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*Consistency between Theory and Practice in Policy Recommendation  
By International Organizations for Extreme Price and Extreme  
Volatility Situations*

By

MaximoTorero

# **Consistency between Theory and Practice in Policy Recommendation by International Organizations for Extreme Price and Extreme Volatility Situations**

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## **Abstract**

The world faces a new food economy that likely involves both higher and more volatile food prices, and evidence of both conditions was clear in 2007/08 and 2011. After the food price crisis of 2007–08, food prices started rising again in June 2010, with international prices of maize and wheat roughly doubling by May 2011. This situation imposes several challenges. In the short run, the global food supply is relatively inelastic, leading to shortages and amplifying the impact of any shock. The poor are the hardest hit. In the long run, the goal should be to achieve food security. The drivers that have increased food demand in the last few years are likely to persist (and even expand). Thus, there is a significant role for international organizations like the World Bank, IFAD, AFD, IADB to play in increasing the countries' capacity to cope with this new world scenario and in promoting appropriate policies that will help to minimize the adverse effects of the increase in prices and price volatility, as well as to avoid exacerbating the crisis.

In this regard, this paper describes some of the most important official policies that international organizations prescribed to different countries during the food crisis of 2007/08. In addition, it compares those policies to what the scientific evidence on their potential costs and benefits. The review focuses on the short-term, medium-, and long-term policies. In terms of short-term policies, two mechanisms are emphasized: support for the poor and price stabilization (with an emphasis on trade restrictions and food reserves). In terms of medium- and long-term policies, we focus on the recommendations linked to increasing agricultural productivity through productivity gains and elimination of post-harvest losses.

# Consistency between Theory and Practice in Policy Recommendation by International Organizations for Extreme Price and Extreme Volatility Situations

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## 1. Introduction

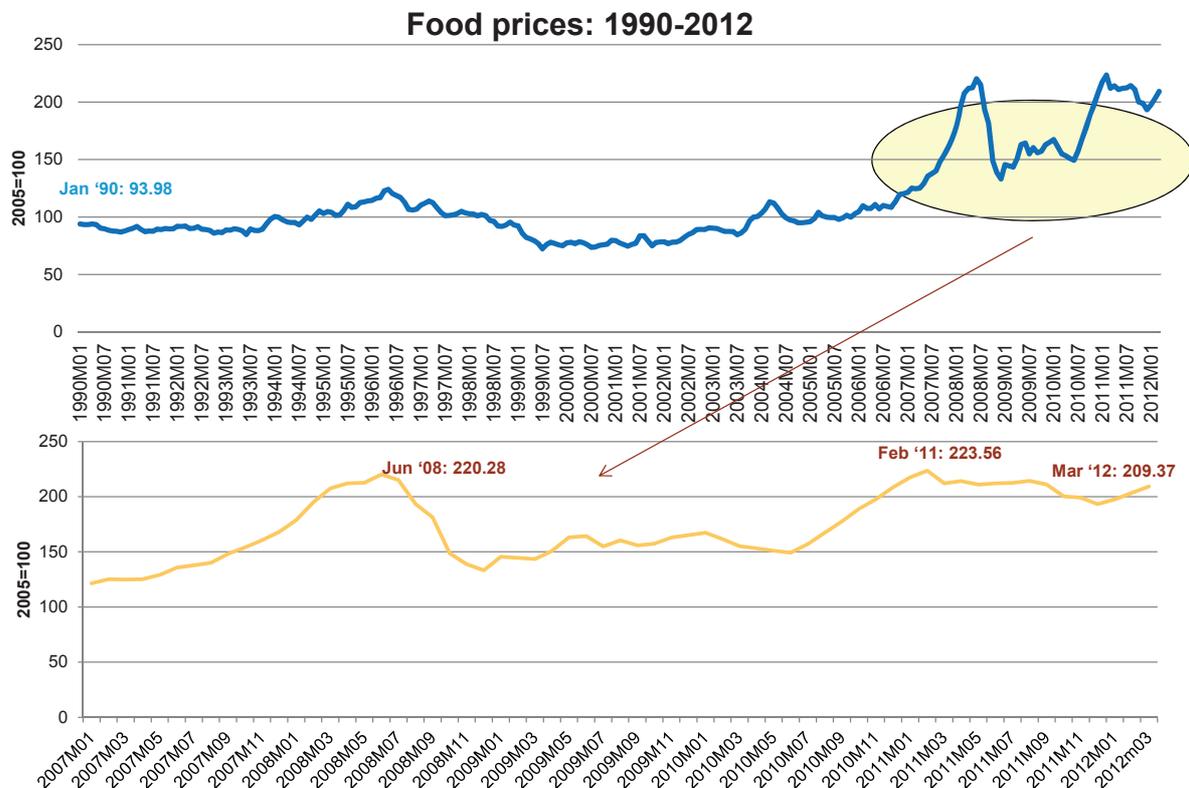
Food prices have increased significantly in the past few years, with particularly sharp spikes seen during the 2007/08 season (see Figure 1 and Figure 2). There is some agreement on the causes of such price increases: (a) weather shocks that negatively affected agricultural production; (b) soaring energy and fertilizer costs; (c) rapidly growing income in developing countries, especially in China and India; (d) the devaluation of the dollar against most major currencies; (e) increasing demand for biofuels; and (f) changes in land use patterns. While there is no consensus on the relative importance of each of these culprits, it is widely agreed that most of these factors will further increase food prices in the medium and long run. Prices may become more volatile as well, as evidenced by the subsequent food crisis in 2010. Climate change will induce more weather variability, leading to erratic production patterns. Moreover, the volatile nature of the market is likely to induce possible speculation and exacerbating price spikes. Additionally, in an effort to shield themselves from price fluctuations, different countries may implement isolating policies, further exacerbating volatility.

Figure 1: FAO Food Price Index



Source: FAO

Figure 2: World Bank Price Index



Source: World Bank

Looking at the volatility at global level is important because although the food price spikes of 2008 and 2011 did not reach the heights of the 1970s in real terms as shown in Figure 3, price volatility—the amplitude of price movements over a particular period of time—has been at its highest level in the past 50 years. This volatility has affected wheat and maize prices in particular. For soft wheat, for example, there were an average of 41 days of excessive price volatility a year between December 2001 and December 2006 (according to a measure of price volatility recently developed at IFPRI<sup>1</sup>). From January 2007 to June 2011, the average number of days of excessive volatility was more than doubled to 88 a year. Despite this there has been no analysis of how global price volatility is affecting local relative prices (see Figure 4).

<sup>1</sup> See Martins-Filho, C, M. Torero, and F. Yao, 2014.

Figure 3

Real price evolution. Index=100 in 1960

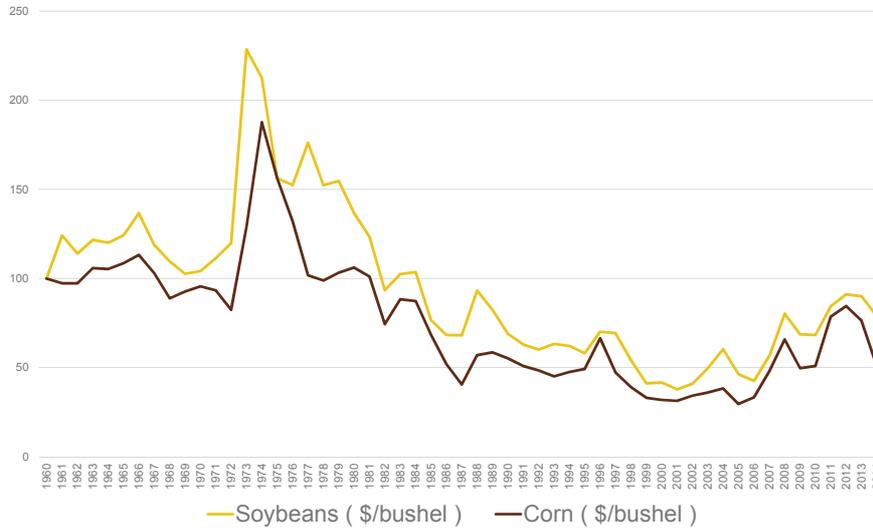
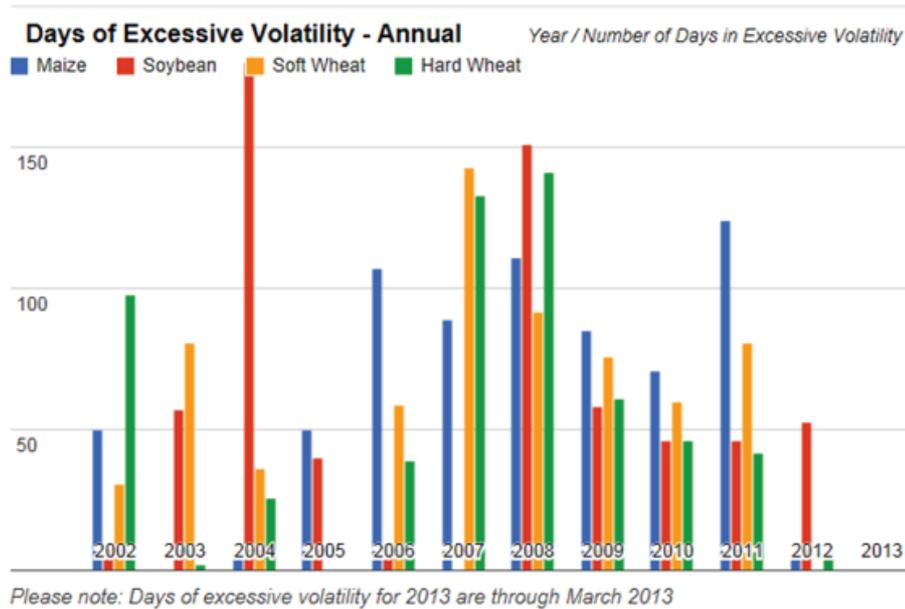


Figure 4

Periods of Excessive Volatility



**Note:** This figure shows the results of a model of the dynamic evolution of daily returns based on historical data going back to 1954 (known as the Nonparametric Extreme Quantile (NEXQ) Model). This model is then combined with extreme value theory to estimate higher-order quantiles of the return series, allowing for classification of any particular realized return (that is, effective return in the futures market) as extremely high or not. A period of time characterized by extreme price variation (volatility) is a period of time in which we observe a large number of extreme positive returns. An extreme positive return is defined to be a return that exceeds a certain pre-established threshold. This threshold is taken to be a high order (95%) conditional quantile, (i.e. a value of return that is exceeded with low probability: 5 %). One or two such returns do not necessarily indicate a period of excessive volatility. Periods of excessive volatility are identified based a statistical test applied to the number of times the extreme value occurs in a window of consecutive 60 days.

**Source:** Martins-Filho, Torero, and Yao 2014.

High and volatile food prices are two different phenomena with distinct implications for consumers and producers. High food prices may harm poorer consumers because they need to spend more money on their food purchases and therefore may have to cut back on the quantity or the quality of the food they buy or economize on other needed goods and services. For food producers, higher food prices could raise their incomes—but only if they are net sellers of food, if increased global prices feed through to their local markets, and if the price developments on global markets do not also increase their production costs. For many producers, particularly smallholders, some of these conditions were not met in the food price crisis of 2011.

Apart from these effects of high food prices, price volatility also has significant effects on food producers and consumers. Greater price volatility can lead to greater potential losses for producers because it implies price changes that are larger and faster than what producers can adjust to. Uncertainty about prices makes it more difficult for farmers to make sound decisions about how and what to produce. For example, which crops should they produce? Should they invest in expensive fertilizers and pesticides? Should they pay for high-quality seeds? Without a good idea of how much they will earn from their products, farmers may become more pessimistic in their long-term planning and dampen their investments in areas that could improve their productivity. The positive relationship between price volatility and producers' expected losses can be modeled in a simple profit maximization model assuming producers are price takers. Still, it is important to mention that there is no uniform empirical evidence of the behavioral response of producers to volatility. By reducing supply, such a response could lead to higher prices, which in turn would hurt consumers.

It is important to remember that in rural areas the line between food consumers and producers is blurry. Many households both consume and produce agricultural commodities. Therefore, if prices become more volatile and these households reduce their spending on seeds, fertilizer, and other inputs, this may affect the amount of food available for their own consumption. And even if the households are net sellers of food, producing less and having less to sell will reduce their household income and thus still affect their consumption decisions.

Finally, increased price volatility over time can also generate larger profits for investors, drawing new players into the market for agricultural commodities. Increased price volatility may thus lead to increased—and potentially speculative—trading that in turn can exacerbate price swings further.

Despite the conceptual importance of the effects of price volatility, consumer welfare is notoriously difficult to measure due to income effects associated with price changes. In addition, the fact that in many low income countries economic agents are concomitantly consumers and producers of food creates added concerns.

Besides the inherent difficulties in adequately measuring consumer welfare, most empirical models for the dynamic evolution of returns for major agricultural commodities lack flexibility in modeling the

conditional volatility (conditional standard deviation) of returns. Restrictive modeling of volatility can produce inconsistent return forecasts and inaccurate assessments and policy recommendations regarding the link between volatility and consumer welfare.

This situation imposes several challenges. In the short run, the global food supply is relatively inelastic, leading to shortages and amplifying the impact of any shock. The poorest populations are the ones hardest hit<sup>2</sup>. As a large share of their income is already being devoted to food, the poor will likely be forced to reduce their (already low) consumption. Infants and children may suffer lifelong consequences if they experience serious nutritional deficits during their early years. Thus, the short-term priority should be to provide temporary relief for vulnerable groups.

In the long run, the goal should be to achieve food security<sup>3</sup>. The drivers that have increased food demand in the last few years are likely to persist (and even expand). Thus, there will be escalating pressure to meet these demand requirements. Unfortunately, increases in agricultural productivity have been relatively meager in recent years. In this line, “the average annual rate of growth of cereal yields in developing countries fell steadily from 3 percent in the late 1970s to less than 1 percent currently, a rate less than that of population growth and much less than the rise of the use of cereals for other things besides direct use of food” (Delgado et al, 2010, p 2).

There is a wide array of options to achieve these short- and long-run objectives, and there are no one-size-fits-all policies. Most policies come with significant trade-offs and each government must carefully weigh the benefits and costs they would face. For example, governments might try to make food more readily available by reducing food prices through price interventions. While this policy might achieve its short-term goal, it can potentially entail fiscal deficits and discourage domestic farmers’ production. Other policies not only have domestic consequences but can entail side effects for other countries. In their efforts to insulate themselves from international price fluctuations, some countries might impose trade restrictions; if a country is a large food exporter, the government might impose export taxes, quantitative restrictions, or even export bans. Albeit increasing domestic supply and lowering national prices, these policies would reduce the exported excess supply, induce even higher international prices, and hurt other nations. In addition, the “right” policies depend on the particular institutional development of a country. Middle-income countries might already have safety networks for vulnerable populations which can trigger prompt aid to those most in need in times of crisis. However, countries with lower incomes do not have such mechanisms readily available. Finally, the effectiveness of different policies will vary depending on

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<sup>2</sup> There is a general concern that increasing food prices have especially adverse effects on the poor. However, until recently, there was no rigorous evidence of this. On the one hand, there would most probably be negative effects on poor urban consumers who spend a considerable portion of their budget on food. But on the other, there are gains to farmers who benefit from increased prices for their output. In general, this impact depends on whether the gains to net agricultural producers are larger than the losses to consumers. Directly dealing with this issue, Ivanic and Martin (2008) and Ivanic, Martin and Zarman (2011) find that the food crisis has led to significant increases in poverty rates of developing countries.

<sup>3</sup> Food security is a situation in which “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” (World Food Summit, 1996). Even when increases in food production are not a sufficient condition for food security, they are indeed a necessary condition (von Braun et al 1992).

the market characteristics of the commodity in which the government is intervening (i.e. the market structure for wheat is very different from that of rice, which is different from that of soybeans, etc.).

In this regard, this paper describes some of the most important policies International Organizations like the World Bank, IFAD, AFD, IADB, has prescribed to different countries during the food crisis of 2007/08. The understanding of such policies is important for at least three reasons. First, food crises are very sensitive episodes that affect the basic needs of entire populations, especially those of the world's poorest. As such, they require timely and sensible measures. Second, increasing food prices and price volatility are likely to remain an important challenge in the medium and long run. Third, food policies are usually complex; they need to be assessed to consider their domestic impact, the trade-offs that they entail with respect to other objectives, their consequences for other countries, and their feasibility in particular contexts.

