



On Food Security Stocks, Peace Clauses, and Permanent Solutions After Bali

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I. Introduction¹

The WTO 9th Ministerial Conference at Bali, Indonesia closed on December 7, 2013 with an agreement on the first comprehensive multilateral trade package negotiated since the organization's creation in 1995. The Bali agreement is the latest step in the process known as the Doha Round, launched in Doha, Qatar in 2001 during the WTO 4th Ministerial Conference. The Doha initiative was an attempt to negotiate a multilateral deal building on the unfinished work of the Uruguay Round. In mid-2008, in the WTO headquarters at Geneva, Switzerland, the last sustained effort to finish a complete package of the Doha Development Round took place in Geneva, Switzerland. Those negotiations collapsed, in large part due to disagreements related mainly to the operation of a Special Safeguard Mechanism, which was considered by several developing countries to be a food security-related issue, linked to the market-access component of the agricultural negotiations.²

Since 2008, WTO Members have instead attempted to tackle negotiations in smaller packages rather than as a whole; thus, the Bali Agreement forms a subset of the general Doha program. However, negotiating smaller deals still did not eliminate the challenges faced by Members. During the frantic days of the Bali negotiations, even this more circumscribed package was at risk of not being completed, and once again food security concerns were invoked as a major reason for the disagreements. The food security debate at Bali shifted from the market access pillar to the pillar of domestic support for agriculture and focused on the WTO's treatment of the use of administered prices to build public food security stocks in developing countries. Unlike 2008, however, failure was averted this time through the establishment of a mechanism dubbed a "peace clause," which provides additional time for Members to resolve their disagreements over these food security issues.

The Bali Ministerial covered a larger set of issues in addition to the specific problem of procurement prices for food security stocks. The Agreements can be divided into three groups, as shown in Table 1; this table also lists the relevant documents as identified in the Bali Ministerial Declaration, WT/MIN(13)/DEC/W/1/Rev.1, 7 December 2013 (the basic document identifying all the decisions agreed upon at the Ministerial Conference; see Díaz-Bonilla and Laborde (forthcoming) for a more complete overview of the Bali agreements).

¹ I want to thank Lars Brink, Stefan Tangermann, and Antoine Bouet for very detailed comments on earlier drafts, which saved me from inaccuracies and mistakes. All remaining errors are mine.

² The three pillars of the agricultural negotiations within the WTO are domestic support, market access, and export competition. The debate about the SSM focused on whether tariff increases on products affected by import surges could under certain circumstances go above the levels previously negotiated and bound. Whether the SSM really addressed food security concerns was a matter of debate. Simulations in a global model suggested that, if the protection afforded by the SSN was sustained over time, developing countries using that safeguard would have been worse off in terms of food security (measured as food consumption) and in other dimensions as well, such as employment, production, and exports (Diaz Bonilla, Diao and Robinson, 2004).

The main outcomes from Bali include the agreements and decisions related to a subset of components of the Doha Round (sometimes called the “Bali Package”). Those Ministerial Decisions, linked to trade negotiations, are listed in Table 1.A. There were also decisions about the WTO’s post-Bali work program focusing on future trade negotiating activities (Table 1.B). Finally, a group of decisions relate mainly to what is called the regular work³ of the WTO (Table 1.C).

TABLE 1. DECISIONS AND DECLARATIONS OF THE BALI MINISTERIAL (WT/MIN(13)/DEC/W/1/REV.1. 7 DECEMBER 2013)

A. Doha Development Agenda
Trade Facilitation
*Agreement on Trade Facilitation (WT/MIN(13)/W/8)
Agriculture and Cotton
*General Services (WT/MIN(13)/W/9)
*Public Stockholding for Food Security Purposes (WT/MIN(13)/W/10)
*Understanding on Tariff Rate Quota Administration Provisions of Agricultural Products (WT/MIN(13)/W/11)
*Export Competition (WT/MIN(13)/W/12)
*Cotton (WT/MIN(13)/W/13)
Development and LDC issues
*Preferential Rules of Origin for Least-Developed Countries (WT/MIN(13)/W/14)
*Operationalization of the Waiver Concerning Preferential Treatment to Services and Service Suppliers of Least-Developed Countries (WT/MIN(13)/W/15)
*Duty-Free and Quota-Free (DFQF) Market Access for Least-Developed Countries (WT/MIN(13)/W/16)
*Monitoring Mechanism on Special and Differential Treatment (WT/MIN(13)/W/17)
B. Post-Bali Work
*The relevant section of the Bali Ministerial Declaration (WT/MIN(13)/DEC/W/1/Rev.1)
C. Regular Work Under the General Council
*TRIPS Non-violation and Situation Complaints (WT/MIN(13)/W/2)
*Work Program on Electronic Commerce (WT/MIN(13)/W/3)
*Work Program on Small Economies (WT/MIN(13)/W/4)
*Aid for Trade (WT/MIN(13)/W/5)
*Trade and Transfer of Technology (WT/MIN(13)/W/6)
*Decision on the Accession of the Republic of Yemen (WT/MIN(13)/24- WT/L/905).

