



Summary 6: The role of food reserves

Nick Maunder

Introduction

Social protection has emerged rapidly as a key development and humanitarian policy issue in the last decade. At the same time, there have been major food price shocks in many countries in the last 5 years. As a result, interest in social protection and food systems is converging and many donor agencies and governments are looking at how different social protection instruments might better support or enable the different components of food systems and maintain their resilience in the face of major shocks and stresses. These summaries, based on a series of reports, explore the impacts of different social protection instruments on resilient food systems and provide a set of key messages for policy makers and programmers working on social protection and food security.

Defining a food system

We conceptualise a food system by drawing on a shared and common definition of food security ('when all people at all times have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life' FAO 1996) and we focus on four specific dimensions of food security:

- The availability of food: the supply of food at the macro national (global) level
- People's entitlement to food (henceforth called 'access to food'): households' ability to produce and/or purchase food
- The utilisation of food: the intake of sufficient, safe and quality food
- Crisis prevention and management: maintaining availability, access and utilisation in contexts of emergencies, shocks and stresses

What do we know about the impact of food reserves on availability?

Food Reserves can affect food availability through influencing producer prices. High and stable prices, backed by reserve operations, can give farmers the confidence to invest and raise agricultural productivity.

Case studies have identified success in *reducing aggregate price volatility over time*. Examples include the Food Corporation of India and wheat prices (McCreary, 2012), and the stabilization of maize prices by Zambia's Food Reserve Agency's and the National Cereals and Produce Board in Kenya (Mason and Myers, 2011; Jayne et al., 2008).

Evidence also shows that *in general reserves tend to increase average producer prices* (McCreary, 2011). There is a tendency for prices to drift upwards, as intervention prices are rarely corrected down to reflect long-term global price trends. Estimates of mean producer price increases associated with reserve operations over long-term study periods include 17% for maize in Zambia and 20% for maize in Kenya (ibid)

These price effects can be very effective in stimulating domestic production and national stock accumulation. This happened in the European Community in the 1980s and 1990s and recently large reserve related surpluses have accumulated in Zambia, Thailand and India.

There is a continuing debate between those advocating that the best route to price stabilization lies in further liberalization of trade, and those who perceive occasional but major market failures warrant maintaining Government capacity to intervene in markets. Poorly managed reserves, which lack transparency and predictability, can displace or even discourage private storage. This in turn creates risks for private traders

On behalf of

BMZ



Federal Ministry
for Economic Cooperation
and Development

giz

Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

who may refrain from making imports which would otherwise meet domestic demand (Jayne and Tschirley 2009).

The operation costs of stabilization reserves have often proved a major drain on government resources, for Zambia this is currently estimated as equivalent to 2 per cent of Gross Domestic Product. Ultimately the cost of stabilization reserves tends to overwhelm budget resources, such as the demise of farm support policies in the EU and US. Painful adjustments have to be eventually made by producers to market realities when the necessary budget corrections occur (HLPE 2011). It is argued that high spending on public stocks can squeeze out investment in other agricultural programmes that may be more effective in improving long-term agricultural productivity (World Bank, 2012).

Box 1: Food Reserves - Terminology

In this paper three main types of food reserve are identified:

Emergency reserves to provide food assistance during food crises.

Stabilization stocks used to influence domestic prices to support producers and/or consumers.

Social safety net stocks which provide working stocks for regular food based distribution programmes.

In practice one reserve agency may be tasked with multiple responsibilities. Multiple purpose stocks are referred to here as *strategic reserves*.

Reserves may be *grain reserves* – typically maize, wheat or rice - or *food reserves* that include a larger range of commodities. *Physical reserves* may also be complemented by the use of *virtual reserves*, including cash and derivatives such as call options. Reserves may be constituted and managed at the *national, regional or international levels*.

What do we know about the impact of food reserves on access?

Food reserves have potential impacts on food access through three main channels: direct impacts on farm incomes, by modifying consumer prices, and supporting food aid transfers.

Farm Incomes

Evidence indicates that *reserves tend to increase average producer prices*. However, the benefits of elevated prices tend to be captured by the more affluent and food secure farmers. In Kenya, it is estimated that 3 per cent of all farmers sell 50 per cent of the marketed maize and regularly benefit from NCPB procurements (Jayne *ibid*) and in Zambia, 5 per cent of all farmers account for half of the national maize surplus and benefit from the reserve backed prices (Nkonde et al. 2011).