This paper is divided into five sections (excluding the introduction). The second section analyzes a series of policies recommended by international organizations during the 2007/08 crises and the policies recommended at the G8 Meeting of Finance Ministers in Osaka, June 13-14, 2008. The third section analyzes the policy recommendations which came out after the 2007/08 crises but which were result of research work done by the same international organizations. First, some short-run policies are analyzed in which two mechanisms are emphasized: support for the poor and price stabilization (with an emphasis on trade restrictions and food reserves). Second, medium- and long-term policies to increase agricultural productivity, through productivity gains and elimination of post-harvest losses, are discussed. The fourth section describes specific loans and policies prescribed for selected countries during the 2007/08 food crisis. It analyzes their consistency and cohesiveness when contrasted with the general policies that some International Organizations formally recommended and the ones that were recommended after 2008. The final section summarizes and presents some concluding remarks.

## **2. Proposed Policies and the G8 Summit**

In this section, a detailed description of the policies officially proposed and the G8's document prepared for the Ministers of Finance Meeting in 2008 (Table 1 presents a summary of all these policies). These policies can be classified as short-run policies and medium- and long-run policies. Specifically, within the short-term policies, we identify two groups of policies: (a) short-term support for the poorest and (b) price stabilization policies.

### **2.1. Short-run Policies (Social Protection and Trade Policies)**

#### **A. Short-term support for the poorest**

Governments' short-run objective is to increase access to food, especially for their most vulnerable populations. In this sense, policies should provide targeted short-term subsidies to those in the most distress. Countries that already have Targeted Cash Transfer (TCT) and Conditional Cash Transfer (CCT) programs in place can scale them up and increase the subsidies they provide (World Bank, 2008). TCTs provide additional income to poor households with children or disabled or elderly members. CCTs provide the same benefits but are contingent on some conditionality (which usually encompass an educational, nutritional, or health requirement). These constitute first-best responses for several reasons: (a) they prioritize assistance for targeted groups, (b) they do not entail additional costs of food storage and transportation, (c) they do not distort food markets, and (d) in the case of CCTs, they explicitly prevent human capital deterioration. However, there is an important shortcoming to this approach: countries with weaker administrative capacity – which are usually those most affected by food crises – are less likely to have implemented any TCTs or CCTs<sup>4</sup>. In this line, Delgado et al (2010) argue that “it is essential that during non-crisis years, countries invest in strengthening existing programs - and piloting new ones - to address chronic poverty, achieve food security and human development goals, and be ready to respond to shocks”.

When TCTs and CCTs are not available, governments may implement other types of assistance programs. First, school feeding (SF) programs might be useful to relieve child malnourishment. However, they are usually ineffective to combat infant malnutrition (when adequate nutrition is most needed), unless food consumed at school can be complemented with take-home rations for younger siblings. Additionally, SF relies on geographic rather than household-specific targeting and entails food storage and distributions costs. Food for Work (FfW) programs are a second option. These are easier to implement and are (in principle) self-targeted: they provide low wages so only poor people should be interested in participating. However, in very poor regions, the vast amount of unemployed and underemployed may lead to considerable leakages and distortions in the labor market (Wodon and Zaman, 2008). Also, only a portion of the funds allocated to these programs directly cuts poverty. Beneficiaries leave other jobs to participate in them; thus, the benefits of FfW are not the whole wages they provide, but only the differential income (with respect to the previous job). These programs might create distortions in the labor market. Finally, governments can also provide direct food aid. However, there is no guarantee that this aid can be effectively targeted toward the most vulnerable populations. Furthermore, food aid may become an entitlement and might result in long-term fiscal problems.

## **B. Price Stabilization Policies**

Support programs for the poorest might not be easily implemented during food emergencies because they take time to implement. At the very least, they require a distribution network and plenty of logistical coordination. This forces governments to implement other policies to shield their population from food emergencies. Moreover, even when technically sound schemes such as CCTs are readily available

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<sup>4</sup> For example, these policies might be more suitable for medium-income countries, such as the Latin American. World Bank – LAC (2008, Table 8) documents 17 countries with CCTs and 18 countries with Targeted Nutritional or Social Assistance Programs.

during a crisis, some countries might still try to pursue more widespread measures for political reasons<sup>5</sup>. Constituencies (and, in general, populations) are very sensitive to food prices, and governments may fear opposition, turmoil, or even being ousted. For example, Burkina Faso suspended import taxes on four commodities after the country experienced riots over food prices in February, 2008. Other countries that experienced riots during the 2007/08 crisis were Bangladesh, Cambodia, Cameroon, Côte d'Ivoire, Egypt, Indonesia, Mauritania, Senegal, and Yemen (Demeke et al 2008).

In this light, many countries try to stabilize prices through trade policies and management of food reserves. The specific trade-offs imposed by these mechanisms will be discussed subsequently. In general, they are not first-best options: countries use scarce resources to reduce general prices, effectively subsidizing both the poor and the non-poor<sup>6</sup> and creating potentially pervasive market distortions. However, countries with no other means or with politically unstable regimes may have few other options to cope with food emergencies.

## **2.2. Medium- and Long-Run Policies:**

Short-term responses mainly deal with demand problems as consumers – and especially the poor – are hard hit. However, short-term policies that help consumers might be detrimental for producers and for market development in the long-run. For example, export taxes on wheat in Argentina help decrease consumer prices, but also disincentive production. As suggested by a newspaper article, “with scant incentive to producer, farmers have slashed the land sown with wheat to a 111-year low, and cereal exports from the rolling pampas of what should be a breadbasket country have virtually halved over the past five years. Wheat farmers in Argentina have turned to other crops, such as soybean, while some international investors, who are critical to the flow of money into capital-intensive agriculture, have left the country and turned to Uruguay, Paraguay and Brazil”<sup>7</sup>. While acknowledging the importance of short-term responses to food crises, these responses should be chosen to minimize any long-term adverse effects on agricultural supply.

Long-run policies that expand food availability are becoming increasingly important<sup>8</sup>. Agricultural demand has experienced large expansions in recent years – even above that regularly imposed by population growth – due to rapidly growing incomes in developing countries (such as China and India) and rising

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<sup>5</sup> As suggested by HDN and PREM (2008), “effective nutritional and social protection interventions can protect the most vulnerable from the devastating consequences of nutritional deprivation, asset depletion and reductions in education and health spending. Policy responses need to balance political economy considerations that call for measures to help a broad swath of the affected population, with the urgency of protecting the very poor”.

<sup>6</sup> Woodon and Zaman (2008) posit the following argument: “Consider the share of rice consumption in the bottom 40% of the population. This share varies from 11% in Mali to 32% in Sierra Leone. This means that if one considers the bottom 40% as the poor, out of every dollar spent by a government for reducing indirect taxes on rice, and assuming that the indirect tax cuts results in a proportionate reduction in consumer prices, only about 20 cents will benefit the poor on average”

<sup>7</sup> “Argentina’s farmers unable to fill the wheat gap”, Financial Times, August 10<sup>th</sup>, 2007. Link: <http://www.ft.com/intl/cms/s/0/910f25ac-a4a8-11df-8c9f-00144feabdc0.html#axzz1vXMMOjP5>

<sup>8</sup> Examples of other policies in the long-run are: production and price insurance for farmers; provision of other public goods for rural areas (such as education and health services); policies for water basin management; technology improvements for rainfed land (water capture infrastructure, practices for water retention in soil, etc.); strengthening of producer organizations; etc. Certainly, these are also important policies. However, for the sake of brevity, they are not mentioned here.

demand of food for biofuel production in developed countries<sup>9</sup>. As these patterns are likely to persist, there is a need to increase agricultural supply in order to keep up with the additional demand<sup>10</sup>.

There are two main policies targeted toward increasing food production. The rate of growth of the yields of major crops has been declining steadily since the 1970s. Thus, on the one hand, there is the need to enhance the productivity and resilience of major crops. Yet many challenges will make this a daunting task. Availability of fertile land will be limited by increasing urbanization, salinization, erosion, and degradation. Water will also become scarcer. Additionally, climate change will most certainly have an adverse effect on agricultural production through erratic rainfall, pest proliferation, and crop failure. Thus, any policy to increase agricultural productivity should address these complex obstacles.

On the other hand, supply can also be expanded through the enhancement of post-harvest practices. Between harvest and consumers' access to food, agricultural production goes through many stages: product processing, storage, handling, transportation, and distribution. In each of these phases, there are production losses. For example, grains mold with improper storage technologies and facilities, as well as poor roads, prevent food from reaching markets. Albeit complementary, even in the absence of productivity gains, better post-harvest practices can have a significant impact on food availability.

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<sup>9</sup> Mitchel (2008) estimates that about 70-75% of food price increases were due to rising food demand for biofuel production.

<sup>10</sup> As suggested by the World Bank's South Asia Region report (2010), "the food crisis is by no means over... There is growing agreement that a two-track approach is required, combining investments in safety nets with measures to stimulate broad-based agricultural productivity growth, with major emphasis on major food staples"

**Table 1: Policies proposed by International Organizations and G8 Summit**

Proposed Policies under the Global Food Crisis Response Program (GFRP)		G8's "Addressing the Food Crisis" <sup>11</sup>
<b>Trade Policy</b>		
Tariff and VAT reductions	- "At first glance, reducing tariffs and other taxes on key staples is both effective and desirable. In times of sharply increasing prices, reductions in tariffs and taxes can provide some relief to consumers, albeit at a fiscal cost... Yet longer term, such unilateral changes in one tariff but not others may alter the structure of relative incentives and could end up channeling private resources to second-best uses in terms of growth and welfare, which illustrates the need to consider separately short and longer term responses" (pgph. 13).	<ul style="list-style-type: none"> <li>- Recommended for all countries with significant taxes and tariffs on food grains</li> <li>- Can significantly lower domestic prices in countries where share of tariffs in retail prices is high but scope limited in low tariff settings.</li> <li>- Easy to implement</li> <li>- Domestic food grain producers face more competition</li> <li>- Fiscal losses depend on composition of domestic revenues</li> </ul>
Export bans and restrictions	- "The least desirable trade-related policy interventions to manage food prices are export restrictions or bans on key staples... This type of measure has a limited impact on domestic price levels and a significant negative effect on the earnings of domestic producers and exporters. Besides leading to sharp price fluctuations and supply uncertainty in countries that depend on imports, these measures often have the greatest negative impact on the country imposing the restriction as domestic production and foreign exchange earnings fall and traditional commercial relationships are severed" (pgph 14)	<ul style="list-style-type: none"> <li>- Bad policy option in all countries due to negative externalities on others and disincentives for future production</li> <li>- Can help stabilize domestic grain prices in the short run but undermines long-term supply response</li> <li>- Creates disincentives for domestic producers particularly those dependent on export markets</li> <li>- Serious beggar thy neighbor effects due to price volatility and shortages particularly when they are applied by major exporters</li> </ul>
Promotion of bilateral or regional trade	- "Finance technical assistance and investments for regional trade and transport facilitation. It could also finance activities that would accelerate on-going trade facilitation actions that would specifically improve the functioning of regional staple food and input markets. Assessments of technical, policy, logistical and other constraints to regional and cross-border trade in staple foods and agricultural inputs will be supported" (pgph 100, B6)	
<b>Food Reserves</b>		
Use of strategic grain reserves (buffer stocks) to lower prices	- "Many countries maintain physical grain reserves in lesser or greater volumes. These reserves are maintained in order to service emergency relief operations, support public distribution of food to chronically food insecure populations, and <u>reduce volatility in consumer and/or producer prices</u> . International experience in the management and use of so-called strategic grain reserves <sup>12</sup> is mixed, with frequent concerns about operational inefficiencies, financial cost, and disincentives for private traders to perform normal arbitrage functions. Some of the problems with grain reserves can be overcome by establishing clear and open rules for market interventions, including the private sector in the tendering for supplies for the reserves, combining grain and financial reserves to reduce	<ul style="list-style-type: none"> <li>- Second best option used in low/middle income countries which have the capacity to manage food stocks and need to respond quickly to food availability issues (they insure against delays and price volatility in international markets)</li> <li>- Can be used to provide targeted consumer subsidies</li> <li>- Excess stocks can undermine private markets and reduce capacity to respond during shocks</li> <li>- Professional management of stocks with good management information systems and clear criteria for market intervention required</li> </ul>

<sup>11</sup> Taken from World Bank (2008). "Addressing the Food Crisis: the Need for Rapid and Coordinated Action". Group of Eight, Meeting of Finance Ministers. Osaka, June 13-14, 2008. Annex 4.

<sup>12</sup> Throughout the GRFP Framework document the definition of "Strategic Reserves" is unclear. In some sections, they seem to refer to humanitarian reserves (whose purpose is food distribution among the poorest), while in others they seem to reflect (generalized) price stabilization objectives.

	<p>costs, and utilizing very professional management, supported by good information systems and analytical capacity” (Annex 5, pgph. 27)..</p> <p>- GFRP provides technical assistance for grain stock risk management (Annex 5, pgph. 28).</p>	
Use of strategic grain reserves for humanitarian purposes	<p>- “About one-fifth of developing countries sampled have begun adding to grain buffer stocks, creating, re-creating, or adding to “strategic reserves”. These are often used to provide subsidized food rations for the poor. Recent price spikes in international markets, and the current difficulty in obtaining supplies, particularly in the rice market, suggests that more countries will try to increase domestic stockholdings despite the high costs of management and risks of leakage. If so, this is likely to perpetuate the price spike as participants go into global markets with higher orders than normal despite the much higher prices. An alternative approach using financial instruments rather than physical grain stores is for governments to enter into contingency purchasing contracts with domestic and/or international suppliers” (pgph. 15)</p>	
<b>Social Protection</b>		
Cash Transfers (means-based and CCTs)	<p>- “Direct transfers in cash or in kind, are the simplest and most straightforward way to get additional resources to the most vulnerable households to mitigate the effects of a food crisis. Targeted Cash Transfers (TCTs) are preferable to in-kind transfers, as they avoid incurring the costs of food transport and distribution. They often target households with children, elderly or disabled individuals. These programs have relatively low administrative costs and do not distort prices. Benefits can be differentiated by level of need, household size or composition. Similarly, existing Conditional Cash Transfer Programs (CCTs) (which link the benefit to requirements such as school attendance or health service take-up) are an option for channeling support rapidly – but the complexity of such programs means it will not normally be feasible to establish new ones as vehicles for an emergency response” (pgph. 110)</p> <p>- “Cash programs are preferred to in-kind programs, as they have lower administrative costs. However, when local food markets do not function and food is not available, in-kind programs are preferred” (Annex 5,pgph. 47).</p>	<p>- Best suited to countries with sufficient institutional capacity to appropriately target and disburse cash to large numbers of people (middle income and selected low income)</p> <p>- Typically cash transfers have lower overhead costs relative to food programs.</p> <p>- Can be linked to use of health and education services (conditional cash transfers). Where access to health and education services is limited, the condition may rule out the neediest families. Moreover, monitoring the compliance with conditions involves an extra administrative system. Where programs are well established, their benefit can be raised or their coverage expanded, but setting up new programs has a long lead time. Unconditional needs based cash transfers more broadly applicable during crises.</p> <p>- Transfer amounts need to be adjusted to keep pace with inflation.</p>
Near Cash Transfers (food stamps, vouchers, etc.)	<p>- “Food stamps are an intermediate step between cash transfers and food distribution. GFRP may support the subsidy value of food stamps and the associated logistics (e.g. printing physical food stamps or supplying smart cards). It will fund the analysis of needs and targeting criteria; program monitoring; the development of necessary infrastructure; and financing for new programs/scaling up existing food stamp and food ration programs, including means for stamp redemption and for smart cards to reduce leakage” (pgph 111).</p>	<p>- Most often used in which countries are transitioning from in-kind to cash transfers</p> <p>- Lower overheads than food transfers, slightly higher than for cash transfers</p> <p>- Requires retail chain and effective distribution system.</p>
Public Work Programs	<p>- “Labor intensive public works programs are an option to generate incomes in targeted communities while also delivering services, rehabilitation or construction of infrastructure. These programs are particularly useful in the absence of good household targeting systems as they self-select unemployed beneficiaries by requiring them to work. So long as wages are set below market levels they are not likely to displace people from existing jobs” (pgph. 114).</p>	<p>- Recommended for low income countries where targeting cash transfers via means or proxy means testing is difficult.</p> <p>- Potential for effective self-targeting, though often scale of program is small enough that additional targeting criteria are needed</p>