This paper focuses on the Ministerial Decision on “Public Stockholding for Food Security Purposes, WT/MIN(13)/W/10,”⁴ and analyzes a series of legal and economic aspects involved, trying to place the discussion in the context of the significantly different economic scenario since the Doha Development Round started. This changed context includes the new scenario for food prices, the important advances of developing countries in incomes, the parallel improvements in hunger indicators along with the continuous advance of the “triple burden” of malnutrition, significant increases in agricultural production and trade, and in policy support to the sector in developing countries, along with more diversified diets and new food retail channels, even among the poor and in rural regions.

I discuss those issues basically from the perspective of developing countries (although recognizing that this is a heterogeneous group). The paper is mainly aimed at policy makers, development practitioners and general public in developing countries who are interested in these issues but that not necessarily have followed WTO and related debates closely. Therefore the paper tries to provide some historical and conceptual background on the topics covered. At the same time it seeks to include enough legal detail of the texts so as to serve as a basic reference.

The rest of the paper is structured as follows. First, I present some background on the debate about food security and trade. Second, I focus on the legal aspects involved in the negotiations related to food security stocks. Finally, the fact that

³ Under the Ministerial Conference, there is the WTO General Council (GC), which manages day-to-day issues at the WTO Headquarters in Geneva; under the GC, there is a series of other Councils and bodies that carry out the different functions and activities of the organization. Those WTO functions and activities can be divided into three main areas of work. One is the negotiation of new agreements. The second group comprises the work of the different Committees in which Members monitor and maintain a continuous dialogue on current trade practices and operations in the context of the WTO legal commitments (the “regular work”). The third is the Dispute Settlement Mechanism (DSM) that Members utilize when they believe that their rights under specific WTO agreements have been affected by other Members.

⁴ Readers interested in the topic should also consult the careful analysis in Matthews, 2014.

a particular policy is allowed under the WTO legal framework does not necessarily mean that it makes sense in economic or social terms for the country involved. Therefore, the third section looks at some of the economic and operational aspects of food security stocks and their impacts on food security, which should be taken into consideration when discussing potential legal solutions. The final section concludes.

II. Background

1. Food Security as a Trade Concern

Food security is not a new concern, for either developing or developed countries. It has been invoked as a key issue during several rounds of trade negotiations. For example, during the Uruguay Round, several developing and developed countries claimed food security concerns to justify barriers to food imports and higher levels of domestic support (even though, under any metric, the notion of food insecurity in richer countries was clearly unrelated to the conditions in developing countries). At the conclusion of the Uruguay Round, the issue was reflected in the Marrakesh Declaration and the establishment of the category of Net Food Importing Developing Countries (NFIDC); these countries, along with Least Developed Countries,⁵ were supposed to receive financial aid and other help in case food prices increased as a result of trade negotiations. Article 20 of the Agreement on Agriculture (AoA)⁶ also mentioned that “non-trade concerns” (food security being among them) had to be taken into account in the continuation of the negotiations on agriculture, which were recognized as not being completed by the Uruguay Round.

Subsequently, several developed countries included food security as a component of the notion of multi-functionality, which argued that agriculture created positive externalities for the economy beyond the direct market value of food and fiber and that these effects were inseparable from production. Therefore, in this view, barriers to food imports and higher levels of domestic support were justified.⁷ Some of these countries attempted to use that notion (which as noted, included food security as part of the positive externalities) to build alliances with developing countries for the WTO negotiations. However, it was obvious that no developed country fit the profile of food insecure according to comparable indicators of food consumption, production, and exports (Diaz Bonilla, Thomas, Robinson and Cattaneo, 2000). It also became clear that if developed countries expanded their agriculture on the basis of multi-functionality using protection and domestic support, it would mean that, for any given level of global demand, other countries (mostly developing ones) would see their agriculture contract and, therefore, their assumed multi-functionality would fall (Diaz Bonilla and Tin, 2006). In the end, the use of multi-functionality as the foundation for the protection and subsidization of agriculture in developed countries did not gain much traction in trade negotiations.

Developing countries, on the other hand, clearly have stronger grounds for claims of food security concerns in trade negotiations. In the early 2000s, these claims were manifested in the request by several developing countries for a Food Security Box, which included more options to maintain high levels of protection and support for some agricultural products. Several of those proposals were incorporated in the “Revised Draft Modalities for Agriculture” (WTO, 2008b. TN/AG/W/4/Rev.4, December 6, 2008; in what follows, this document will be called the 2008 Modalities). This document was the last attempt to reach an agreement on agriculture before the general Doha talks collapsed in 2008. While the 2008 Modalities were not agreed upon, in the process leading to the 9th Ministerial Conference and in the Bali Package related

⁵ While NFIDC is a WTO category, LDC is a group defined by the United Nations, based on development indicators. There are currently 49 LDCs determined by the United Nations, 35 of which have become WTO members, counting the accession of Yemen during the Bali Ministerial.