Consumer prices

Stabilization reserves can intervene directly in markets with a goal of ensuring the affordability of food for consumers. This includes both influencing average food prices and preventing periodic price 'spikes'.

There is evidence that reserve operations tend to *increase consumer prices*. Studies in Kenya, the Philippines and Zambia estimate retail price rose over the long-term. For example in Zambia mean consumer prices were estimated to be 19% higher between 1996 and 2008 (Mason and Myers *ibid*). There is a potential conflict between the goals of stimulating domestic food production and lower consumer prices. In the case of Asia high rice prices have successfully increased domestic production, but simultaneously forced poor consumers to pay more. As the majority of the food insecure - including small-scale farmers - are net food purchasers, this has increased net poverty levels.

The empirical evidence shows limited ability to manage major price spikes through reserves. The effectiveness is limited by the available storage capacity. Once an inventory is exhausted, a buffer stock has no other means of limiting price rises. Intervention is therefore more effective in limiting price falls than in curtailing the incidence and magnitude of spikes (Wright, 2012).

At the global level there is strong evidence that *low aggregate global stocks are associated with periods of high price volatility*. Whilst low stocks are not *per se* a cause of price volatility, lack of stock creates a heightened sensitivity to disruptions in supply, or changes in demand. Relatively small changes in supply at low levels of stocks can then result in rapid price changes. This empirical finding has led to arguments for increasing physical stocks at national, regional and global level (Von Braun and Terero 2008). However,

history and theory (Newbery and Stiglitz 1981) demonstrate that it is impossible to stabilize the price of a commodity in world markets for long periods of time using internationally managed buffer stocks - an example is the failure of the International Commodity Agreements.

Food transfers

Food reserves are used to support food distributions as emergency relief and through regular safety net programming. The literature broadly *supports the use of small-scale emergency reserves at national level* (World Bank 2012). The smaller size of emergency reserves makes operating costs of emergency reserves sustainable and, if well managed, they generate few market disincentives (Barrett 2002).

A significant amount of practical experience has been gained from national emergency food reserves. Strong governance is clearly key to success. Case studies highlight both relatively effective emergency reserves (for example Ethiopia's Emergency Food Security Reserve Administration) and reserves that failed (the Malawi Strategic Grain Reserve (SGR) in the 2002/03 crisis intensified).

There have been several attempts to establish emergency reserves to backstop food relief operations at the regional and global levels. Risk pooling for non-covariant shocks would in theory mean that a smaller total reserve stock is needed, resulting in possible efficiency gains; however, historical efforts to establish common regional emergency reserves have floundered on challenges of governance and bureaucracy. No regional emergency reserves are currently operational.

Recent arguments have also been advanced for establishing a global emergency reserve under the control of WFP. However, given the range of established alternative quick response instruments the added value of this is unclear.

What do we know about the impact of food reserves on utilisation and nutrition?

The nutritional impact of food reserves tends to be rather indirect, modulated by the intermediate effects on incomes and prices. Given this extended casual chain there is little or no attempt in the literature to test the association of reserves with nutritional outcomes.

Recent evidence highlights the importance of diet diversity and highly nutritious food in preventing malnutrition. Therefore, the inclusion of diverse and specialized commodities, such as energy rich Ready To Use Foods in emergency reserves deserves consideration. The current standard operational model is to rotate grain stabilization stocks through food aid distributions.

Key messages for policymakers and programmers

1. From an economic and welfare perspective, *stabilization reserves* have proved relatively expensive and ineffective. A major constraint to their use is the high cost, which ultimately exceeds budgetary capacity. Most international experience (as well as economic theory) suggests that market liberalization is more efficient over time in achieving price stabilization objectives.

2. For a national stabilization reserve to work efficiently it needs to be implemented in conjunction with other policies that insulate the local economy from the world market, otherwise the stabilization effects will inevitably leak into world markets (Gouel and Jean 2012). The imposition of a rice export ban by India in 2008 led to significant rice price inflation in Bangladesh, which is normally a major importer from India. As trade barriers – such as export bans – act to displace and exacerbate price problems at the global level, *domestic price stabilization may only be achieved at the cost of greater price instability for other nations.*

3. Despite these concerns, public stocks in developing countries have been growing strongly since 2008. Total stocks in developing countries as a group grew from 228 million tons in 2006/07 to 328 million tons in 2010/11 (up by 42 per cent). The main justification given is insurance against a failure of the international food markets.