		<ul style="list-style-type: none"> <li>- Local infrastructure can be created but quality control important</li> <li>- Effective implementation of the works is administratively demanding</li> <li>- Substantial non-labor costs (on order of 40-60% of total)</li> <li>- Administrative costs of handling food higher than comparable cash for work programs.</li> </ul>
Feeding Programs (school-based and maternal / child feeding)	<ul style="list-style-type: none"> <li>- “In countries where no large cash transfer system is in place, they (school feeding) may offer the best option for delivering additional resources quickly and on a large scale, to offset the impact on household budgets of the food crisis. Like CCTs, they have the additional benefit that they act as an incentive to send children to school and thus, they lower the probability that children will be taken out of school in response to the negative income effect of food price rises (eg. to send them to work). As well as food consumed at school, take-home rations could be distributed for consumption by younger siblings. Geographical targeting could be used to focus on the poorest areas of the country” (pgph. 113).</li> <li>- “GFRP will provide short-term support to strengthen the coverage and delivery of existing nutrition and primary health programs. Priority areas for support will include (a) Nutrition education and growth promotion to improve nutritional practices by changing behaviors with respect to breastfeeding and complementary infant feeding, dietary quality, hygiene, and child care. (b) Provision of targeted food supplements and micronutrients, including (i) food supplements for vulnerable pregnant and lactating women and children under 2 years, for recuperation of severely malnourished children, and for HIV/AIDS patients under treatment with antiretroviral drugs, (ii) micronutrients such as iron and folic acid supplements, Vitamin A, and interventions to address iodine and zinc deficiencies for high-risk population, (c) Other primary health interventions which reduce the risk of malnutrition (such as immunizations, oral re-hydration therapies and protection against malaria) could also be supported” (pgph. 116).</li> </ul>	<ul style="list-style-type: none"> <li>- Recommended for countries in parallel with above options as the primary focus of these programs is on protecting the most vulnerable – e.g. children and mothers</li> <li>- Maternal feeding can encourage accessing other health/nutrition education services</li> <li>- School feeding can be combined with other interventions such as de-worming</li> <li>- Food needs to be low cost yet nutritious and feeding timed to minimize teaching disruptions – take home rations are an alternative to on-site feeding</li> <li>- While school feeding can effectively target children it misses infants whose feeding needs are highest</li> <li>- Nutritional supplementation programs may need to be scaled up, especially for infants.</li> </ul>
Strengthening Social Protection Programs	<ul style="list-style-type: none"> <li>- “GRFP will finance capacity building and related investments needed to develop new programs and to improve program effectiveness of existing programs. This may include activities to (a) recommend and implement appropriate developments of the social protection system to provide a basis for more effective mitigation to future crises; (b) improve the capacity of existing transfer programs in selection of beneficiaries (targeting and needs analysis); beneficiary registers; payment systems for cash transfer programs and delivery systems for in-kind programs; procurement systems; program governance; oversight mechanisms aimed to reduce the amount of funds lost to error, fraud or corruption; Management Information Systems (MIS), monitoring and evaluation; communication campaigns; (c) strengthen linkages between the transfer programs and the health and education sectors, for example, ways to verify compliance with conditionality; (d) to strengthen communication on health and nutrition and (e) the monitoring and evaluation of social protection, health and nutrition programs” (pgph. 118).</li> </ul>	-

Food Subsidies	- "Food subsidies via untargeted open market sales, subsidies on imports, ration shop sales and other measures to lower the market price for consumers can entail a substantial fiscal cost. Subsidy costs can be reduced by taking into consideration i) type of food commodity to be subsidized, ii) mechanisms to reduce leakages, and iii) exit strategies" (Annex 5, pgph 26).	- Second best option in countries where targeted safety net programs cannot be scaled up sufficiently during crises - May not distort domestic markets much if consumer subsidy is financed by the budget and not by limiting producer prices; is rationed; and is applied to products consumed mainly by the poor (e.g. coarse rice). - Institutional ability to operate "low price markets / shops" with adequate food rations is required - There is some risk of the rich hiring the poor to procure subsidized items
Price controls on strategic staples or on trader margins		- Bad policy option in all countries - Lowers prices to all consumers regardless of need - Discourages domestic production, processing and trade - Creates black markets and rationing which often benefit more affluent. - Danger of aggravating rapid migration to cities over time
Other Price Stabilization Policies	- "To avoid major fiscal deficits that could threaten macro-stability or cuts in public expenditures that could threaten development, governments may request funding under this facility to finance short-term price stabilization programs, including market intervention policies such as open-market sales of stocks or imports" (Annex 5, pgph 15)	
<b>Supply Policies</b>		
Higher levels of public and private investment in agricultural support services	- GFRP "provides technical and financial assistance to support governments in their immediate and medium-term response to the crisis resulting from shortfalls in domestic food availability in combination with rising international food prices" (pgph 71). - "Longer-term lending to support investments in infrastructure will continue using regular Bank mechanisms, and support under GFRP would not displace longer-term agriculture-related lending such as investments in irrigation infrastructure, rural roads or agriculture research" (Executive Summary, pgph 7). - GFRP does support the following policies: <ul style="list-style-type: none"> <li>▪ Rehabilitation of existing small-scale irrigation</li> <li>▪ Strengthening farmer access to critical information (dissemination of technology, advisory services, linking farmers to markets, ICT applications, etc.).</li> </ul>	- Necessary investment in all regions - Significant scope for increasing yields in all regions through greater use of existing technology, water and soil management - Agricultural research as share of agricultural output lags behind in LDCs relative to MICs – essential for continued productivity increases - Revamped extension with product marketing services required – investments in data, capacity and community based extension important - Public investments need to ensure sufficient provision for operations and maintenance (e.g. large irrigation projects). - Agricultural strategies need to differentiate needs of commercial farmers and those of smallholders.
Reduction of post-harvest losses	- "Support could take various forms, including: (i) training and demonstration of low cost on-farm storage technologies; (ii) technical assistance, training and investment support for community-level 'food banks' ; (iii) training and facilitation of investment by grain traders and millers in drying, sorting, and fumigation equipment and upgrades in existing storage facilities; (iv) rehabilitation of rural roads and bridges where deficiencies in such transport infrastructure are shown to substantially contribute to staple food product/quality losses; and (v) training, technical assistance, and supplemental equipment to strengthen existing	- Necessary investment in all regions - Reduction of post-harvest losses (estimated up to 25% of output) is key to greater intensification of production

	food grain quality control inspectorate services and food safety surveillance systems” (pgph 123).	
Investment in rural and trade-related infrastructure	- GFRP does not provide support for rural roads. Roads would be financed through regular Bank mechanisms.	- Priority in countries with poor trade and transport infrastructure, in rural areas - Improvements in rural accessibility can lead to lower prices of all products as well as stimulate surplus production. - Investments in improving customs, logistics management and marketing infrastructure will strengthen producer incentives.
Input subsidies	- Provide finance and technical assistance: (i) to reform laws and regulations which inhibit the development of agricultural input markets; (ii) to develop or scale up voucher and supplier credit schemes, based on ‘smart subsidy’ and other principles; (iii) for investments and training to strengthen existing systems for seed and fertilizer quality control; (iv) for investments to upgrade/rehabilitate seed multiplication and distribution facilities, and (v) for fertilizer imports through revolving fund or other financially sound mechanisms (pgph. 72)	- Appropriate for low income countries where access by farmers to credit, farming inputs and risk management instruments is limited - Fiscal costs can be high - Subsidies need to be transparent and well targeted - Exit strategy needs to be built-in and communicated publicly - Risks crowding out private input supply
Strengthening Access to Finance and Risk Management Tools	- “Support: (i) credit lines and capacity-building for formal financial institutions to increase agricultural lending; (ii) the development of legal/regulatory frameworks and provision of credit lines and technical assistance to extend the use of supply chain finance; (iii) the scaling up of community-based financial institutions; (iv) feasibility studies and training to enable farmer organizations, market intermediaries, and financial institutions to utilize selected physical or financial strategies to manage commodity price risks; and (v) feasibility studies, training, and advisory services to facilitate further applications of commercial agricultural (and weather) insurance” (pgph 125).	- Appropriate for all countries particularly those susceptible to large fluctuations in agricultural output - Support required for innovative financing mechanisms for supply chain management and managing commodity price volatility - Financial products which transfer weather related risks to international insurance/derivative markets are complex and required capacity building and possibly Government cost-sharing
<b>Other Policies</b>		
Price Risk Management	- “Provide support to governments and major private sector entities to identify if/how market-based hedging products can be incorporated in national policies and commercial strategies, and, where feasible, to implement price hedging transactions” (Annex 5, pgph 29).	- (Forward contracts for international grain procurement are) Appropriate for countries with data/capacity required to make decisions on forward contracts - Government role is to facilitate implementation in the public interest by private sector entities rather than function as direct market actors -
Early Warning and Weather Risk Management for Food Crop Production	- “The following activities are included: i) investment in automatic weather station infrastructure and data reporting systems; (ii) capacity building in agro-meteorology, crop surveillance, and crop estimation systems; (iii) assessment of the technical, operational, and commercial feasibility of applying weather-indexed insurance or derivative products as part of disaster risk management strategies; (iv) technical assistance in insurance product design, (v) intermediation services for weather risk management transactions between client governments and the international market; (vi) partial financing of premiums on weather insurance/derivative transactions and (vii) technical support to help governments develop plans for utilizing funds that accrue from insurance payouts, for example, in designing safety net programs that scale up on the basis of payments” (pgph 100, B5)	

### 3. Policies Recommended after 2008

#### 3.1. Short-run Policies

##### Trade Policies

When faced with increasing food prices, net exporters of food can impose export tax or bans. Certainly, lower prices hurt local producers; however, these policies do benefit domestic consumers and boost the revenue of governments enacting them. Thus, it is not surprising that many food-producing countries enacted some form of export restriction during the 2007/08 food crisis. Demecke et al (2008) surveyed different government policies in 81 developing countries and found that 25 of them either banned exports completely or increased export taxes. Among many others, Pakistan, Bangladesh, China, Egypt, India, Nepal, and Argentina enforced such policies.

Analogously, net importers can decrease their tariffs (or even subsidize imports) to buffer the impact of rising international food prices. At least in the short run, they are able to temporarily reduce internal prices. However, these policies have domestic side effects, in addition to identifying export bans as bad policies as stated in the GFRP framework document (see Table 1). Some argue that tariff reductions might not have been effective in shielding importing countries from the 2007/08 food crisis. In this spirit, FAO et al (2011) argue that “the scale of price increases was such that for many countries reducing import tariffs had relatively modest impact because the initial tariffs were low or the scale of the price increases was so large. In any event, this instrument was quickly exhausted as tariffs were reduced to zero” (p 14). Additionally, reduction of tariffs reduces governments’ revenue, leaving them with fewer resources for other policies to palliate the impact of food price increases. The situation might be especially serious when there are few alternative sources of revenue (e.g. weak tax collection, large informal sector, etc.). Eventually, this might lead to serious fiscal deficits.

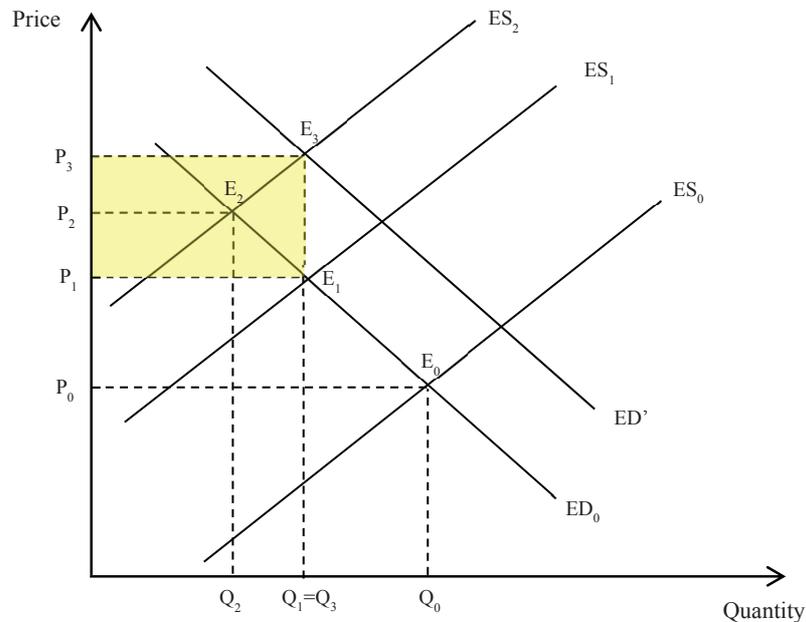
These strategies should not entail any consequences for international markets if those implementing them are only small countries. These countries’ food exports or imports are not substantial relative to international trade, and they are mostly price-takers of the world markets. However, trade policies of large food exporters or importers do effectively affect international supply or demand of a commodity. When large exporters impose export restrictions during a food emergency, they tighten the already short supply abroad and further increase international prices. In a similar fashion, as large food importers reduce their tariffs, they increase internal consumption, fueling global demand and generating further escalations of food prices in external markets. If exporting and importing countries both follow these strategies, their efforts to insulate themselves might cancel out each other’s efforts.

Martin and Anderson (2011) provide a graphic depiction of this phenomenon. Figure 3 depicts the international market for a certain commodity. Initially, curve  $ES_0$  represents the excess supply of world’s exporters and  $ED_0$  represents the excess demand of the importers. The equilibrium point  $E_0$  is given by price  $P_0$  and traded quantity  $Q_0$ . Consider an exogenous shock that reduces production in some exporting

countries, shifting the excess supply curve to  $ES_1$ . In the absence of any trade policy, this shock leads to equilibrium  $E_1$ , where  $Q_1 < Q_0$  and  $P_1 > P_0$ . Suppose that a large exporting country tries to avoid an increase in the domestic markets and imposes a tax export, which further reduces excess supply to  $ES_2$ . The new equilibrium – given by curves  $ED_0$  and  $ES_2$  – leads to a higher international price of  $P_2$  but manages to partially shield domestic consumers (who face a domestic price of  $P_x$ ). Now also assume that a large importing country retaliates and reduces their tariffs to compensate for the trade policy imposed by the large exporter. Suppose that this tariff reduction is implemented to exactly offset the other country's actions. This increases the world's excess demand to  $ED'$ . The final outcome is represented by equilibrium  $E_2$ , where the traded quantity ( $Q_1$ ) and prices ( $P_1$ ) in both countries implementing trade policies are the same as the ones before enacting them. There is a transfer of resources (equivalent to the area of the rectangle  $P_1E_1E_3P_3$ ) from the importing to the exporting country. Also, the importing country's terms of trade deteriorates. All in all, the aggregate welfare of both would have been the same without any commercial mechanisms. However, other countries would be worse off, as the final price in international markets soars to  $P_3$  ( $P_3 > P_2 > P_1 > P_0$ ).

This can eventually incentive other countries to impose similar policies and can lead to a trade war of import tariffs and export taxes. Bouët and Laborde (2010) present a game-theoretical model which explains such rationale: even when free trade is the optimal policy, countries deviate from this strategy and lead to a suboptimal outcome. As Martin and Anderson (2011) suggest, “insulation generates a classic collective-action problem akin to when a crowd stands up in a stadium: no one gets a better view by standing, but any that remain seated get a worse view”.

**Figure 3: Effect of Offsetting Increases in Export Taxes and Reductions in Tariffs**



Source: Martin and Anderson (2011)

To what extent should countries implement such policies and impose beggar-thy-neighbor consequences upon others? There is no consensus in this respect. On one hand, Timmer (2010) analyzes the implications of trade restrictions on rice markets during the 2007/08 food crisis. He argues that “stabilizing domestic rice prices in these large countries using domestic border interventions might be an effective way to cope with food crises, even after considering the spillover effects on increased price volatility in the residual world market. Unstable demand and supply must be accommodated somewhere, and passing the adjustment to the world market may be both equitable and efficient in a second-best world where fast-acting and well-targeted safety nets are not available, and where collective global action has failed to prevent the crisis in the first place (p. 6)”.