⁶ All references are based on WTOa, 2008. The WTO Agreements Series. 3. Agriculture.
http://www.wto.org/english/res_e/booksp_e/agrmtseries3_ag_2008_e.pdf

⁷ Diaz-Bonilla and Tin (2006) noted that a similar notion of positive externalities, with a comparable debate about the appropriate policies, was behind the drive toward industrialization in developing countries after World War II. However, the GATT legal system put stronger disciplines on subsidization and protection of industry, while agriculture was largely exempted for several decades until some disciplines were introduced with the conclusion of the Uruguay Round.

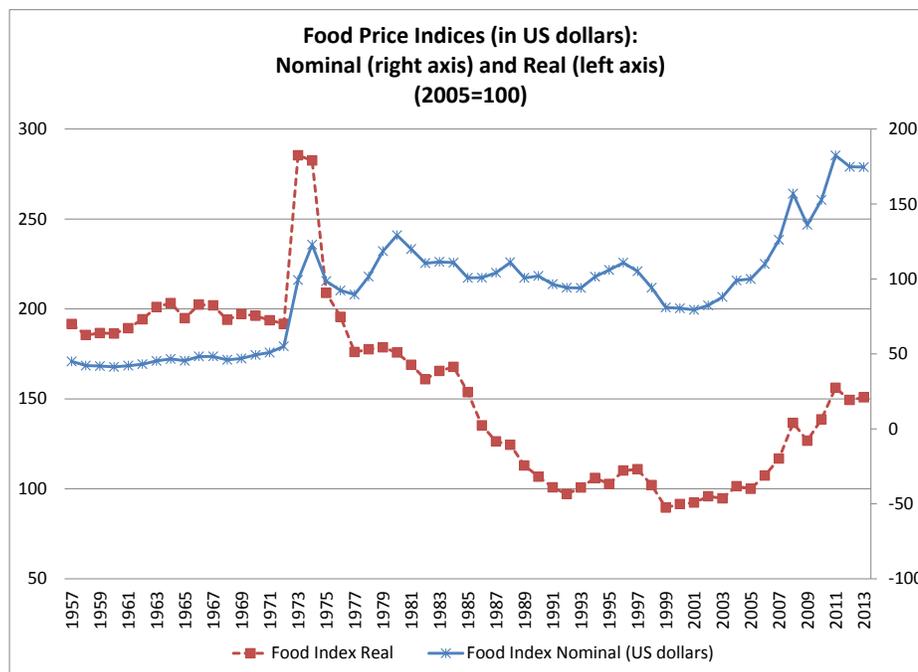
to agriculture, part of the language from that document reemerged in some proposals, including the initial one on food security stocks, as discussed below.⁸

2. New Circumstances

While food security issues are not new in trade negotiations, what has changed in recent years is that these concerns now appear against a background of higher nominal prices and volatility, while formerly they were postulated in a context of low food prices. Previous agricultural trade negotiations focused on policies that either artificially expanded supply in some countries through subsidies or reduced demand in other countries through protection (thus lowering global prices); now there is larger interest in disciplines on policies that may artificially restrict supply or expand demand (all of which would contribute to higher world prices). Therefore, while previous trade concerns focused on producers, now there seems to be more preoccupation with consumers (see Seth Meyer and Joseph Schmidhuber, 2013; Jean-Christophe Bureau and Sébastien Jean, 2013; Eugenio Diaz Bonilla 2013a; Tangermann, 2013).

Figure 1 shows nominal food prices, which are above previous decades in US dollars (data from the IMF/IFS commodity database). At the same time, real (i.e. inflation-adjusted) prices are not as high as they were in the 1960s and 1970s, although the declining trend seen during the 1980s and 1990s has been stopped and reversed (see, Figure 1; the deflator is the manufacturing unit value of exports from the main economies).

