the long run performance, growth, and stability of the food sector and the economy as a whole.

This review highlights a number of policy options for moving forward, recognizing that it is especially difficult to make generic recommendations for such a country-specific and complex topic. One general recommendation is that food policy decisions, rather than focusing on price stabilization options per se, should take a holistic approach to food security, that emphasizes long-run productivity growth and market development as the first priority. This leads to four specific recommendations;

1. Problems of food price instability and food insecurity need to be addressed in a holistic framework that includes measures to:
   - Improve overall productivity of food staples, especially investments in R&D and irrigation.
   - Reduce the severity of domestic shocks from climatic events (e.g., irrigation, crop diversification etc)
• Improve the overall efficiency of markets, including investments in transport and communication infrastructure, storage, information systems, market regulations, and institutional arrangements that improve coordination along the market chain.

• Mitigate the impacts of shocks—both market-based such as forward pricing and weather insurance, as well as countercyclical safety nets.

The corollary of this recommendation is that direct public interventions in food markets to manage food price risk should only be a last resort (see below).

2. **Resources need to be re-allocated from short-run fire-fighting interventions to managing food prices to investment in long-run market and private sector development, including incentive frameworks, market institutions, and infrastructure in line with 1 above.** Nonetheless, even investments in market development have to be sequenced in ways that measurable gains are made in the short to medium term. Public-private partnerships to develop production and market information systems, storage, and market networks through farmers/traders associations are often the first priorities for improving food sector performance.

3. **Liberalization of trade and especially promotion of regional trade is one of the most effective ‘quick wins’ for reducing food price volatility in small and medium-sized countries.** While liberalization of trade shifts exposure from domestic shocks to global price shocks, these are usually less if trade with neighboring countries is also encouraged. Regional trade requires action on a number of fronts, including long-run infrastructural investment, but consistent rule-based policies to lift discretionary export bans and import restrictions, smooth border-clearing procedures, and harmonize regulations, such as phytosanitary rules, would go a long way to creating the incentives for private traders to engage in regional trade.

4. **Sequence market reforms in a consistent manner that creates space for the private sector to operate.** While ‘big bang’ approaches to market reforms have rarely worked in practice, consistent progress in opening space for the private sector is a necessary prerequisite for long-run development of markets, including regional markets. Analytical work and policy dialogue needs to devote more effort to designing a logical sequential program of reforms, and governments need to stick to an agreed program in a predictable and consistent manner. A generic sequence that would gradually increase the role of the private sector includes;

• Elimination of blanket subsidies and revision of any remaining subsidies in ways that level the playing field for the private sector and target the poor.

• Removing remaining restrictions on grain movement within the country and reducing restrictions on grain imports and exports.

• Moving away from fixed procurement and release prices toward seasonally adjusted prices and price bands

• Tendering remaining public procurement, imports and even storage to the private sector using a highly transparent process to increase efficiency, reduce rent seeking, and build private sector capacity.

*Specific policy options for managing price instability and risk*
Within an overall framework that emphasizes transition to private markets and long-run market development, a number of public interventions that specifically target price instability and risks. Two of these will be a standard part of the tool kit of most food security strategies: (i) facilitating the adoption of various market-based risk management instruments and (ii) implementing countercyclical safety nets for the poorest and most vulnerable. Two others may have a role in certain situations and when accompanied by specific safeguards to ensure ‘arms length’ rule-based management: (iii) variable tariffs and (iv) strategic reserves.

**Market-based risk management instruments.** Several risk management instruments show considerable promise in managing food price risks, including facilitation of private storage (e.g. warehouse receipt systems), futures and options markets, and weather-indexed insurance. These are little used in low-income countries at present, partly because of public sector dominance of food markets and partly because of lack of enabling conditions, including access to finance, information and communication systems, market regulations, and capacity.

The major focus of the public sector should be to provide the enabling environment to facilitate the adoption of these instruments by the private sector, especially in the following ways.

- **Warehouse receipts** for use initially by larger farmers, processors and traders, but over the longer term by the small-scale sector. Warehouse receipts have much potential to reduce risks from seasonal price fluctuations, develop finance markets, encourage investment in storage, and eventually when widely adopted, to reduce both seasonal and inter-annual price fluctuations. However, an appropriate regulatory and business environment is a pre-requisite for their implementation.

- **Futures and options using existing global markets** for use mainly by large-scale traders and processors, and strong intermediaries, such as well-developed farmer or trader associations, to reduce exposure to risks from global markets. These options are already available where the basis risk is low, which appears to be the case for wheat and white maize for many countries, using US and South African futures markets.

- **Weather-indexed insurance** for use by farmers, safety net programs (see below), and potentially consumers. While not designed for price risk management per se, weather-indexed insurance can mitigate the impacts of price spikes or climate shocks. Already successfully piloted at the farm level in India and Mexico, they can be more widely used where weather indices are good proxies for crop loss, and especially when domestic insurers can re-insure on global markets.

The public sector should support the development of the basic enabling environment of financial systems, communications and information systems, regulations, an appropriate business climate, as well as promote these activities through analytical work and capacity development for their piloting and scaling up.

Some recent discussions have also noted the potential for the public sector to use market-based instruments to reduce their exposure to risks from their own operations in food...
markets. However, direct trading of futures, options, or insurance contracts by
governments or public food agencies should be approached with extreme caution. **Large
government futures or options positions are not recommended** for two reasons. First,
even if the public sector is successful in using them, it is likely to undermine incentives
for private sector use of these instruments. Second, given the poor record of public sector
interventions in food markets, there is little reason to believe public sector use of market-
based risk management instruments would be immune to the same inefficiencies and rent
seeking forces that have plagued conventional public food agency operations.