On the other hand, Anderson and Nelger (2012) advise against any trade restrictions. These authors posit the following model of supply and demand for the market of a particular commodity:

$$\sum_i (S_i(p_i) + v_i) - \sum_i D_i(p_i) = 0 \quad (1)$$

where  $S_i$  and  $D_i$  are the supply and demand,  $v_i$  is a weather related shock, and  $p_i$  is the domestic prices in country  $i$ . Domestic prices are determined by the international price ( $P^*$ ) and trade taxes. The distortion rate between producer and international prices is  $t_i$ , such that  $p_i = (1 + t_i)P^* = T_i P^*$ . Total differentiation of (1) leads to an expression for the impact of trade taxes on international prices.

$$\widehat{P^*} = \frac{\sum_i H_i \widehat{v}_i + (H_i \gamma_i - G_i \eta_i) \widehat{T}_i}{\sum_i (G_i \eta_i - H_i \gamma_i)} \quad (2)$$

$\widehat{P^*}$  is the proportional change in international prices,  $\widehat{v}_i$  is an exogenous shock,  $H_i$  is the share of country  $i$  in global demand,  $G_i$  is the share of country  $i$  in global supply,  $\gamma_i$  is the elasticity of supply,  $\eta_i$  is the elasticity of demand and  $\widehat{T}_i$  is the change in trade taxes imposed by country  $i$ . Assuming that  $\widehat{v}_i = 0$ , that output cannot respond in the short-run (i.e.  $\gamma_i = 0$ ) and that all countries share the same elasticity of demand (i.e.  $\eta_i = \eta$ ), then the (2) can be rewritten as:

$$\widehat{P^*} = - \sum_i G_i \widehat{T}_i = \widehat{T} \quad (3)$$

where  $\widehat{T}$  is the weighted average of all country-specific  $\widehat{T}_i$ s. In a somewhat ad hoc fashion, the authors claim that, if trade restrictiveness is not independent of the exogenous shocks, then variations in international price can be calculated as:

$$\widehat{P^*} = \widehat{T} + R + (\widehat{T} * R) \quad (4a)$$

where  $R$  is all other influences on  $\widehat{P^*}$ . From equation (4a) – knowing the values for  $\widehat{P^*}$  and  $\widehat{T}$  – Anderson and Nelger solve for  $R$ .

$$R = \frac{\widehat{P^*} - \widehat{T}}{(1 + \widehat{T})} \quad (4b)$$

Then, the share explained by trade restrictions is  $\frac{\hat{T}}{(\hat{T}+R)}$ . The authors assume that the remaining fraction  $\frac{R}{(\hat{T}+R)}$  (which captures other factors) represent price increase that would have taken place in the absence of trade interventions.

Their results are presented in Tables 2 and 3. Table 2 shows the contribution of trade restrictions on international price increases during the food crisis. Not surprisingly, they confirm that trade restrictions did boost food price increases between 2006 and 2008<sup>13</sup>. Yet they also suggest that everyone should take part of the blame for this: the policies of both exporting and importing countries, and both developing and high-income countries, fueled price increases. Table 3 compares the changes in international prices that would have taken place without trade interventions with effective domestic prices. All in all, their estimates show that that these policies had a very heterogeneous impact for different countries and commodities. On the one hand, the effectiveness of these insulating policies varied between developing and high-income countries. On the other, there was quite some variability in their results by crop. On average for all countries, domestic prices of wheat increased more than adjusted international prices. These policies were somewhat more effective for other crops, but overall their effect was not large: 2% for maize and 12% for rice.

**Table 2: Contributions of high-income and developing countries, and of importing and exporting countries, to the proportion of the international price change that is due to policy-induced trade barrier changes, 2006-08<sup>1/</sup>.**

	Total proportional contribution	High-income countries' contribution	Developing countries' contribution	Importing countries' contribution	Exporting countries' contribution
Rice	0.40	0.02	0.38	0.18	0.22
Wheat	0.19	0.09	0.10	0.07	0.12
Maize	0.10	0.05	0.05	0.03	0.07

1/. Taken from Anderson and Negel (2012), Table 7.

<sup>13</sup> Their findings are qualitatively consistent with those of Bouet and Laborde (2010). Their calculations are based on a multi-country general equilibrium model for wheat. They show how prices increases are amplified by both tariffs and export taxes.

**Table 3: Comparison of the domestic price with the rice in international grain prices net of the contribution of changed trade restrictions; rice, wheat and maize 2006-2008 (% unweighted averages)<sup>1/</sup>**

	International price rise		Domestic price rise		
	Incl. contribution of changed trade restrictions	Net of contribution of changed trade restrictions	All countries	Developing countries	High-income countries
Rice	113	68	56	48	74
Wheat	70	56	77	65	81
Maize	83	75	73	62	82

1/. Taken from Anderson and Nelger (2012), Table 8

Anderson and Nelger (2012) advise governments to refrain from imposing insulting trade policies based on these findings: they amplify price increases and, moreover, are not always effective. The authors take this rationale further by advising even small countries to refrain from such policies. Theoretically, small countries cannot affect international markets individually by changing their trade policies. However, Anderson and Nelger (2012) claim that, if many small countries do so simultaneously, this can have an aggregate sizeable impact. In this line, they argue that trade restrictions and reduction of import tariffs, especially for large importing countries, should be discouraged across the board.

To analyze this last point, Table 4 shows the shares of imports and exports for soybean, rice, wheat, and maize by region (following the World Bank classification<sup>14</sup>) in 2004 (before the food crisis). Within each region, the most prominent exporting and importing countries are highlighted. We posit that Anderson and Nelger's results (in Tables 2 and 3) seem to hide very large disparities within their "exporting", "importing", "developing", and "high-income" labels. For example, estimates in Table 2 show the impact of trade restrictions on the increase of the international price of rice to be around 40%: 38% from developing (with the remaining 2% from high-income countries) and 18% from importing countries (and the remaining 22% from exporting countries). Indeed, most of the major players in the rice market are developing countries. Also, from the export side, Thailand, India, and Vietnam – which account for 65% of all rice exports – imposed trade restrictions. From the import side, important importers such as the Philippines and other Asian countries were concerned about a potential shortage and reduced their tariffs. Policies enacted by these large players exemplify how trade restrictions can lead to significant price spikes. However, from the evidence presented in Tables 2 and 3, it is unclear if trade restrictions by smaller countries would entail serious consequences for international markets. For example, Sub-Saharan Africa accounts for 0.1% of rice exports worldwide. Excluding Nigeria, South Africa, Côte d'Ivoire, and Ghana, the share of all other Sub-Saharan African countries was only 10.7% of worldwide rice imports. It is reasonable to believe that, even

<sup>14</sup> See <http://data.worldbank.org/about/country-classifications/country-and-lending-groups>.

if all nations in this region change their trade policies, there would not be a sizable impact on the international rice market.

**Table 4:**

**Share of Exports and Imports by region and selected countries for soybeans, maize, wheat, and rice (2004)**

**Table 4.1.A: Soybean Exports, 2004**

	Exports (US\$, thousands)	Share
High Income	7,563,204	48.5%
United States of America	6,692,040	42.9%
All Others	871,164	5.6%
East Asia & Pacific	161,858	1.0%
Europe & Central Asia	17,518	0.1%
Latin America & Caribbean	7,827,815	50.2%
Brazil	5,394,910	34.6%
Argentina	1,740,110	11.2%
All Others	692,795	4.4%
Middle East & North Africa	315	0.0%
South Asia	897	0.0%
Sub-Saharan Africa	7,144	0.0%
Others	5,101	0.0%
<b>Total</b>	<b>15,583,852</b>	<b>100.0%</b>

Source: FAO (<http://faostat.fao.org/>)

**Table 4.1.B: Soybean Imports, 2004**

	Imports (US\$, thousands)	Share
High Income	8,035,760	41.0%
Japan	1,774,620	9.1%
Netherlands	1,504,200	7.7%
Germany	1,129,570	5.8%
All Others	3,627,370	18.5%
East Asia & Pacific	8,935,462	45.6%
China	7,680,418	39.2%
All Others	1,255,044	6.4%
Europe & Central Asia	252,591	1.3%
Latin America & Caribbean	1,693,014	8.6%
Mexico	1,107,990	5.7%
All Others	585,024	3.0%
Middle East & North Africa	605,239	3.1%
South Asia	36,913	0.2%
Sub-Saharan Africa	10,572	0.1%
Others	14,763	0.1%
<b>Total</b>	<b>19,584,314</b>	<b>100.0%</b>

Source: FAO (<http://faostat.fao.org/>)

**Table 4.2.A: Rice (Milled) Exports, 2004**

	Exports (US\$, thousands)	Share
High Income	1,324,307	18.0%
East Asia & Pacific	3,534,287	47.9%
Thailand	2,368,150	32.1%
Vietnam	950,315	12.9%
All Others	215,822	2.9%
Europe & Central Asia	18,692	0.3%
Latin America & Caribbean	174,862	2.4%
Middle East & North Africa	227,739	3.1%
South Asia	2,076,696	28.2%
India	1,448,460	19.6%
Pakistan	627,240	8.5%
All Others	996	0.0%
Sub-Saharan Africa	9,500	0.1%
Others	5,479	0.1%
<b>Total</b>	<b>7,371,562</b>	<b>100.0%</b>

Source: FAO (<http://faostat.fao.org/>)**Table 4.2.B: Rice (Milled) Imports, 2004**

	Imports (US\$, thousands)	Share
High Income	2,341,903	35.1%
Saudi Arabia	534,327	8.0%
United Arab Emirates	327,843	4.9%
United States of America	257,666	3.9%
All Others	1,222,067	18.3%
East Asia & Pacific	1,045,859	15.7%
Philippines	274,585	4.1%
China	268,003	4.0%
All Others	503,271	7.5%
Europe & Central Asia	187,705	2.8%
Latin America & Caribbean	408,097	6.1%
Middle East & North Africa	713,678	10.7%
Iran	294,853	4.4%
Iraq	173,481	2.6%
All Others	245,344	3.7%
South Asia	320,804	4.8%
Sub-Saharan Africa	1,488,627	22.3%
Nigeria	297,000	4.4%
South Africa	202,605	3.0%
Côte d'Ivoire	166,656	2.5%
Ghana	108,412	1.6%
All Others	713,954	10.7%
Others	170,998	2.6%
<b>Total</b>	<b>6,677,671</b>	<b>100.0%</b>

Source: FAO (<http://faostat.fao.org/>)

**Table 4.3.A: Wheat Exports, 2004**

	Exports (US\$, thousands)	Share
High Income	15,522,857	80.4%
United States of America	5,180,990	26.8%
Australia	3,089,040	16.0%
Canada	2,688,820	13.9%
France	2,553,110	13.2%
All others	2,010,897	10.4%
East Asia & Pacific	116,505	0.6%
Europe & Central Asia	1,463,350	7.6%
Russian Federation	535,975	2.8%
Kazakhstan	389,550	2.0%
Ukraine	288,900	1.5%
All others	248,925	1.3%
Latin America & Caribbean	1,663,311	8.6%
Argentina	1,365,480	7.1%
All Others	297,831	1.5%
Middle East & North Africa	161,885	0.8%
South Asia	328,790	1.7%
Sub-Saharan Africa	49,506	0.3%
Others	30	0.0%
<b>Total</b>	<b>19,306,234</b>	<b>100.0%</b>

Source: FAO (<http://faostat.fao.org/>)**Table 4.3.B: Wheat Imports, 2004**

	Imports (US\$, thousands)	Share
High Income	7,160,391	33.0%
East Asia & Pacific	3,905,051	18.0%
China	1,873,488	8.6%
Indonesia	841,000	3.9%
Rest	1,190,563	5.5%
Europe & Central Asia	1,437,367	6.6%
Latin America & Caribbean	2,864,681	13.2%
Brazil	838,770	3.9%
Mexico	617,765	2.8%
Rest	1,408,146	6.5%
Middle East & North Africa	3,644,814	16.8%
South Asia	553,803	2.6%
Sub-Saharan Africa	2,081,078	9.6%
Nigeria	475,983	2.2%
Sudan	209,055	1.0%
Rest	1,396,040	6.4%
Others	32,260	0.1%
<b>Total</b>	<b>21,679,445</b>	<b>100.0%</b>

Source: FAO (<http://faostat.fao.org/>)

**Table 4.4.A: Maize Exports, 2004**

	Exports (US\$, thousands)	Share
High Income	8,568,195	73.3%
United States of America	6,137,510	52.5%
France	1,456,650	12.5%
All Others	974,035	8.3%
East Asia & Pacific	522,558	4.5%
Europe & Central Asia	311,766	2.7%
Latin America & Caribbean	1,926,278	16.5%
Argentina	1,193,810	10.2%
Brazil	597,336	5.1%
All Others	135,132	1.2%
Middle East & North Africa	13,878	0.1%
South Asia	155,724	1.3%
Sub-Saharan Africa	191,276	1.6%
Others	774	0.0%
<b>Total</b>	<b>11,690,449</b>	<b>100.0%</b>

Source: FAO (<http://faostat.fao.org/>)**Table 4.4.B: Maize Imports, 2004**

	Imports (US\$, thousands)	Share
High Income	8,296,019	58.7%
Japan	2,931,850	20.7%
Korea	1,431,560	10.1%
All Others	3,932,609	27.8%
East Asia & Pacific	1,433,257	10.1%
China	818,609	5.8%
Malaysia	330,943	2.3%
All Others	283,705	2.0%
Europe & Central Asia	500,491	3.5%
Latin America & Caribbean	2,138,720	15.1%
Mexico	745,120	5.3%
Colombia	332,085	2.3%
All Others	1,061,515	7.5%
Middle East & North Africa	1,666,104	11.8%
Egypt	364,819	2.6%
Iran	335,092	2.4%
Algeria	298,350	2.1%
All Others	667,843	4.7%
South Asia	76,319	0.5%
Sub-Saharan Africa	516,643	3.7%
Others	26,016	0.2%
<b>Total</b>	<b>14,136,926</b>	<b>100.0%</b>

Source: FAO (<http://faostat.fao.org/>)

Similar conclusions would hold for other commodities and regions. For example, Argentina provided 7.1% of the world's wheat exports. Argentine export taxes – of around 28% by November 2007 – would have been considered among the share of price increases explained by developing and exporting countries' trade restrictions. Nevertheless, if all other Latin American countries (which represented only 1.5% of total wheat exports) had imposed export restrictions, the consequences would have probably been meager. Similarly, excluding Brazil and Mexico, reduction of wheat tariffs in all other Latin American countries (6.5% of world imports) are likely not to have severe adverse consequences for others. In the soybean market, the U.S., Brazil, and Argentina account jointly for around 90% of world exports. Also, high-income countries and China represent more than 80% of imports. Arguably, trade policies imposed by other countries would not be too taxing on world soybean markets.

All in all, trade policies may be an effective instrument for short-term price stabilization purposes in some nations: those facing considerable political unrest, lacking adequate food distribution networks, with no safety nets available, etc. However, absolute symmetry between insulating actions taken through export restrictions and import barrier reductions needs to be taken into account. While economists tend to be more critical of the use of import barriers as creating instability in world markets, they frequently applaud import barrier reductions undertaken in the same context. There may be some basis for this support if the reduction is believed to be permanent once undertaken. If, however, it is undertaken purely on a temporary basis as a way to reduce the instability of domestic prices, the effects on the instability of world prices are clearly quite symmetric. From a policy viewpoint, this remains an important distinction because the multilateral trading system has quite different rules in the two cases (see Bouet and Laborde 2010). In addition, any of these policies may have important beggar-thy-neighbor consequences and may fuel price increases of important commodities. The 2007/08 food crisis – especially in the case of rice – is quite illustrative in this respect. Insulating trade policies imposed by importers and exporters (as well as high-income and developing countries) were indeed responsible for a considerable share of price spikes. However, even when the aggregate effect of the actions of these broad groups is quite large, most of the turmoil was likely caused by large exporters and importers. In this sense, if the argument is that such policies create further imbalances for others, policy recommendations should distinguish between larger and smaller countries.