FIGURE 1. FOOD PRICE INDICES IN US NOMINAL AND REAL VALUES



Even in nominal terms, high prices may reflect the well-known fact that nominal global commodity prices (which are usually quoted in dollars) move in opposite directions from the US dollar (Mundell, 2002). In other words, if the dollar appreciates (devalues) against other currencies, the dollar price of commodities declines (increases). Therefore, part of the reason why current global commodity prices in nominal dollars are high is because the US dollar has been dropping in value against other currencies (Díaz-Bonilla, 2013a). While the Food Index in US dollars for 2011-2013 is 68% above the average 1986-1988 price (which is the reference period utilized in the Agreement on Agriculture for price comparisons), if the index

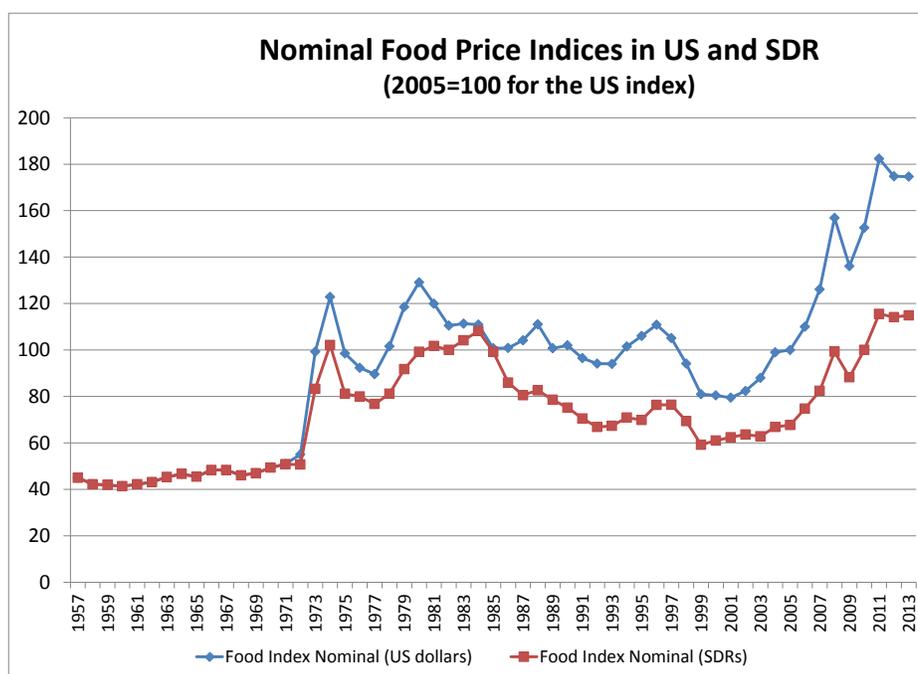
⁸ Two other Ministerial Decisions (General Services, WT/MIN(13)/W/9, and Understanding on Tariff Rate Quota Administration Provisions of Agricultural Products, WT/MIN(13)/W/11) were also based on language from the 2008 Modalities.

is measured in nominal Special Drawing Rights (SDRs, a basket of currencies that evens out the fluctuations of the US dollar), then its value is 38% above those prevailing in 1986-1988. This is still higher than the reference period, but significantly less than it is in US dollars (Figure 2).

The current high global commodity prices, measured in nominal US dollars, have implications for the calculations of domestic support according to the Agreement on Agriculture, which requires comparisons with fixed external prices from 1986-1988. Conceivably, if a country has to compare the current prices offered to its producers (which are in line with global market prices) with the lower levels of the reference years due to WTO legal requirements, that country may appear to be offering additional price support. However, as noted, with a more stable currency (such as SDRs), the increases in global prices are far more modest. Furthermore, in real US dollars, global price levels are still below those in the 1960s and 1970s. Still, the upward movement in prices is clear, although it also appears to have plateaued.

The current environment of higher nominal prices may persist into the future, although not necessarily with further accelerations (a discussion of the potential scenarios can be found in Díaz-Bonilla, E., E. Saini, B. Creamer, G. Henry and E. Trigo. 2013). But the changed scenario for food prices is just one aspect of a larger set of new circumstances for agriculture and food production that now place food security concerns in a very different context and that should be considered when analyzing the legal, economic, operational and social aspects of food security stocks, as discussed in the following sections.

FIGURE 2. FOOD PRICE INDICES IN US AND SDR NOMINAL VALUES



III. Food Security Stocks: Legal Issues

1. Background

There are four categories of domestic support in the Agreement on Agriculture (AoA).⁹ The first three are exempted from disciplines under certain conditions; they include those considered in: a) Annex 2, the so-called Green Box (although

⁹ For a detailed discussion of these topics see Brink, 2011, particularly Figure 2.1; see also the explanations in WTO 2008a, The WTO Agreements Series. 3 Agriculture. http://www.wto.org/english/res_e/booksp_e/agrmtseries3_ag_2008_e.pdf

no colored boxes are mentioned in the AoA); b) Article 6.4 (also known as the Blue Box);¹⁰ and c) Article 6.2 (which applies to developing countries only).¹¹

The opening paragraph of Annex 2 indicates the conditions that the different measures listed in the Green Box must follow to be exempted from being counted in the AMS. First, those support programs have to meet “the fundamental requirement that they have no, or at most minimal, trade-distorting effects or effects on production.” They must also “conform to the following basic criteria: (a) the support in question shall be provided through a publicly-funded government program (including government revenue foregone) not involving transfers from consumers; and, (b) the support in question shall not have the effect of providing price support” (Annex 2, paragraph 1).