4. Current policy attention towards food self-sufficiency is underpinned by an assumption that we are entering a new era of higher and more volatile prices and a diminished reliability on global markets. However, this is not backed by strong evidence. Judged against previous years the grain price peaks of the last few years, adjusted for inflation, are not particularly high (Wright 2012).

5. Evidence also suggests that it is far more cost efficient to use targeted transfers as opposed to general market subsidies (Wodon et al. 2008). As part of this there is wide support in the literature for *maintaining small emergency reserves* to ensure that food is readily available to respond to a crisis. However, the specific relevance will depend on the local context and the potential of alternative instruments.

6. A criticism of emergency food reserves is that they tend to support a default food aid response to emergency needs. Food policies and strategies are adapting to reflect evidence on the use of a much wider array of *food assistance* tools. For example, in the right context there is increasing evidence on the comparative advantages of using cash based responses, early livelihood interventions and nutrition programmes. This could imply a declining role for traditional emergency food reserves.

7. Recent attention has focused on establishing reserves at regional and global level, based on arguments of enhanced preparedness and efficiency gains from risk sharing. However, there are considerable financial and administrative challenges at this level and historical experience has been rather negative - suggesting a cautious approach should be maintained to these proposals.

8. A pre-condition for effective reserves operations is good governance and strong management. Guidelines advocated for effective reserve management include: independence from political process; professional management; and rules to ensure transparency in market interventions. A repeated conclusion in the literature is that confounding emergency and stabilization objectives in one agency can lead to contradictory goals that undermine performance.

9. Reserves can be a useful instrument to contribute to food security. Public grain stocks need to be considered as part of a coherent longer-term strategy that combines the use of trade, investments in agricultural productivity, and well-managed, targeted safety net programs. For some countries holding a public food reserve may prove to be costly and unnecessary.

References

- Barrett, C. B. (2002). Food Aid Effectiveness: *It's the Targeting, Stupid!* Policy Service, Strategy and Policy Division, World Food Programme working paper. Rome, World Food Programme. Also Cornell University Applied Economics and Management Working Paper No. 2002-43
- Gouel, C. and Jean, S. (2012) "Optimal food price stabilization in a small open developing country." *Policy Research Working Paper* 5943
- HLPE (2011) *Price volatility and food security A report by the High Level Panel of Experts on Food Security and Nutrition (HLPE)* Committee on World Food Security, Rome, 2011
- Jayne, T. S., Myers, R. J. and Nyoro, J. (2008) "The effects of NCPB marketing policies on maize market prices in Kenya." *Agricultural Economics* 38(3): 313-325.
- Jayne, T.S. and Tschirley, D. (2009) "Food price spikes and strategic interactions between the public and private sectors: markets failures or governance failures?" in *FAO Commodity Market Review 2009-2010*
- Mason, N. and Myers, R. J. (2011) *The effects of the food reserve agency on maize market prices in Zambia*. No. 120771. Michigan State University, Department of Agricultural, Food, and Resource Economics
- McCreary, I. (2012) "Food reserves in India." *Canadian Foodgrains Bank Occasional Paper*
- Newbery, David MG, and Joseph E. Stiglitz. The theory of commodity price stabilization: a study in the economics of risk. Oxford: Clarendon Press, 1981.
- Nkonde, C., Mason, N. M., Sitko, N. J., & Jayne, T. S. (2011). *Who gained and lost from Zambia's 2010 Maize Marketing Policies?* Food Security Research Project, Working Paper No.49, Lusaka, Zambia.
- Von Braun, J. and Torero, M. (2008) Physical and virtual global food reserves to protect the poor and prevent market failure. IFPRI Policy Brief.
- Wiggins, S. and Keats, S. (2010) "Grain stocks and price spikes." London: ODI
- Wodon, Quentin, and Zaman, H. (2008) "Rising food prices in sub-Saharan Africa: Poverty impact and policy responses." *World Bank Policy Research Working Paper Series*
- World Bank (2012) *Using Public Food Grain Stocks to Enhance Food Security* Report Number 71280-GLB, World Bank, Washington DC

Wright, B. D. (2012) "International grain reserves and other instruments to address volatility in grain markets." *World Bank Research Observer*