Specifically, any of these policies implies the implementation of a non-cooperative policy equilibrium that worsens world welfare and calls for international cooperation. Although large countries can implement beggar-thy-neighbor policies that increase national welfare at the expense of trading partners (for example, export taxes), small countries do not have this option and changes in these countries' own policies neither improve their welfare nor harm their partners' situation. Finally, there is a key asymmetry between net exporters and net importers of an agricultural commodity in a food crisis, as net exporters can benefit from increases in world prices while net importers are hurt and have no capacity to retaliate efficiently. In that sense, if large exporting and importing countries cooperate, then it is possible for smaller countries to implement policies to reduce import tariffs and, in the short term, reduce national prices.

Clearly, however, any non-cooperation by large importing countries implementing similar policies will neutralize this effect.

#### Food Reserves:

Food reserves can be maintained in order to service emergency relief operations, support public distribution of food to chronically food insecure populations, and reduce volatility in consumer and/or producer prices. Specifically, in the latter case, they can be used as a means of price stabilization during food crises. The basic idea is simple: accumulate food stocks when prices are low (to prevent very low prices that would harm producers) and release them when supply becomes tighter (to reduce very high prices that harm consumers). Storage can potentially smooth the availability of food and prevent sharp price spikes. It is in this latter respect that international experience in the management and use of reserves is not clear and is open to a significant variance of policies under the GFRP operations because the so-called strategic grain reserves were not clearly defined. As a result, there have been significant discussions following the G8 and later the G20 in Paris and their proposal for the ECOWAS humanitarian food reserve.

Timmer (2010) advises governments to hold rice buffer stocks to reduce volatility in the domestic market. Rather than requiring governments to cope with the consequences of food crises, reserves would ensure price stability and prevent acute crises from taking place. For example, price stabilization policies were implemented by Asian countries during the last food crisis. Timmer claims that such mechanisms protected two billion consumers and demonstrated the “importance of understanding local politics in policy formation (p. 8)”. However, Timmer’s recommendations should be taken with caution; it should be noted that his analysis is very specific to the rice market. As acknowledged by him, rice markets are much more speculative than others due to two reasons. First, rice prices have historically been very volatile (compared to those in wheat or corn markets) because of its residual nature: “both importing and exporting countries stabilize rice prices internally by using the world rice market to dispose of surpluses or to meet deficits via imports”. This suggests the political nature of price formation in this market. Second, rice markets in major producing countries are composed of hundreds of millions of small farmers, traders, millers, and consumers who can store it for well over a year. As a consequence, rice markets operate under highly imperfect information about future supply and demand.

Gouel and Jean (2012) argue that buffer stocks do not provide relief when there are sharp increases in international food prices. The authors develop a theoretical model for a small open economy, analyze different policies to achieve domestic stable prices, and simulate different scenarios for international markets. They find that buffer stocks might help producers when prices are decreasing by keeping prices from reaching low levels. However, they do not protect consumers from price spikes without further trade restrictions. The reason is that small economies are price-takers so domestic prices will follow the international markets (adjusted by transport costs). When prices are high in international markets and there are no export restrictions, at least part of the reserves accumulated in buffer stocks will be exported, given that there is no need for local distribution, and will maximize the returns of the commodities being held, which need to rotate to minimize operation costs. While these policies may increase governments’ revenues

(exporting their stocks when international prices are high), they do not protect consumers from high commodity prices.

Furthermore, domestic buffer stocks posit other problems. First, as they aim to control general prices, they are less effectively targeted toward the neediest populations (Wright, 2009). Second, storage can be expensive. Rashid and Lemma (2011) find that, for most African countries, the cost of holding a metric ton of food was between \$20-46. The poorest countries (which are more vulnerable to food crises) are the ones least likely to be able to afford expensive storage costs (Torero, 2011). Third, poor management usually renders buffer stocks ineffective in many cases. When controlled by parastatals and other government agencies without strong accountability systems, they are potentially subject to political use and mismanagement. FAO et al (2011) argue that “there is repeated evidence that releases are made too late to influence food prices or to safeguard food security... Often poor storing practices lead to large and costly physical stock losses”. Finally, they create market distortions; as perishable reserves have to be rotated, their cyclical interventions in the market can send wrong signals to producers and consumers.

For most of these authors, national emergency reserves may be a better option than holding domestic buffer stocks for price stabilization. In this line, if countries are to implement food reserves, they should be for humanitarian assistance only. While buffer stocks for price interventions require considerable stockpiling and subsidize both the poor and the non-poor, emergency food reserves can more effectively provide aid to the most vulnerable populations and entail smaller costs because they require smaller reserves. Wright (2009) argues that “the national storage activity discussed here is appropriately directed at a stockpile of a certain size deemed appropriate to meet security goals rather than aimed at the modification of the behavior of prices. In practice, many public storage interventions are targeted at a price behavior rather than consumption goals (p. 27)”. Also, such mechanisms are less likely to create market distortions and disrupt private sector activity (FAO et al 2011). These mechanisms might prove especially useful for isolated or landlocked countries where, in case of distress, sluggish transportation of food assistance can pose serious threats to vulnerable populations.

Nevertheless, the extreme volatility observed during the 2007/08 food crisis suggests that some mechanism of food reserves for price stabilization is necessary. However, instead of domestic buffer stocks, some authors posit the advantages of holding reserves at the international level. Among other reasons, this type of intervention can reduce storage costs and, if managed by an international intelligence unit, can reduce governments’ political management of the resources. As suggested by WB-South Asia Region (2010), “when individual countries try to rebuild their own public reserves independently from each other, the results are likely to be an inefficient global production system, an excessively large global reserve, and a further thinning of global grain markets. If prices spiked, the technical committee managing the proposed global food reserve would decide to release from stock; in this way the global reserve would serve as a price stabilization mechanism rather than as a general stabilization fund” (p.62). Albeit compelling, an international reserve poses other important obstacles. Politically, it requires multinational coordination and sound governance (FAO et Al 2011). Economically, it might disincentive private grain

storage. Operationally, it is important to establish clear triggers for market interventions. Wright (2009) argues that price bands usually lead to prices hovering around the lower or upper bounds and to a relatively quick depletion of funds. However, other authors propose alternative triggers for consideration. For example, Martins-Filho et al (2010) propose a model to predict abnormal returns for commodity trading and provide timely alerts for market intervention.

Within the discussion on international reserves, another area of disagreement is the specific mechanism by which they would operate; while some endorse physical food stockpiling, others propose virtual reserves. The latter is advocated by Robles et al (2009) and von Braun and Torero (2008, 2009a). These authors propose the creation of a Global Market Analysis Unit (GMAU) which – based on the model proposed by Martins-Filho et al (2010) – determines abnormal trading returns and extreme price spikes for agricultural commodities. This signal should warn market traders of a potential intervention by the GMAU. This signal, by itself, is likely to calm international markets. Only if extreme spikes persist would GMAU execute a number of progressive short sales until futures and spot prices decline. By issuing effective warnings, these interventions would be necessary only in a few cases.

In contrast, Wright (2009) endorses physical reserves. He claims that virtual reserves are risky and ineffective for price stabilization because they would be subject to manipulation by traders. This would deplete GMAU's budget. He also argues that, regardless of their qualifications, a committee of experts cannot determine abnormal market behavior lying beyond any change of fundamentals. Finally, he casts doubts on the evidence presented in Robles et al (2009) to support this mechanism. Rebuttal of these criticisms is presented in von Braun and Torero (2009b) and Torero (2011). Basically, these authors claim that virtual reserves have at least five advantages: “(a) it is just a signaling mechanism, (b) it does not put more stress on the commodity market, (c) it does not incur in the significant storage and opportunity cost of physical reserves, (d) it resolves the problem of inter-linkage between financial and commodity markets, and (e) its effect over markets should be minimal”.

All in all, the discussion seems to highlight the need for food reserves to ease the effect of shocks during periods of commodity price spikes and volatility. There seems to be some consensus around this idea. The disagreement stems from the specific mechanisms to implement such food reserves. As in the case of trade interventions, the most appropriate choices are likely to depend on the characteristics of the specific market under intervention, the country's capacity to cope with crises, and the possibility of establishing international coordination mechanisms. While it likely does not make sense to establish national buffer stocks in most grain markets, Timmer's (2010) support for them may be more valid in a few cases. For example, rice markets might be more speculative than others; thus, price stabilization through buffer stocks makes somewhat more sense in this case. Additionally, buffer stocks usually entail high costs and market distortions and are prone to corruption. Thus, most countries – especially those with weak institutions and scarce resources – should probably refrain from using them. However, it might be suitable for these countries to establish emergency reserves for humanitarian reasons. These might be especially

useful for landlocked or isolated regions. All these specific factors should be considered in the implementation of reserves.

### **3.2. Medium- and Long-Run Policies:**

In this section, we summarize the major medium- and long-run policies proposed.

#### **A. Policies to increase agricultural productivity and resilience:**

While there is a wide array of policies aimed at increasing agricultural productivity and resilience, some of the most widely discussed include:

##### **- Input subsidies:**

The World Bank (2008) argues that “while development of efficient agricultural input market is a long-term process, this subcomponent (improving smallholder access to seed and fertilizer) would provide rapid support to clients facing immediate and near-term constraints related to seed and fertilizer availability, distribution, affordability and utilization (p 90)”. The plan envisages the implementation of a *market smart* approach to input subsidies. Such a strategy is characterized by: (a) targeting poor farmers; (b) not displacing existing commercial sales; (c) utilizing vouchers, matching grants, or other instruments to strengthen private distribution systems; and (d) being introduced for limited period of time only.

Albeit outlining a sensible rationale, it is unclear how these principles would be implemented in practice. Poorer countries – which likely have the least developed input markets– may find difficult to target only those farmers in need. These countries already face difficulties to implementing targeted cash transfer programs, which require substantially less information than agricultural subsidy programs to minimize leakages. Additionally, subsidy programs that would strengthen, rather than displace, the private sector are likely to require complex mechanisms. Institutional weaknesses of poor countries may render these programs unfeasible.

Moreover, these programs usually entail significant fiscal costs. For example, Zaman et al (2008) estimate that Malawi’s input subsidy program costs approximately 3% of the GDP. This expenditure is roughly equivalent to the entire primary education budget. Importantly, in recent years, rising fuel prices have considerably increased fertilizer costs. If this trend continues in the future, the budget implications of these policies would become even larger.

Finally, more evidence is required to assess the effectiveness of these policies. Dorward et al (2010) evaluate the 2005/06-2008/09 fertilizer subsidy program in Malawi. The authors’

estimates of the benefit-cost ratios of the program range from 0.76 to 1.36, with a (rather small) mid-estimate of 1.06. Arguably, with recent increases in fertilizer prices, a current benefit-cost ratio of the program may be even smaller. Additional potentially adverse impacts of the displacement of private sector operations still require more thorough evaluation and understanding.

- Investment in Research and Development (R&D):

R&D is essential to increasing crop productivity and resilience. The introduction of high-yield varieties was instrumental for increases in agricultural supply during the 1960s and 1970s. The foreseeable worsening of climatic conditions imposes new challenges, however. Currently, new strands of wheat, maize, rice, and other crops are being developed. These varieties would have enhanced resistance to droughts, diseases and insects, salinity and other soil problems, extreme temperatures, and floods. In addition, other developments promise enriched varieties with higher nutritional content.

Such policies are highly profitable. Byrlee et al (2008) find that “many international and national investments in R&D have paid off handsomely, with an average internal rate of return of 43 percent in 700 R&D projects evaluated in developing countries in all regions” (p. 11). However, R&D is a typical public good and, as such, faces considerable underinvestment. This problem is especially acute in developing countries.

In this sense, governments should expand their expenditures in R&D. Additionally, this budget increase should be complemented with other policies to make sense. For example, the sustainability of such programs requires private-public participation in the seed industry to generate demand and supply coordination. It also requires strengthening regulatory policies in seed markets, including variety release, seed certification, and phytosanitary measures. R&D should also envisage extension services and other mechanisms to facilitate diffusion and technology adoption by farmers.

- Irrigation:

Investment in irrigation should be a critical component of any strategy to increase agricultural supply. On the one hand, irrigation more than doubles the yields of rainfed areas because more crops can be harvested in any given year. On the other, it at least partially promotes resilience, protecting farmers against droughts. In these lines, Delgado et al (2010 estimate that expansion of

irrigation infrastructure to all land in developing countries “would contribute about half of the total value of needed food supply by 2050<sup>15</sup>”.

Irrigation projects appear to exhibit high rates of return. Jones (1995) analyzes 208 World Bank-funded irrigation projects and finds an average rate of return of 15%. When projects are weighted by the size of the area they serve, the rate increases to 25%. Despite the importance and impact of such projects, the Global Food Crises Response Program (GFRP) has determined that “under this emergency response program, it is not anticipated that investment support would be provided for new irrigation schemes, as this would be supported under the Bank’s regular lending program”<sup>16</sup>.

B. Policies to reduce post-harvest losses:

Developing countries face significant post-harvest losses due to mishandling. For cereals, these are estimated to be 10-15% of harvest and, when combined with deterioration in storage (in farms and facilities) and milling, they can reach 25%. Poor (or inexistent) roads compound these losses, as agricultural products cannot reach consumer markets. Additionally, information failures impede supply from reaching demand (or at least prevent it from reaching the most efficient markets). In these lines, some of the policies discussed to reduce post-harvest wastage include:

- Improved handling of harvests and storage practices:

Portions of agricultural production are lost due to post-harvest mishandling. For example, if crops are stored with high humidity levels, they can be affected by mycotoxins and become unfit for consumption. The crop drying process can be affected by many factors. For example, if crops are harvested in damp seasons, their humidity levels will be higher. Additionally, most small farmers in developing countries rely on outdoor sun-drying techniques, which can be affected by cloudy weather, excessive humidity, or unseasonal rain. In addition to the risk of growing mold, production stored in improper containers can also attract plagues, insects, and rodents which can spoil the food. This is only one example of post-harvest mishandling in a process where any number of small practices can potentially spoil food. Training and adequate infrastructure in this area can considerably reduce wastage and improve food availability.

In this line, the implementation of extension services for post-harvest losses was advised. These include: (i) training and demonstration of low cost-on-farm storage; (ii) technical assistance and investment support for community-level food banks; and (iii) training and investment support

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<sup>15</sup> This would require, however, 40% more withdrawals of water for agriculture. Thus, these policies should necessarily be complemented by increased productivity in existing irrigated areas.

<sup>16</sup> GFRP would limit their financing to: (i) support quick turnaround physical investments in rehabilitation of existing irrigation (small-scale) schemes; (ii) finance investments in rehabilitation or development of field drainage and collector drains to reduce problems of water-logging and soil salinity (iii) finance training for water user groups and others on operation and maintenance of investments; (iv) finance assessments of groundwater or surface water hydrology and sustainable water use; and (v) finance feasibility studies for medium-term irrigation investments.

for grain traders and millers in drying and sorting, as well as fumigation equipment and upgrades in existing storage facilities. These should be complemented with strengthening inspections and quality control surveillance to prevent the spread of pests or disease.

- Information systems:

Imperfect information is especially pervasive in agricultural markets and prevails at both the domestic and international levels. In both cases, lack of adequate and timely information creates a mismatch between supply and demand. In many cases, the consequence is the allocation of production to suboptimal markets, where the demand is lower. In other cases, severe information constraints can result in agricultural production not reaching any market at all and thus being wasted.

At the domestic level, many countries have implemented agricultural information systems that can be accessed through internet portals, SMS on mobile phones, kiosks, radio shows, etc. Some examples of these programs are: the Market Information System (broadcasted through radio stations) in Uganda, AgMark Net in India, and TradeNet in West Africa. The challenge ahead is to find cost-effective mechanisms to produce timely information that can be easily and widely accessed by producers and traders.

At the international level, there is scarce reliable data on stocks and availability of grains and oilseeds. Additionally, there is little monitoring of the state of crops and short-term forecasts based on trustworthy technology (remote sensing, meteorological information, etc.). In this line, FAO et al (2011) propose the creation of the Agricultural Market Information System (AMIS). AMIS would involve major agricultural exporters and importers, as well as international organizations with expertise in food policy. It would comprise two organisms: the Global Food Market Information Group (to collect and analyze food market information) and the Rapid Response Forum (to promote international coordination). While the specific details of its duties and membership (and the political negotiations surrounding them) still need to be addressed, some global information and coordination mechanisms seems to be necessary.