The remaining domestic support measures not included in these three categories are a residual category, usually called the Amber Box. These measures must be added in an Aggregate Measurement of Support (AMS) for each product (product-specific AMS) and for agricultural producers in general (non-product-specific AMS) (Brink, 2011).

Product-specific support includes an estimation of market price support (MPS) that “shall be calculated using the gap between a fixed external reference price and the applied administered price multiplied by the quantity of production eligible to receive the applied administered price” (Annex 3, paragraph 8). It is important here to note the three crucial concepts: the fixed external reference price (FERP), the applied administered price (AP), and the “production eligible,” because they feature prominently in the legal issues discussed below.

Product-specific AMS also has to include other non-exempt production-related payments and support to producers. The sum of MPS and other non-exempt payments is then compared to the value of production, and if the sum is more than a de minimis level (5% for developed countries and 10% for developing countries),¹² the value is computed in its entirety (i.e. not only the excess over the de minimis) in the Current Total Aggregate Measurement of Support (CTAMS). The non-product specific support (usually measured through budgetary data) also needs to be compared to the entire agricultural production, and if it exceeds the de minimis value, it must be added to the CTAMS. Finally, the CTAMS is compared to, and cannot exceed, the ceiling commitment (sometimes called the Final Bound Total AMS, FBTAMS) negotiated during the Uruguay Round or defined later during the accession process for the new WTO Members (Brink, 2011).

Two things should be noted. First, most developing countries have not declared domestic support in the negotiations (i.e., the amount considered in the FBTAMS), and therefore, the de minimis limits these countries’ level of domestic support.¹³ There is a small number of developing countries that have declared domestic support; they therefore have the possibility of offering domestic support up to the FBTAMS, but the value of that domestic support is small compared to the allowances negotiated by developed countries during the Uruguay Round.¹⁴ Second, as noted, Article 6.2 allows developing countries to exempt both general investment support for agriculture and input subsidies for low-income or resource-poor

¹⁰ Article 6.4 allows certain payments directly linked to area or animal numbers but operating under mechanisms that also limit production to be exempted from the general rule that all subsidies linked to production must be maintained below a “de minimis” level or reduced.

¹¹ Because of the importance of Article 6.2 for developing countries it is quoted here in full as reference: “In accordance with the Mid-Term Review Agreement that government measures of assistance, whether direct or indirect, to encourage agricultural and rural development are an integral part of the development programs of developing countries, investment subsidies which are generally available to agriculture in developing country Members and agricultural input subsidies generally available to low-income or resource-poor producers in developing country Members shall be exempt from domestic support reduction commitments that would otherwise be applicable to such measures, as shall domestic support to producers in developing country Members to encourage diversification from growing illicit narcotic crops. Domestic support meeting the criteria of this paragraph shall not be required to be included in a Member’s calculation of its Current Total AMS.” It should be noted that in the accession negotiations, China was not allowed to use this article.

¹² Countries like China have accepted a different de minimis (in China’s case, 8.5%) as part of the accession agreement.

¹³ The relevant text in Article 7(b) reads: “Where no Total AMS commitment exists.... the Member shall not provide support to agricultural producers in excess of the relevant de minimis level set out in paragraph 4 of Article 6.”

¹⁴ There are a total of 33 countries with FBTAMS, but the European Union, Japan, the United States, Canada, Switzerland and Norway represent 87% of the total value (the European Union alone represents about 49% of the total).

farmers from the AMS; these are domestic measures that can be considered trade-distorting, but they are exempted from the AMS as part of the notion of “special and differential treatment” (SDT).¹⁵

The debate before and during the Bali Ministerial revolved around two sections of Annex 2 of the Agreement on Agriculture (AoA) (Green Box): food security stocks (AoA, Annex 2, paragraph 3) and domestic food subsidies (AoA, Annex 2, paragraph 4). Initially a group of developing countries (known at the WTO as the G-33)¹⁶ presented a proposal based on the 2008 Modalities, which included new language for paragraph 3 (Public Stockholding for Food Security Purposes) and paragraph 4 (Domestic Food Aid).

To understand the suggested modifications, it is necessary to look first at the current language. The provision on food security stocks (Annex 2, paragraph 3) declares “expenditures (or revenue foregone) in relation to the accumulation and holding of stocks of products which form an integral part of a food security program identified in national legislation” to be Green Box measures. It also adds conditions such as that “the volume and accumulation of such stocks shall correspond to predetermined targets related solely to food security” and “the process of stock accumulation and disposal shall be financially transparent.” However, a footnote simplifies the criteria for developing countries: food security stocks are considered in conformity with Annex 2, paragraph 3 if the operation “is transparent and conducted in accordance with officially published objective criteria or guidelines.”