If governments do choose to be involved in direct procurement to manage a small
strategic food reserve (see below), market-based risk management strategies may have a
potential role in these operations. In such cases, options have distinct advantages over
futures because of their role as price insurance, and because purchasing options only
requires a single up front premium while futures can entail continuing margin calls if
prices move unfavorably. Even when using options, an effective hedging strategy
requires considerable investments in analytical capacity and a long-run commitment,
otherwise hedging could add to risk rather than reduce it. And misuse of futures and
options may expose governments to even greater fiscal risks and rent seeking than
conventional public sector operations in food markets, unless special management
safeguards are in place (see below).

**Countercyclical safety nets.** A second major priority for interventions to manage risks is
to support the development of countercyclical safety nets in ways that are market
friendly. Countercyclical safety nets that kick in when high food prices or low production
threaten household food security are an integral part of any program to manage food price
risks. Food aid and food-for-work programs remain the most important safety nets in
many countries. In the past, however, untimely imports or local procurement and sales of
food aid, along with poor targeting, have often undermined market development. Food
aid and other safety net programs can support long-run market development by;

- Converting from food to cash transfers where food markets are already
  functioning reasonably well.
- Scaling up local and regional procurement of food aid, perhaps including the
  maintenance of a small and well-managed emergency reserve, but ensuring that
  timing of food aid procurement and sales does not aggravate price instability.
- Incorporating rainfall insurance into safety net programs to enhance their ability
  to trigger timely and better-targeted responses to a drought.
- Better targeting of food aid through improved information systems and the use of
  self-targeting approaches including ‘inferior grains’.
- Integrating safety nets with market development activities, such as the use of food
  aid to construct local market infrastructure.

**Variable tariffs.** Under certain circumstances, variable tariffs can be used to manage
downside price risks to producers from exposure to global markets. However, to be
effective, they should be triggered by well-defined rules to reduce political capture and be
highly transparent in their operation. Technically, their use also has to be approved by the
WTO and indeed, a preferable outcome would be for the triggers and monitoring of their implementation to be subject to WTO oversight to maintain maximum transparency.

Technically, variable tariffs could be used also to reduce risks from price spikes in global markets, but this requires that tariffs be initially high enough to provide the space to reduce them when world prices rise sharply. 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), use of variable tariffs is unlikely to be a useful strategy for managing world price spikes.

Strategic reserves. Publicly-owned reserves continue to be implemented as a buffer stock to reduce food price instability in many countries. In a liberalized market economy, the primary reason to maintain such reserves should be a targeted food distribution scheme (if there is one), and in a few cases for emergency responses (e.g., in landlocked countries with poor infrastructure). In some cases, such reserves may be large enough to influence domestic market prices, and judicious use of these reserves may help reduce the impacts of domestic shocks on food prices, especially where there is a large wedge between import and export parity prices. However, critical safeguards must be in place to ensure that operations of food reserve agencies do not destabilize markets, including (i) arm’s length “central bank type” autonomy, (ii) highly professional management and analytical capacity, and (iii) strict rule-based market operations to meet a narrowly defined objective, and (iv) tendering of operations, including storage, to the private sector.

Finally, it is clear that food policy design and approaches to managing food sector risks vary widely according to country context. The overall priorities on productivity enhancement and market development are fairly generic. However, moving to approaches to sequencing reforms, creating space for the private sector, and specific priorities for managing market risks, leads to quite different strategies. Many Asian countries, in particular, still have a considerable reform agenda to open space for the private sector. Likewise the opportunity to apply various market-based risk instruments depends a lot on the extent that a country is exposed to domestic versus global shocks.

Entry points for the World Bank

Food market reform and food security remain critical areas for Bank engagement. There is burgeoning interest in these issues from many countries, both those who have yet to seriously embark on reforms, and those who seem to be stuck half way in the reform process. Indeed the Bank needs to revamp its analytical work in this critical area, paying particular attention to the following:

Better managing the policy dialogue. Too often in the past, Bank analytical work has proposed broad recommendations on market reforms, but paid little attention to how those reforms should be sequenced. In general, ‘big bang’ approaches have not worked and part of the challenge in moving forward is to be alert for opportunities to move toward second and even third-best options rather than waiting for the opportunity for full reform. Good analytical work will also have to be combined with much more time- and resource-intensive policy dialogue that is attuned to political realities of the vested interests of specific groups. Advice on food grain market reform will be more effective if it seeks wide stakeholder dialogue and pays special attention to transitional and
sequencing arrangements that mitigate the negative effects of policy changes on particular groups. The use of Poverty and Social Impact Assessments to ensure wide buy in and ownership in this type of delicate reform process is a step in the right direction and needs to be scaled up.

*Piloting and evaluating new market-based instruments.* The recent move by the Bank’s commodity-based risk management group to analyze the applicability of market-based risk management instruments for food staples is providing encouraging results and should be scaled up. However, this work should largely focus on analytical support and capacity building to facilitate adoption of these instruments by the private sector and 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.

*Activities at the regional and global level.* This report has highlighted the potential for regional trade as a mechanism to stabilize prices within a region, and this raises a huge agenda for analytical work and policy dialogue to reduce policy and institutional barriers to trade in nearly all regions.