- Rural Roads:

Transport infrastructure plays an important role in the reduction of both the level and variability of food prices. Without roads to transport their agricultural production, some farmers cannot reach consumer markets. While some others do have market access, they do so at a very high cost. Delgado et al (2010) argue that, in most cases, transport costs represent 50-60% of total marketing costs. Unfortunately, many farmers in developing countries face this situation. Byerlee et al (2008) estimate that less than 50% of the African rural population lives close to an all-season road. Thus, significant investments are required.

Additionally, transport infrastructure helps reduce price variability. Roads are useful means to spread out regional shocks; if a certain region is hit by a shock (weather or other), it can import food from another region. For example, during the food crisis, it is shown that regions with better infrastructure in Indonesia were not hit as hard as those poorly connected. In this line, the World Bank Jakarta Office (2010) argues that “after controlling for exchange rates and world prices, remote provinces appear to have higher levels of price volatility than well-connected provinces. It confirms the importance of investment in infrastructure. In particular, it demonstrates that the constraints created by geography and remoteness to the transmission of price signals can be alleviated by improving the quality of infrastructure”.

#### 4. Analysis of Consistency

The question that this section tries to answer is how consistent or inconsistent the operational policy recommendations have been with respect to: (a) Proposals of International Organizations and the G8’s document prepared for the Ministers of Finance Meeting in 2008 and (b) the different policy recommendations proposed by key researchers and analyzed in detail in the previous two sections. With this objective in mind, we analyze as an experiment the portfolio of loans of GFRP operations detailed in Table 5, covering operations in 13 developing countries. Table 6 provides a detailed summary of all these World Bank operations which have their core objective the mitigation of the impact of the food crisis.

**Table 5: Documents Analyzed for GFRP Operations**

Country	Project ID	PAD	ICR
Mozambique	107313	✓	✓
Djibouti	112017	✓	✓
Honduras	112023	✓	N/A
Haiti	112133	✓	N/A
Bangladesh	112761	✓	✓
Sierra Leone	113219	✓	✓
Madagascar	113224	✓	✓
Rwanda	113232	✓	N/A
Burundi	113438	✓	✓
Philippines	113492	✓	✓
Guinea	113625	✓	✓
Mali	114269	✓	N/A
Cambodia	117203	✓	✓

Following an assessment of each of the specific operations for the 13 developing countries, benefits are analyzed and summarized in Table 7:

a. **Mozambique:** Overall, consistent with the policy recommendations during 2007/08 and after 2008. The government allowed pass-through of international prices while protecting vulnerable groups (expanding

PSA program). In addition, through the GFRP operation, the WB supported the implementation of reforms to increase agricultural productivity through the provision of infrastructure and public goods (technology adoption, construction of silos, agricultural infrastructure, etc.).

b. **Bangladesh:** Overall, consistent with the policy recommendations on trade during 2007/08 but not consistent with later WB research after 2008. Specifically, the GFRP operation was used in accordance with the GFRP framework to support the reduction of import duties for rice and wheat, and there was an increase of public food stocks (at least partially to act as price buffers) from 1 to 1.5 million tons. On the other hand, it is important to mention that the increased public targeting for aid programs is positive. However, most of it was untargeted and had severe leakages (e.g. large share of budget allocated to Open Market Sales).

c. **Philippines:** The GFRP operation resulted in a combination of policies which were consistent with the official WB policy recommendations during 2007/08 and were both consistent and inconsistent with the post-2008 recommendations. On the consistent side, as a result of the GFRP operation, the government launched the Household Targeting System for Poverty Reduction (NHTS-PR) and introduced a CCT (Pantawid Pamilya). In addition, the NHTS-PR will become a targeting instrument for other social programs, and the Food for School Program is prioritizing the poorest provinces and municipalities to enhance targeting of the most vulnerable population. Finally, they pushed for a regional rice reserve mechanism through ASEAN, which is an emergency regional rice reserve to assure food security in the region and which has a very clear trigger mechanism and governance. In addition, the country was engaged in large rice import tenders, exacerbating increases in international food prices, but the GFRP made the government commit, as part of the loan, to change its tendering policy in a way that would reduce prices. They also agreed to withdraw a big tender that was going to increase prices pressure in the international market. Finally, they established bilateral rice deals, reducing pressure on external markets given its important share on the imports of rice. These policies, although consistent in the short term with the GFRP framework, are inconsistent with later World Bank recommendations. In the medium term, the government is due to lift quantitative trade restrictions by WTO agreements, and there is a medium-term plan to transfer rice trade to the private sector. However, currently the National Food Authority (NFA) has the monopoly over rice imports. NFA still concentrates a significant proportion of its food aid budget, which is poorly targeted. NFA's reserves act as a buffer stock for price stabilization.

d. **Djibouti:** The GFRP operation resulted in a combination of policies which were consistent in general with the official World Bank policy but which, at the same time, were inconsistent with the policy recommendations after 2008. On the consistent side, when the crisis started, there were few social protection mechanisms; the government was able to expand the WFP-operated food assistance program in rural areas (one of the few existing) with GFRP support. It also completed a population census as a first step to implement direct and targeted protection mechanisms for the poor and provided support for fisheries to boost food production. On the inconsistent side with the post-2008 recommendations but consistent with

the GFRP framework and official policy of the World Bank, they eliminated the consumption tax rates on five basic staples; this policy was not effective in reducing consumer food prices. Low pass-through rates were probably due to high concentration in the food market (few importers and distributors) and security risks posed by pirates in international waters.

e. **Honduras:** Overall, consistent with the policy recommendations. The proposed operation seems to be more oriented to releasing funds for the government to aid the financial sector, given the government is concerned about the effect of increasing food prices on households' real income; therefore, they use the resources as a buffer to mitigate the expected adverse effect on banks' outstanding portfolio of consumer loans. However, the financial sector was not the real target of the operation; it was just the fastest way to transfer cash to the government for more general crisis response policies.

f. **Haiti:** The GFRP operation resulted in a combination of policies which were both consistent and inconsistent with the policy recommendations. On the consistent side, as a result of the GFRP, a "Program of Action against the High Cost of Living" (with a focus on employment generation through labor intensive works and expansion of food assistance programs) was developed. In addition, they also implemented what they refer to in the GFRP framework as a second best policy, i.e. subsidies to reduce the price of rice between May and December 2008 (US\$ 30 million). However, there are specific circumstances that need to be met for the Bank to accept this type of policy (see GFRP Framework document p.26, para. B2). Moreover, post-2008 these policies were not supported.

g. **Cambodia:** The GFRP operation resulted in a combination of policies which were consistent with the GFRP framework and official position of the World Bank. Despite the initial ban on rice exports in March 2008, they lifted this ban in May 2008 and are currently seeking to promote rice production. The main policy is to create price incentives by promoting exports (goal of one million tons of milled rice exported by 2015). In addition, they expanded the "Identification of Poor Households Targeting Program" to be applied to safety nets, implemented food for cash and food for work programs, and boosted credit for milling facilities which act as an interface between smallholders and markets. In addition, consistently with the GFRP framework and official WB position in 2008, the GFRP operation subsidized fertilizers by the suspension of the VAT and by implementing a pilot for "smart subsidies" using vouchers to be distributed to smallholders. However, this type of policy was not recommended post-2008, given as it has been shown in the case of Malawi to bring the risk of significant fiscal deficit. Finally, they regulated the fertilizer market in principle to avoid adulteration; however, most of the adulteration appears to happen in Vietnam (from where fertilizer is imported) rather than in Cambodia.

h. **Mali:** The GFRP operation resulted in policies which were both consistent and inconsistent with the official policy recommendations of the World Bank and with what was recommended after 2008. On the consistent side, they increased seed availability for locally-produced rice varieties and improved marketing channels to facilitate relationships between producer organizations. Finally, they implemented a program

of subsidies for equipment, access to water / irrigation, and extension services. On the inconsistent side, they introduced six month VAT and tariff exemptions for rice, implemented a price-stabilizing buffer stock through the Food Security Commission, introduced subsidies on crop inputs which were not “smart subsidies”, and finally, despite acknowledgement of weak safety nets, made no efforts to strengthen them.

i. **Guinea:** The GFRP operation resulted in a combination of policies which were both consistent and inconsistent with the official World Bank policy recommendations and with the post-2008 recommendations. On the consistent side, in both policies recommended in 2008 and after 2008, they implemented a safety net system to distribute take-home rations for children of families of 5+ members, an Emergency School Feeding and Nutrition Support, and an Emergency Urban Labor-Intensive Public Works Program. On the inconsistent side, the country imposed a ban on agricultural exports in 2007; although it was lifted in 2008 for most products, it was not lifted for rice. Although the GFRP operation did not support this, they could have included a conditionality to be able to obtain the loan. In addition, and consistent with the GRFP framework but not the post-2008 recommendations, with support from the GFRP they were able to eliminate custom duties for low quality rice between June 1 and October 31, 2008 and initiated plans to build an emergency food reserve of 25,000 metric tons, although it is not clear if this is for humanitarian or price-stabilizing purposes. Finally, they implemented the “Emergency Agricultural Productivity Support”, which includes the distribution of subsidized seed and fertilizer packages to 70 thousand smallholder farmers, although these were not the type of smart subsidies proposed by the GRFP framework.

j. **Burundi:** The GFRP operation resulted in a combination of policies which were both consistent and inconsistent with the official World Bank policy recommendations. On the consistent side, they scaled up WFP’s School Feeding and Nutrition Program. However, funds allocation and the number of beneficiaries fell short of initial goals. In addition, they supported the return of refugees to the country. Finally, and consistent with the GRFP framework but inconsistent with post-2008 recommendations, they implemented exemption of transaction taxes and import duties until July 2009.

k. **Madagascar:** The GFRP operation resulted in a combination of policies which were consistent with the official World Bank policy recommendations. They expanded the Food for Work and School Feeding Programs and introduced a rice intensification campaign through producer associations. This program aims to provide subsidies for selected agricultural technologies through microfinance institutions. Finally, they eliminated the VAT for rice, which although consistent with the GFRP framework, was not consistent with post-2008 recommendations.

l. **Sierra Leone:** The GFRP operation resulted in a combination of policies which were both consistent and inconsistent with the official World Bank policy recommendations. On the consistent side, they protected selected basic services from increasing costs of food and fuel (those for hospital patients, lactating mothers, government’s boarding schools, etc.). In addition, they reduced the tariffs for four products; this reduction should be maintained until prices return to pre-crisis levels. On the inconsistent side, they

provided fully subsidized rice seed to farmers (71,000 bushes), which were not targeted as the “smart subsidies” strategy recommended in the GFRP.

**m. Rwanda:** The GFRP operation resulted in policies which were inconsistent with both the official World Bank policy recommendations and the post-2008 recommendations. Specifically, they implemented the Crop Intensification Program for food crops which included significant market intervention by the government: (a) purchasing fertilizers in bulk in international markets; (b) auctioning fertilizer to private traders; (c) promoting private microcredit for smallholders; and (d) providing additional targeted subsidies through vouchers. This program has significant risks: mis-targeting, crop leakage (i.e. cannot be used for export crops), collusion among traders, and extremely low loan recovery rate (during a pilot in 2008, recovery was only 4%).

**Table 6: Summary of Selected World Bank Operations to Mitigate the Impact of the Food Crisis**

	<b>Trade Policy</b>	<b>Food Reserves</b>	<b>Social Protection</b>	<b>Supply policies</b>	<b>Others</b>	<b>Remarks</b>
Mozambique	<ul style="list-style-type: none"> <li>- Remove import duties on diesel and kerosene (and also VAT on diesel).</li> <li>- In 2008, these measures (and an additional urban transport subsidy) entailed spending 0.8% of GDP.</li> <li>- This is a large expenditure compared to the “Food Production Action Plan” (0.5% of GDP).</li> </ul>		<ul style="list-style-type: none"> <li>- Government expanded the Food Subsidy Program (PSA), a direct cash transfer to eligible households.</li> <li>- PSA increased beneficiaries by 20% and benefits by 50%.</li> </ul>	<ul style="list-style-type: none"> <li>- Government approved “The Food Production Action Plan<sup>17</sup>” (see PAD, Box 3). This plan includes: support for technology adoption, development of agricultural services, provision of high-quality seeds, construction of storage silos, agricultural service delivery (research, finance, etc.), linking smallholders to markets, and stimulating demand for local food.</li> <li>- Promote the construction and rehabilitation of agricultural infrastructure and increase access to agricultural technologies and extension information</li> <li>- Improve quality for road infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>- Improve budget process and use of public expenditures, improve revenue collection, public financial management procurement system, (internal and external) audit bodies, human resource management in the public sector, etc.</li> </ul>	<ul style="list-style-type: none"> <li>- In general, “the government intends to allow the pass through of international prices of food and fuel to the domestic economy, notably envisaging no trade distortions or generalized subsidies, while protecting the economic sectors most vulnerable to the increase in energy prices” (PAD, pgph 80)</li> </ul>
Bangladesh	<ul style="list-style-type: none"> <li>- Government removed custom</li> </ul>	<ul style="list-style-type: none"> <li>- Increase the targeted size of public food</li> </ul>	<ul style="list-style-type: none"> <li>- Increase budget of seven existing social protection programs: Open Market</li> </ul>	<ul style="list-style-type: none"> <li>- Bring the fertilizer distribution network closer to farmers</li> </ul>	<ul style="list-style-type: none"> <li>- Increase tax collection.</li> </ul>	<ul style="list-style-type: none"> <li>- Government aspires to become self-sufficient in rice production: “since the</li> </ul>

<sup>17</sup> See PAD, Box 3.

	<b>Trade Policy</b>	<b>Food Reserves</b>	<b>Social Protection</b>	<b>Supply policies</b>	<b>Others</b>	<b>Remarks</b>
	duties for rice and wheat.	stock from 1 million to 1.5 million tons. - At least, part of the objective is to use them for price stabilization purposes <sup>18</sup> .	Sales (OMS), Test Relief Food, Gratuitous Relief for Food, Food Assistance in CTG-Hill Tracts Area, Food for Works, Vulnerable Group Development, and Vulnerable Group Feeding. - However, there seem to be considerable leakages (PAD, Annex 4, pgph 7-8) - Creation of the 100-Days Employment Guarantee Program.	(from the <i>upazilla</i> to the union level). - Increase government's rice procurement price to stimulate production.	- Prices of petroleum products, urea fertilizer and compressed natural gas (CNG) were heavily subsidized by SOEs. Government reduced SOE's deficit through prices increases.	availability of rice trade in international trade can no longer be taken for granted and with Indian rice export restrictions continuing, the talk in Dhaka has moved from imports to complete self-reliance". - No improvements in targeting mechanisms of social programs (which have considerable leakages).
Philippines	- Government runs the National Food Authority (NFA), which is the sole entity allowed to import rice, regulates rice trading, and determines farm gate support and retail price stabilization. - Initially, NFA aggressively sought to increase their stocks with large import tenders, which	- NFA to release rice buffer stocks in periods of price increases. - The government allocated temporary rice import quotas, rather than solely relying on NFA imports. However, as domestic prices were lower than international prices, the incentive failed. - In the medium-term, the government is supposed to transfer rice trade to the	- Government increased budget for existing social protection programs (see PAD Annex 5). - However, the most significant social protection program remains NFA, which a budget of \$ 1.2 billion for 2008. NFA is poorly targeted and under-covers the poor <sup>19</sup> . - The government launched a CCT (Pantawid Pamilya), conditional on children's school attendance and health checkups.	-	- The operation does not include policies to enhance agricultural production. However, other government initiatives do. - Government launched FIELDS (Fertilizer; Infrastructure and irrigation; Extension and education; Loans; Drying	- The government is striving for rice self-sufficiency which, according to technical analysis, might have actually undermined food security. - NHTS-PR would "provide the government with the vehicle to re-direct more inefficient subsidies that are not well-targeted to the poor (such as the NFA rice subsidy) to more targeted programs and possibly cash-based programs in the future"

<sup>18</sup> While partially increased for humanitarian purposes ("to ensure that there is enough food in the country to feed the population in a crisis when import channels may be temporarily blocked"), there are also price-strategic purposes ("to ensure that the food stock is large enough to influence, if necessary, the open market price..."). See: PAD, paragraph 64.