Annex 2, paragraph 3 also indicates that “food purchases by the government shall be made at current market prices and sales from food security stocks shall be made at no less than the current domestic market price for the product and quality in question.” Note that purchases for food security stocks, and sales from them, must be made at market prices; this is again modified for developing countries on at least one account: footnote 5 and 6 (it is a combined footnote so numbered) applies both to Public Stockholding for Food Security Purposes (Annex 2, paragraph 3) and Domestic Food Aid (another Green Box measure in Annex 2, paragraph 4) and allows the selling of products at subsidized prices “with the objective of meeting food requirements of urban and rural poor in developing countries on a regular basis.” While this allows developing countries to offer subsidies in the selling price, footnote 5 to the food security stock provision does not permit other than market prices for purchases to be part of the Green Box. If purchases are at “administered prices,” then the “difference between the acquisition price and the external reference price is accounted for in the AMS.”

The section on domestic food aid (Annex 2, paragraph 4), in addition to allowing the provision of subsidized food through domestic aid, establishes some reasonable criteria for the operation of those programs, such as that “eligibility to receive the food aid shall be subject to clearly-defined criteria related to nutritional objectives” and that “the financing and administration of the aid shall be transparent.” It also allows domestic food aid to be in-kind or other means “to allow eligible recipients to buy food either at market or at subsidized prices.”

Some developing countries, particularly India, believed that if they had to account for the gap between administered prices and fixed external reference prices, they were bumping against, and probably exceeding, the product-specific limit of the 10% de minimis of total production in some key products.¹⁷ Further, they argued that, given the current high international prices, it did not make sense to compare buying prices to the external reference prices that were specifically defined

¹⁵ SDT refers to the notion that developing countries may need special treatment under trade rules, differentiated from the legal obligations of developed countries.

¹⁶ As is the case with many international groups, the G-33 has a different number of members (46) than the name suggests. The current list at the WTO includes the following: Antigua and Barbuda, Barbados, Belize, Benin, Bolivia, Botswana, Côte d’Ivoire, China, Congo, Cuba, Dominica, Dominican Republic, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, India, Indonesia, Jamaica, Kenya, Korea, Madagascar, Mauritius, Mongolia, Mozambique, Nicaragua, Nigeria, Pakistan, Panama, Peru, Philippines, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Senegal, Sri Lanka, Suriname, Tanzania, Trinidad and Tobago, Turkey, Uganda, Venezuela, Zambia, and Zimbabwe.

¹⁷ This limit does not affect other options such as the rest of the Green Box measures, Blue Box measures of support, and, for developing countries only, those considered in article 6.2.

under the AoA as those prevailing in 1986-1988. In fact, if purchases were done at administered prices that closely tracked current world prices (and therefore would not be distortionary in an economic sense), the AoA comparison with the 1986-1988 levels would still show (largely imaginary) levels of market price support, as can be inferred when comparing the nominal values for 1986-88 and 2013 from Figure 1 (this graph, however, is just a general reference, because it shows an index of several products while the FERP is calculated by individual product).

Based on those concerns, the language proposed by the G-33 exempted the difference between administered prices and the fixed external reference prices from the obligation of being included in the AMS when the governments of developing countries have bought products for food security stocks (paragraph 3) and domestic aid (paragraph 4) from a specific type of producer: those that are “low income or resource poor” (LIRP; this is a category already considered by the AoA for some special treatment in article 6.2¹⁸).

This approach generated two basic objections. First, it appeared to go against the conditions established for the Green Box (Annex 2, paragraph 1), particularly the second basic criteria (point b in the paragraph) which indicates “the support in question shall not have the effect of providing price support” (Annex 2, paragraph 1). The G-33 proposal, on the other hand, clearly provided price support, at least to a certain type of producer, and the concern was that once a loophole was created in the Green Box chapeau, then anything could happen with the rest of the programs listed there.

Furthermore, other developing countries were concerned as well about the leeway granted under the current Annex 2 to provide income support that is in theory (but not clearly in fact) decoupled from prices. Offering price support to LIRP producers would significantly undermine the possibility of disciplining those Green Box measures, currently utilized mostly by industrialized countries,¹⁹ that may create more than the minimal trade distortions required to be considered a Green Box measure (Annex 2, paragraph 1).

Second, other countries were concerned that the stocks allegedly accumulated for food security reasons may end up being sold on world markets. WTO Members using the new allowance to provide price support to LIRP producers could accumulate products in excess of some desired ratio of stock-to-consumption and then may decide to sell those surpluses in external markets to help finance the fiscal cost of the program.²⁰

Therefore, negotiators looked at other options, including the possibility of changing the fixed external reference prices (FERPs) of 1986-1988, adjusting the definition of the “production eligible” to receive administered prices, and imposing a temporary standstill to challenges under the Dispute Settlement mechanism (a “peace clause”) which may take place if a country breached its allowed levels of domestic support because of government procurement of products for food security stocks at administered prices.

¹⁸ Note that the relevant section of Article 6.2 of the AoA says refer to “investment subsidies” which are “generally available” to “low-income or resource-poor producers.” An issue to be considered is whether “generally available” means only for LIRP producers. Also, the wording refers to “low-income or resource-poor producers,” which seems to expand the scope of the category when compared to “low-income and resource-poor producers.” (Lars Brink, personal communication).

¹⁹ There are some developing countries, such as China, that use that type of support.

²⁰ Some countries, like Pakistan, argued during the Bali negotiations that India was exporting rice from food stocks, affecting global rice markets and their own domestic markets and food security. As discussed elsewhere in this paper, India has become the main world rice exporter in recent years. Other people have argued that the rice exported by India and the rice used in its food security stocks are of different qualities (basmati rice being the exported product and common rice the one for domestic consumption), and therefore the postulated impact on global markets of domestic food stocks would not exist. However, Dorosh and Rashid (2012) showed that rice prices in Bangladesh and subsidized prices for that product from India’s public stocks appear highly correlated (technically they are cointegrated). This was the result of the operation of private sector importers that helped stabilize the operation of the rice market in Bangladesh to the benefit of poor consumers, but with negative impact on producers. Dorosh and Rashid (2012) note that “this subsidized trade ended in late 2007, however, when India’s domestic market supply situation changed, international cereal prices rose, and India cut off exports to Bangladesh to protect its own domestic market.”

However, changing the FERPs would have opened a whole new set of difficult issues (such as the valuation of the commitments by countries with declared domestic support in the base year). The notion of “eligible production,” as noted before, was also a key variable because, according to the AoA, the gap between the administered price and the FERP for 1986-1988 has to be multiplied by the quantity of all production in a WTO Member that is “eligible” to be bought at the administered prices. The interpretation of the term was settled by the dispute about Korean Beef (WTO, 2000), and although the ruling left out other options to define “eligible production” (discussed below), this line of thinking was considered too complicated to be sorted out in time for the Bali Ministerial. In the end, the approach followed in Bali was to implement the “peace clause” as an interim solution.²¹

2. The Ministerial Decision

India considered the language of the draft Ministerial Decision that negotiators took to Bali to be inadequate, leading to series of iterations before a final text was accepted. To understand these disagreements, it will be useful to distinguish three different issues: a) the substance and coverage of the “peace clause;” b) the conditions for its application; and c) the period during which the “peace clause” is operational.

The substance (point a) and the conditions (point b) for the “peace clause” did not change from the original language (more on this below). What did change was the definition of the period during which the “peace clause” was operational (point c). In the original language, the clause lasted until the 10th Ministerial Conference (about two years after Bali), at which time WTO members “will decide on next steps.” The new language indicates that “Members agree to put in place an interim mechanism ..., and to negotiate on an agreement for a permanent solution... for adoption by the 11th Ministerial Conference” (paragraph 1). This is about four years after Bali. The new language, then, changed the period covered by the “peace clause,” and, perhaps, the conditions to end this mechanism, as discussed later.

Starting with the substance and coverage of the “peace clause” (point a), paragraph 2 of the Ministerial Decision has five components: 1) WTO Members cannot challenge developing country Members regarding compliance with the obligations of not exceeding their AMS (Article 6.3) or the “de minimis” (Article 7.2. (b)); 2) when it is “support provided for traditional staple food crops in pursuance of public stockholding programs for food security purposes;” 3) the programs protected from challenges are only those that exist as of the date of the Decision; 4) those programs must be consistent with the rest of the criteria of Annex 2 for food security stocks (other than the issue of price support; see the discussion above); and 5) they must comply with other conditions established in the Ministerial Decision.²²

One footnote indicates that if and when a permanent solution is found, it will apply to all developing countries, and another footnote mentions that developing countries can initiate new programs that comply with Annex 2, paragraph 3 (but as noted, only existing programs as to the date of the Decision are covered by the “peace clause”).

While the Decision expanded the time scope of the “peace clause” compared to the initial draft, the new language may have also somewhat changed the product scope. The original language referred the products bought as part of the food security program and that can be covered by the “peace clause” as “traditional staple food crops” (note the word “crops,” suggesting that livestock products are not included). The new language agreed in Bali includes a footnote by the word “crops” that says “this term refers to primary agricultural products that are predominant staples in the traditional

²¹ There is a non-trivial difference between “temporary” (which seems to imply a specific date as deadline) and “interim” (which does not necessarily have a specific termination date). While in common parlance, people tend to refer to the Ministerial Decision as a “temporary” solution, the Decision uses the word “interim” (Lars Brink, personal communication).