<sup>19</sup> "Evidence shows that this is not well-targeted to the poor. Based on the FIES 2006, NFA rice accounted for only 13 percent of the total spending on rice by the poorest quintile. Moreover 40 percent of NFA rice is not consumed by the poor. Only 31% of the total consumption of NFA rice goes to the poorest quintile" (PAD, pgph 39). Due to these leakages, the government implemented Family Access Cards to poor households in Metro Manila. Some 270 thousand cards have been issued, but admittedly "the method used to identify the poor has been less than optimal".

	<b>Trade Policy</b>	<b>Food Reserves</b>	<b>Social Protection</b>	<b>Supply policies</b>	<b>Others</b>	<b>Remarks</b>
	<p>exacerbated price volatility.</p> <ul style="list-style-type: none"> <li>- Subsequently, NFA decided to suspend rice tenders and established bilateral deals with Japan and Vietnam.</li> <li>- In the medium-term, Philippines is due to lift quantitative trade restrictions on rice by WTO agreements.</li> </ul>	<p>private sector (as envisioned in the Medium-Term Philippine Development Plan).</p> <ul style="list-style-type: none"> <li>- The Philippines is trying to push a regional rice reserve mechanism through ASEAN.</li> </ul>	<ul style="list-style-type: none"> <li>- Coverage of the CCT is based on the National Household Targeting System for Poverty Reduction (NHTS-PR). NHTS-PR is a proxy means test for beneficiary selection and the government is adapting other programs' coverage accordingly.</li> <li>- The Food for School program is implementing geographic targeting, prioritizing the 20 poorest provinces and the 100 poorest municipalities.</li> </ul>		<p>and other post-harvest facilities; and Seeds) program. Rather than creating new programs, FIELDS is an acceleration and scaling up of the existing production programs.</p> <ul style="list-style-type: none"> <li>- Government has also subsidized seeds and fertilizer to farmers. However, there appears to be considerable leakage and mismanagement (PAD pgph 55-56).</li> </ul>	
Djibouti			<ul style="list-style-type: none"> <li>- There are limited social protection mechanisms in Djibouti. WFP provides emergency food assistance in rural areas, but coverage is small. Government is planning to expand this program in cooperation with UNICEF and local NGOs.</li> <li>- Besides this, as the food crisis unraveled, there were no major existing</li> </ul>	<ul style="list-style-type: none"> <li>- The government implemented a fisheries support program to increase food supply and increase immediate fish output. The program provides training in modern techniques, boats, and microcredit to young fishermen.</li> <li>- Government implemented a</li> </ul>	<ul style="list-style-type: none"> <li>- Rehabilitate ten community wells in rural areas. These wells will provide support to nomadic pastoralists who have been severely affected by recent droughts.</li> </ul>	<ul style="list-style-type: none"> <li>- "The impacts of the measures supported by this program were expected to have a regressive distribution. In particular, the main intervention supported by this operation (tax exoneration of food items) was untargeted and therefore benefit richer households as much (or relatively more) than poorer households.</li> </ul>

	Food Reserves	Social Protection	Supply policies	Others	Remarks
		<p>social assistance programs to scale-up. The government's immediate policy was to implement an untargeted policy and eliminate the consumption tax rate on five basic food items (rice, sugar, cooking oil, wheat flour and powder milk)</p> <ul style="list-style-type: none"> <li>- However, this policy was mostly ineffective: there was a low pass-through from reduced tax rates to consumer prices<sup>20</sup>. Possible explanations for this outcome are: (a) the high concentration of the food market in Djibouti with few importers and distributors, and (b) heightened security risks posed by pirates in international waters.</li> <li>- Government has drafted an action plan to suggest ways to improve targeting and direct support for the poor. As part of this, Djibouti completed a population census<sup>21</sup>.</li> </ul>	<p>program for external agricultural production in Ethiopia and Sudan.</p>		<p>However, given the large size of the poor population (74%) the intervention was considered to have an immediate relief on poor households" (ICR, pgph 59).</p>
	<ul style="list-style-type: none"> <li>- Government to fund the purchase</li> </ul>	<ul style="list-style-type: none"> <li>- Increase PRAF, an already existing CCT</li> </ul>	<ul style="list-style-type: none"> <li>- Enactment of the Emergency Law to</li> </ul>	<ul style="list-style-type: none"> <li>- Increase budget</li> </ul>	<ul style="list-style-type: none"> <li>- Most of these initiatives are part of a more general</li> </ul>

ifference between domestic and international prices [of tax-exempted items] was higher in all but one case, that of sugar, after the removal of taxes in Djibouti" (ICR,

	<b>Food Reserves</b>	<b>Social Protection</b>	<b>Supply policies</b>	<b>Others</b>	<b>Remarks</b>
	and storage of strategic grain reserves (US\$ 9.5 million).	<p>program, from 148,000 to 200,000 beneficiaries through an IADB \$20 million operation.</p> <ul style="list-style-type: none"> <li>- Government implemented PASAH (Program Supporting Food Security in Honduras), targeted to female-headed households in poor areas. PASAH provides support for productive activities with funds from the European Community.</li> </ul>	<p>Prevent the Shortage of Basic Grains<sup>22</sup>.</p> <ul style="list-style-type: none"> <li>- Loans for medium and smallholders (3.5 – 35 ha) at favorable terms through BANADESA (National Bank for Development).</li> <li>- Subsistence producers (&lt;3.5 ha) to benefit from a technological package of improved seeds, fertilizer and technical assistance.</li> <li>- BANADESA also to finance the expansion of small scale irrigation projects.</li> <li>- The government is implementing the “Price Risk Management of Agricultural Commodities in Honduras” project, with funding from WB and IDB.</li> <li>- The government is also implementing the Second Road Rehabilitation and Improvement</li> </ul>	<p>allocation for SENASA - National Service of Agricultural and Animal Health (US\$ 1.5).</p>	<p>response to the food crisis by the Honduran government.</p> <ul style="list-style-type: none"> <li>- However, the proposed operation seems to be more oriented to release funds for the government to aid the financial sector.</li> <li>- The government is concerned about the effect of increasing food prices on households’ real income. This is expected to have an adverse effect on banks’ outstanding portfolio of consumer loans.</li> <li>- The PAD argues that “The supplemental financing will be an important source of budget financing for the government, providing fiscal space to continue responding to the food crisis, while helping to maintain the macroeconomic stability that led the IMF board to approve a Stand-by agreement on April 7, 2008. Timely program support will also assist government efforts to strengthen the financial sector in a period characterized by</li> </ul>

	Trade Policy	Food Reserves	Social Protection	Supply policies	Others	Remarks
				Project, which seeks to rehabilitate secondary roads.		exogenous shocks that could potentially weaken some banks” (PAD, p. 11.)
Haiti	-	-	<ul style="list-style-type: none"> <li>- Rising food prices led to riots and the resignation of the Prime Minister on April 2008. The government announced a temporary subsidy to reduce the price of rice as an emergency measure. Between May and December 2008, the estimated budget for this subsidy was US\$ 30 million.</li> <li>- The government, in coordination with donors, drafted the “Program of Action against the High Cost of Living”. Two priority (of the three) areas of this plan are: (i) employment generation through labor-intensive works and (ii) expansion of food assistance programs - including feeding programs for schoolchildren, mothers and infants – for six months.</li> </ul>	<ul style="list-style-type: none"> <li>- The third priority area of the “Program of Action against the High Cost of Living” is to scale up agricultural inputs and investments to boost agricultural production.</li> </ul>	-	<ul style="list-style-type: none"> <li>- Since 2004, the WB has supported two Economic Reform Governance Operations: ERGO I (US\$ 61 million) and ERGO II (US\$ 23 million).</li> <li>- The WB’s objective appears to be the sustainability of these operations. “The urgent need for public expenditures to respond to the food crisis in the wake of the riots has resulted in higher financing requirements than originally anticipated. This supplemental financing grant will enable the government to continue to make progress on the reform program supported by EGRO II which could otherwise be jeopardized by the unanticipated gap in financing for the 2008 budget” (PAD, pgph 35).</li> </ul>

	<b>Trade Policy</b>	<b>Food Reserves</b>	<b>Social Protection</b>	<b>Supply policies</b>	<b>Others</b>	<b>Remarks</b>
Cambodia	<ul style="list-style-type: none"> <li>- Cambodia implemented a ban on rice exports on March 2008, fueling rice price increases in international markets.</li> <li>- In May 2008, when harvest prospects improved, the ban was lifted.</li> <li>- The government has a new focus promoting rice production, improving price incentives through expansion of official rice exports: the “Policy Document on the Promotion of Paddy Rice Production and Export of Milled Rice” sets a target of 1 million tons of milled rice exported by 2015.</li> </ul>		<ul style="list-style-type: none"> <li>- Expansion of the Identification of Poor Households Targeting Program<sup>23</sup>. This targeting mechanism is mostly used by Health Equity Funds (HEF) and, to a more limited extent, ADB-supported Emergency Food Assistance Project. However, it will be applied to a broader range of safety net interventions.</li> <li>- Design of a Food and Cash for Work Program</li> <li>- Government to provide WFP with 2,000 MT per year over three years to increase food distribution through school feeding and food for work programs.</li> </ul>	<ul style="list-style-type: none"> <li>- Improve access to and transparency of seed and fertilizer markets: These policies include the suspension of VAT for fertilizers; distribution of seed and fertilizer vouchers for farmers with less than 1 ha of land; and a pilot for “smart subsidies”.</li> <li>- Additionally, the government is concerned by high market concentration and quality problems in the fertilizer market. Thus, government is strengthening its regulation in this market. However, most of fertilizer quality problems can be traced back to production in Vietnam rather than adulteration in Cambodia.</li> <li>- Strengthen the role of community-based farmer organizations</li> </ul>	<ul style="list-style-type: none"> <li>- Improve the governance and effectiveness of Government emergency response and crisis policy actions through quarterly reports, including an independent monitoring component.</li> </ul>	

<sup>23</sup> This is a participatory system: “the identification process is carried out by village representatives, with the support and supervision of the commune council, as well as district-level representatives. Village representatives are responsible for conducting household interviews, assessing household “poverty scores” according to the information gathered through the interviews, and preparing draft lists of poor households. Draft lists are then displayed in public locations, so that villagers are able to view them and possibly complain during or following the village consultation meeting, held before the final list of poor households is submitted to the commune council” (PAD, pgph 48).

	Trade Policy	Food Reserves	Social Protection	Supply policies	Others	Remarks
				<p>to access inputs and credit, technical support and market and policy inputs.</p> <ul style="list-style-type: none"> <li>- Boost credits for investments in higher quality milling facilities, “which serve as a key interface between smallholders and markets in terms of quality standards an input supply” (PAD, pgph. 67).</li> </ul>		
Mali	<ul style="list-style-type: none"> <li>- The government introduced a six-month tariff and VAT exemption for rice. In return of this measure, trader committed to hold their prices (at US\$ 7.2 per kg). However, prices rose considerably afterwards.</li> </ul>	<ul style="list-style-type: none"> <li>- During the crisis, the government released grain stocks held by the Food Security Commission.</li> <li>- Government is revising its guidelines to “establish a more efficient and transparent management system as well as developing countercyclical marketing measures to stabilize cereal prices, e.g. selling cereals during the hunger season in July-September</li> </ul>	<ul style="list-style-type: none"> <li>- “The government’s social safety nets, mainly consisting of school feeding and nutrition programs, are small in scale and poorly targeted, with limited impact on the ground” (PAD, pgph 10). However, the operation does not include any policies to strengthen safety nets.</li> </ul>	<ul style="list-style-type: none"> <li>- Government is implementing the Rice Initiative. This includes: “(i) measures to improve crop input distribution by increasing the availability of seed for locally-produced rice varieties; (ii) new/expanded subsidies on crop inputs; (iii) measures to improve marketing channels, with the objective of facilitating the commercial relationship between producer organizations; and (iv) subsidies for</li> </ul>	<ul style="list-style-type: none"> <li>- The government froze non-essential spending for six months to accommodate to budget pressures from the food crisis.</li> <li>- This has affected delivery of public services.</li> </ul>	<ul style="list-style-type: none"> <li>- Poverty Reduction Support Credit (PRSC) is an important piece of WB’s strategy in Mali. Its second phase (PRSC II) was approved by the Board on May 2008 (US\$ 42 million).</li> <li>- This GFRP operation provides supplemental financing for PRSC II.</li> <li>- “The urgent policy measures put in place to combat high food prices have put extraordinary pressures on the national budget. The proposed supplemental financing would... help the Government of Mali fill in an unanticipated financing gap caused by the food crisis and thus maintain</li> </ul>

	<b>Trade Policy</b>	<b>Food Reserves</b>	<b>Social Protection</b>	<b>Supply policies</b>	<b>Others</b>	<b>Remarks</b>
		when prices are at their highest level” (PAD, pgph 12). - “A recent USAID review concluded that Malian authorities have been quite effective in stock management and in their attempts to use the grain stocks to stabilize local food prices” (PAD, pgph 14)		equipment, access to water/irrigation, and extension services”.		the course of important socioeconomic policy reforms agreed under the PRSC-II and GPRSP” (PAD, pgph 32)
Guinea	<ul style="list-style-type: none"> <li>- Reduced custom duties for low quality rice from 12.75% to 0% (original target was 2.5%) between June 1 and October 31, 2008.</li> <li>- Guinea imposed a ban on agricultural exports applicable for 2007<sup>24</sup>. In 2008, the government issued a ministerial order clarifying that the agricultural export ban was no longer in place, with the exception of rice.</li> </ul>	<ul style="list-style-type: none"> <li>- The government plans to build “an emergency food reserve of 25,000 metric tons”. Documentation does not specify whether these reserves would act as humanitarian or buffer stocks.</li> </ul>	<ul style="list-style-type: none"> <li>- The government negotiated with rice importers, unions and civil society to control wholesale and retail profit margins (GNF 1,000 and 2,000 per 50 kg bag, respectively).</li> <li>- Distribution of take-home rations for children of families of five or more members.</li> <li>- Emergency School Feeding and Nutrition Support.</li> <li>- Implementation of an “Emergency Urban Labor-Intensive Public Works Program”, which includes road maintenance and urban</li> </ul>	<ul style="list-style-type: none"> <li>- “Emergency Agricultural Productivity Support Program”, which includes: (i) production of 2,000 certified seed, (ii) procurement of 2,000 tons of fertilizer and (iii) distribution of input packages to 70,000 smallholder farmers.</li> </ul>	<ul style="list-style-type: none"> <li>-</li> </ul>	<ul style="list-style-type: none"> <li>- “Since the coup in December 2008, the Bank’s engagement and activities in Guinea have been on hold. Management has invoked the provisions of OP/BP7.30, Dealing with de facto governments. Contacts with the Guinean regime have been limited to technical correspondence on the fiduciary issues. Currently, Guinea is under suspension of disbursements for non-payment (over 60 days)” (ICR, p 17).</li> </ul>

<sup>24</sup> “The clarified policy stance on the export of agricultural produce helped in particular the small agricultural producers which had developed a successful regional trade in a number of agricultural markets. It was estimated by the Guinean association of potato growers that these alone had lost the equivalent of US\$ 8,000 a day, when exports were banned” (ICR, p 13)

	<b>Trade Policy</b>	<b>Food Reserves</b>	<b>Social Protection</b>	<b>Supply policies</b>	<b>Others</b>	<b>Remarks</b>
	<ul style="list-style-type: none"> <li>- The government envisaged to replace the rice export ban with export taxes, and committed to a study to for its implementation. However, the new de facto government has reinstated the rice ban.</li> </ul>		<ul style="list-style-type: none"> <li>- works programs aimed to provide employment and income to affected households.</li> </ul>			
Burundi	<ul style="list-style-type: none"> <li>- Temporary exemption of transaction taxes and import duties for thirteen staple products (beans, maize, potatoes, etc.).</li> <li>- These temporary measures were applied until July 2009, when an 18% VAT was introduced and Burundi began to apply the common external tariff of the East African Community.</li> </ul>		<ul style="list-style-type: none"> <li>- Scaling-up WFP's School Feeding and Nutrition Program for Primary Schools (SFNP). Originally, the government budgeted US\$ 3 million to serve 120,000 children. However, it only allocated US\$ 2.4 million and benefited 88,164 children.</li> <li>- The operation also supported increased budget allocation to aid refugees returning to the country after a ceasefire was enacted.</li> </ul>		<ul style="list-style-type: none"> <li>- Though not part of this operation, the government is implementing other policies through different funding sources AfDB, Belgium, Netherlands, Norway, etc.): exempt diesel from transaction taxes and import duties, subsidies for diesel in pro-poor sectors, distribution of agricultural inputs, rehabilitation</li> </ul>	

	Trade Policy	Food Reserves	Social Protection	Supply policies	Others	Remarks
					of irrigation systems, etc.	
Madagascar	-	-	- Expansion of Food for Work and School Feeding Programs. An estimated US\$ 10 million are to be allocated.	- The government is implementing a rice intensification campaign to boost production in the short-run. The campaign aims to increase productivity in existing rice lands and to start rice production in areas that would not normally grow rice (US\$ 20 million). - Specifically, this program would “strengthen the supply of farming system development technology packages geared at promoting intensification of rice cultivation. The program will be implemented by service providers who will be contracted through producer associations and through the subsidization of the selected technology	- Elimination of a VAT for rice (from an original level of 20%). It is expected that this measure would translate into reduced consumer prices due to the high degree of competition in the rice market. - Elimination of rice VAT would entail a fiscal loss of US\$ \$20 million. - The WB is preparing two additional financing proposals for two existing credits (“Community Development Fund” and “Rural Development	- The WB is implementing a longer-term strategy in Madagascar, through a Poverty Reduction Support Credit (PRSC). - The Bank approved the PRSC-5 (the second component if the second PRSC series) in May 2008. The PRSC-5 aims at “complementing the significant portfolio of ongoing International Development Association investment projects targeting infrastructure, environmental protection, mining, rural development, integrated growth poles, irrigation and watershed management, and regional telecommunications” (PAD, pgph 13). - In this line, the current operation would “enable the government to continue to make progress on the reform program supported by the PRSC program, which would otherwise be jeopardized by the unanticipated gap

	Trade Policy	Food Reserves	Social Protection	Supply policies	Others	Remarks
				package via the intermediation of microfinance institutions” (PAD, Annex 1, pgph 6)”. - Government provided 71,000 bushels of seed to rice farmers	Projects”) to strengthen safety nets and boost agricultural productivity in the medium term. - Government used funds from a strategic petroleum reserve to subsidize petroleum prices for five weeks between June and July 2008. - The WB approved a separate GFRP grant for US\$ 4 million in August 2008 to support a cash-for-work program. An additional US\$ 4 million GFRP grant was approved in November 2009 to scale-up this program. - Other WB operations aim	in financing for the 2008 and 2009 budgets, including the maintenance of a stable macroeconomic framework” (PAD, pgph 23).
Sierra Leone	<ul style="list-style-type: none"> <li>- Temporary reductions in import duties for the following products: <ul style="list-style-type: none"> <li>o Rice (from 15 to 10%)</li> <li>o Flour (from 20 to 10%)</li> <li>o Wheat (from 5 to 2.5%)</li> <li>o Sugar (from 20 to 10%)</li> </ul> </li> <li>- Additionally, the fixed reference price to value rice imports was established at US\$ 375 per metric ton (well below prevailing world price)</li> <li>- The import duty on petroleum was reduced from 5% of CIF ad valorem to US\$ 20 per metric ton. Excise taxes on petroleum were also reduced.</li> </ul>	-	<ul style="list-style-type: none"> <li>- The government protected the provision of selected basic services from the rising costs of food and fuel.</li> <li>- Specifically, the government seek to protect food aid provided to the following vulnerable groups: <ul style="list-style-type: none"> <li>o Hospital patients in district hospitals and community health centers</li> <li>o Lactating mothers and children under five in hospitals</li> <li>o Pupils in government boarding schools and handicapped children</li> <li>o Children in remand homes and approved schools who receive food</li> </ul> </li> <li>-</li> </ul>	- Government provided 71,000 bushels of seed to rice farmers	<ul style="list-style-type: none"> <li>- Government used funds from a strategic petroleum reserve to subsidize petroleum prices for five weeks between June and July 2008.</li> <li>- The WB approved a separate GFRP grant for US\$ 4 million in August 2008 to support a cash-for-work program. An additional US\$ 4 million GFRP grant was approved in November 2009 to scale-up this program.</li> <li>- Other WB operations aim</li> </ul>	<ul style="list-style-type: none"> <li>- The WB supports Sierra Leone’s Poverty Reduction Strategy (PRS). The 2005-07 PRS established three action pillars: (i) good governance, security and peace building; (ii) pro-poor sustainable growth for food security; and (iii) human development.</li> <li>- At the time of the operation, the government was preparing the 2009-11 PRS.</li> <li>- “The proposed grant of US\$ 3 million equivalent would support the Government’s PRS by providing the authorities with needed fiscal space to partially compensate for the lost revenues resulting from the recently reduced tariffs on food and fuel imports. This support would help mitigate the impact of such price increases and contribute to continued basic service delivery for</li> </ul>

	Food Reserves	Social Protection	Supply policies	Others	Remarks
price its cise e- have the and ave to is e ons ned.				to increase agricultural production in the medium and long-run: the Rural and Private Sector Development Project (US\$ 30 million) and the Infrastructure Development Project (US\$ 55 million).	vulnerable groups” (PAD, pgph 5.1)
-	-	-	- Government implemented the Crop Intensification Program (CIP), providing improved seeds and fertilizer. - There was a pilot of fertilizer distribution during the 2008 season: in order to negotiate lower prices, the government engaged in bulk purchases. Subsequently, the	- WB is implementing other projects to increase agricultural production in the medium and long-run. These include: irrigation infrastructure, and access to rural microfinance. -	- Funds provided by this operation can only be used to fill in the immediate needs for the food crop intensification program. However, fertilizer for export crops (such as tea and coffee) can be purchased with government resources or funds from alternative donors (e.g. AfDB) - There are inherent risks to this project: sustainability <sup>26</sup> , mis-

normalize, and as farmers become more familiar with the benefits associated with fertilizer application, the need for explicit subsidies will diminish leading to a sustainable

	Food Reserves	Social Protection	Supply policies	Others	Remarks
			<p>government directly distributed fertilizer at subsidized prices through farmer loans.</p> <ul style="list-style-type: none"> <li>- Albeit production increases in CIP, only 4% of fertilizer loans from the pilot were recovered.</li> <li>- Additionally, increases in international prices are likely to create large fiscal deficits for the program.</li> <li>- The government will implement reforms to CIP. While it will still buy fertilizer in bulk quantities, it will carry out auctions to private sector operators who bid for it. The government would subsidize successful bids below the cost. There would be additional subsidies based on a voucher system. Credit for farmers to purchase fertilizers would be</li> </ul>		<p>targeting, crop leakage, collusion, rent seeking, poor cost recovery, etc. However, no ICR report is available.</p>

ce the level of the subsidy, at any point in time. This would involve a gradual reduction in the discount specified on the printed voucher. As the situation improves, this distribution of vouchers. Furthermore, in Rwanda, the Government has already started actively promoting (among coffee and tea participants), private sector group bulk

	Food Reserves	Social Protection	Supply policies	Others	Remarks
			provided by the private sector <sup>25</sup> .		

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sensitization campaign underway with the union of popular banks and micro-finance institutions. The aim of the campaign is to inform farmers of the fertilizer program and the potential returns. Technical modifications of the Agricultural Guarantee Fund (AGF) have been proposed to reduce the transaction costs for microfinance institutions

**Table 7****Summary of Operations**

	Official position of WB during 2007/08		Policies recommended by the World Bank after 2008	
	Consistent	Not Consistent	Consistent	Not Consistent
Mozambique	X		X	
Bangladesh	X			X
Philippines	X		X	X
Djibouti	X		X	X
Honduras	X			X
Haiti	X		X	X
Cambodia	X	X(export ban)	X	X
Mali	X	X	X	X
Guinea	X	X (export ban)	X	X
Burundi	X		X	X
Madagascar	X		X	X
Sierra Leone	X	X	X	X
Rwanda		X		X

**5. Final Remarks**

The world faces a new food economy that likely involves both higher and more volatile food prices, and evidence of both conditions was clear in 2007/08 and 2011. After the food price crisis of 2007–08, food prices started rising again in June 2010, with international prices of maize and wheat roughly doubling by May 2011. This situation imposes several challenges. In the short run, the global food supply is relatively inelastic, leading to shortages and amplifying the impact of any shock. The poor are the hardest hit. In the long run, the goal should be to achieve food security. The drivers that have increased food demand in the last few years are likely to persist (and even expand). Thus, there is a significant role for the World Bank to play in increasing the countries' capacity to cope with this new world scenario and in promoting appropriate policies that will help to minimize the adverse effects of the increase in prices and price volatility, as well as to avoid exacerbating the crisis.

In this regard, this review describes some of the most important official policies that the World Bank prescribed to different countries during the food crisis of 2007/08. In addition, it compares those policies to what was proposed by World Bank research after 2008. The review focuses on the short-term, medium, and long-term policies proposed. In terms of short-term policies, two mechanisms are emphasized: support for the poor and price stabilization (with an emphasis on trade restrictions and food reserves). In terms of medium- and long-term policies, we focus on the recommendations linked to increasing agricultural productivity through productivity gains and elimination of post-harvest losses.

In support of the poor, Targeted Cash Transfers (TCT) and Conditional Cash Transfer (CCT) programs already in place clearly constitute first-best responses for several reasons: (a) they prioritize assistance for targeted groups, (b) they do not entail additional costs of food storage and transportation, (c) they do not distort food markets, and (d) in the case of CCTs, they explicitly prevent human capital deterioration. When TCTs and CCTs are not available, governments may also implement other types of assistance programs, although this could bring some inefficiency. Therefore, in poor countries where TCTs and CCTs are not yet in place (such as most Sub-Saharan Africa), it is essential that during non-crisis years, countries invest in strengthening existing programs - and piloting new ones - to address chronic poverty, achieve food security and human development goals, and be ready to respond to shocks. Across the different GFRPs, we see these policies implemented by the World Bank, specifically in Philippines, Djibouti, Haiti, Cambodia, Guinea, Burundi, and Madagascar.

In terms of short-term price stabilization policies through trade policies and management of food reserves, we identify important inconsistencies in what was recommended in the official position by the World Bank, through the GFRP framework document and in the G8's document prepared to the Ministers of Finance Meeting in 2008, and in post-2008 recommendations. Clearly, the official recommendations in 2008 were more flexible, especially in regards to trade policies and physical reserves, and in some cases allowed short-term interventions that could end in pervasive market distortions. As a result, most of the operations under the GFRPs were consistent with the official policy recommendations with the exception of Cambodia, Guinea, Sierra Leone, and Rwanda (see summary in Table 7).

On the other hand, if we look at the post-2008 recommendations, all of them will avoid any potentially pervasive market distortions. Even more, regarding trade policies, most of the work of the World Bank will advise against any trade restrictions (on both the import and the export side). In that sense, if we assess ex post the GFRP operations, we find that in many of countries, the policies implemented as a result of the GFRP created additional trade restrictions other than export bans, which was the only bad policies identified in the GFRP framework document. This was the case for Bangladesh, Philippines, Mali, Guinea, Burundi, and Sierra Leone.

Nevertheless, and as explained in Section 3, it is important to mention that what the GFRP framework recommended in 2008 relative to what was recommended post-2008 is in a certain way justifiable as a short-term measure given that all in all, trade policies may be an effective instrument for short-term price stabilization purposes in some nations: those facing considerable political unrest, lacking adequate food distribution networks, with no safety nets available, etc. However, they may have important beggar-thy-neighbor consequences and may fuel price increases of important commodities. The 2007/08 food crisis – especially in the case of rice – is quite illustrative in this respect. Insulating trade policies imposed by importers and exporters (as well as high-income and developing countries) were indeed responsible for a considerable share of price spikes. However, even when the aggregate effect of the actions of these broad groups is quite large, most of the turmoil was likely caused by large exporters and importers. In this sense, if the argument is that such policies create further imbalances for others, policy recommendations should

distinguish between larger and smaller countries; from all the countries where we see these inconsistencies, the Philippines is the only one falling into the category of a significant importer of rice where the World Bank should be clearly against import tenders and quantitative restrictions, given they clearly helped to exacerbate international prices in the rice market.

With respect to food reserves, the discussion seems to highlight the need for food reserves to ease the effect of shocks during periods of commodity price spikes and volatility. There seems to be some consensus around this idea. The disagreement stems from the specific mechanisms to implement food reserves. As in the case of trade interventions, the most appropriate choices are likely to depend on the characteristics of the specific market under intervention, the country's capacity to cope with crises, and the possibility of establishing international coordination mechanisms. While it likely does not make sense to establish national buffer stocks in most grain markets, it may be more valid in a few cases, such as in the rice market. Again, however, regional reserves with strong governance and clear triggers are preferred. However, it is important to mention that the GFRP framework is not extremely clear on this in difference to what was recommended post-2008. It is in that sense that when analyzing the operational plans of the GFRPs, proposals can be identified that promote country level reserves as buffer stocks, as in the case of Bangladesh where the stocks were increased from 1 to 1.5 million MT of rice, the NFAs in Philippines, and Guinea. It could also be argued that these reserves were consistent with the official position of the World Bank through the GFRP framework, although clearly these type of policies are problematic in countries where the necessary conditions for these reserves to work don't exist. Additionally, buffer stocks usually entail high costs and market distortions and are prone to corruption. Thus, most countries – especially those with weak institutions and scarce resources – should probably refrain from using buffer stocks.

Finally, with respect to the medium- and long-run policies, we see significant investment in the GFRPs (for example, the provision of infrastructure and public goods in Mozambique, increasing seed availability in Mali, and the rice intensification program in Madagascar). In addition, and as recommended in the GFRP framework document, we also see the important presence of input subsidies similar to those that have failed in Malawi with a fiscal cost of around 3% of the GDP. These plans envisage the implementation of a market smart approach to input subsidies. Such a strategy is characterized by: (a) targeting poor farmers; (b) not displacing existing commercial sales; (c) utilizing vouchers, matching grants, or other instruments to strengthen private distribution systems; and (d) being introduced for a limited period of time only. Albeit outlining a sensible rationale, it is unclear how these principles would be implemented in practice in poor countries like in the GFRPs in Haiti, Cambodia, Mali, Sierra Leone, and Rwanda. Poorer countries– which likely have the least developed input markets– may find it difficult to target only those farmers in need. Additionally, subsidy programs that would strengthen, rather than displace, the private sector are likely to require complex mechanisms. Institutional weaknesses of poor countries may render them unfeasible, aside from the fiscal costs.

It is important to note that in many countries, input markets are not well developed, as they are hampered by various policy, institutional, and infrastructure constraints that can only be overcome over time, while

improvement in access to inputs would provide substantial benefits in the short run, given the crisis circumstances. It is in that sense that the “smart subsidies” proposed under the GFRP framework could be conceptually justifiable although as a short term measure given it could also create fiscal problems as previously mentioned based on the Malawi experience. Moreover it is of central importance that any “smart subsidy” policy include the five key characteristics mentioned in the previous paragraph. Furthermore, a long-time horizon is required to apply the “first-best” policies, namely, the alleviation of constraints (such as infrastructure, missing credit markets, etc.) which inhibit the development of efficient input markets.

Therefore, although this “second best measure” in the face of existing constraints as stated in the GFRP framework document could be justifiable in the short term the key is to assure all other needed elements are in place for its success and specially that investment to alleviate the key constraints of the input market are also started at the same time. All of these arguments are conceptually valid, although their applicability in any given country cannot be taken for granted; in most cases, applicability was not actually and explicitly verified in the assistance programs funded under GFRP and the key four characteristics of the proposed “smart subsidies” strategies were not validated in advance.

In summary, when assessing the consistency of the specific loans and policies prescribed officially by the World Bank (WB) for selected countries during the 2007/08 food crisis, we identify that given the significant flexibility of the World Bank official recommendations, most of the loans comply with what was in the GFRP framework. However, when analyzing the consistency of those recommendations to the research results published by the World Bank post-2008, we found significant inconsistencies, especially in short-term policies. As a result, it is extremely important for the World Bank to carefully assess the risks and costs of the implementation of the official, more flexible recommendations, of the GFRP against what is currently being advocated at the Bank and to carefully assess how to avoid these inconsistencies in the future.

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