²² The complete language is as follows: “2. In the interim, until a permanent solution is found, and provided that the conditions set out below are met, Members shall refrain from challenging through the WTO Dispute Settlement Mechanism, compliance of a developing Member with its obligations under Articles 6.3 and 7.2 (b) of the Agreement on Agriculture (AoA) in relation to support provided for traditional staple food crops in pursuance of public stockholding programs for food security purposes existing as of the date of this Decision, that are consistent with the criteria of paragraph 3, footnote 5, and footnote 5&6 of Annex 2 to the AoA when the developing Member complies with the terms of this Decision.”

diet of a developing Member.” This can be interpreted as tightening the definition of “staple food crops” by using the word “predominant” (which suggests that some significant percentage of consumption must be used in the determination of what crops are covered). On the other hand, it could also be argued that by using the word “products” and not “crops,” it may have expanded the coverage to other non-crop products. Another question remains whether “primary agricultural products” is different from the “basic agricultural products” in the Agreement’s definition of the AMS.

As mentioned, the Ministerial Decision establishes additional conditions (point b) in paragraphs 3, 4, and 5 (which did not change from the original draft) for those developing countries that currently operate food stock programs and want to be protected from legal challenges by the “peace clause.” Those conditions are in addition to the relevant conditions in Annex 2 paragraph 3 and include the need for countries to: a) notify the Committee on Agriculture “that it is exceeding or is at risk of exceeding either or both²³ of its Aggregate Measurement of Support (AMS) limits (the Member's Bound Total AMS or the de minimis level);” b) be current on notifications of its domestic support; c) provide timely information for each public stockholding program maintained for food security purposes, plus other related information according to a template included in the Annex of the decision; d) ensure that stocks procured under food security programs do not distort trade or adversely affect the food security of other Members (this last reference was also an addition to the original language, which referred only to trade distortions); and e) make sure that the potential increase in domestic support in excess of the allowed levels can be the only one notified under point a). Furthermore, any developing country benefiting from this Decision must accept the requests for consultations by any other WTO Member countries that may be interested in the operation of the notified public stockholding program or programs (paragraph 6).

The decision also instructs the Committee on Agriculture to monitor the information submitted under this Decision (paragraph 7) and indicates that WTO Members must agree to establish a work program in which the Committee can make recommendations for a permanent solution no later than the 11th Ministerial Conference (and advances will be reported to the General Council during the 10th Ministerial Conference) (paragraphs 8, 9, and 10).

There are several points to be highlighted in this Ministerial Decision (see also Matthews, 2014). The first point to be noted is the change in the period considered and the conditions for ending that period. In the original formulation, the “peace clause” had a specific end (the 10th WTO Ministerial or about two years from Bali, considering the usual time between Ministerial meetings), after which it lapsed and WTO members would decide on next steps. With the new language, Member countries commit to finding a permanent solution by the 11th Ministerial (i.e. about four years from now) and the “peace clause” will remain in place “until a permanent solution is found.” As in other negotiating texts, there is some ambiguity in the timing; on the one hand, it appears to define a deadline (the 11th Ministerial) but on the other, it refers to the peace clause as being in effect until a “permanent solution is found,” without specifying when that may happen. The latter interpretation would strengthen the hand of India (or any other country following the same approach) to the extent that they will be protected from challenges under the AoA until a solution is found, and, under the consensus approach of the WTO, different alternatives may be blocked until there is one that they consider acceptable. By the other interpretation, it still extends the day of reckoning from two years in the original language to four years in the text finally agreed.²⁴

The second point is that the notification and transparency requirements are not mere formalities, considering that many WTO members are extremely behind schedule in their notifications under the current obligations of the AoA (see the

²³ It has been noted by some observers that the use of “both” is a drafting mistake considering that a WTO Member is constrained only by the Bound Total AMS or the “de minimis” under the Agreement (personal communication from Lars Brink; see also Matthews, 2014).

²⁴ WTO Members could still mount challenges under other legal texts, such as the Agreement on Subsidies and Countervailing Measures, if they consider themselves affected by the operation of governmental purchases under this scheme. Whatever the legal issues involved, there is always the public relation issue of challenging a developing country on a program that is allegedly aimed at helping the poor.

discussion in Orden, Blandford, and Joslin, 2011).²⁵ In particular, India only notified its numbers for domestic support corresponding to the period 1998-2003 in June, 2011 (Gopinath, 2012). Therefore, to avail itself of the peace clause, India will have to complete its notifications of domestic support from 2003 onward and be open to consultations and questions regarding the actual operation of the food stock programs. This would allow for more transparency and facilitate closer scrutiny and monitoring of the different programs of domestic support in the countries using the “peace clause” option.

A third point, already mentioned, is that only those food security programs existing at the time of the Ministerial Decision are covered. Matthews (2014) identifies 16 developing countries under the WTO definition.²⁶

As noted, the Ministerial Decision also instructs WTO Members to establish a work program in the Committee on Agriculture to make recommendations for a permanent solution no later than the 11th Ministerial Conference (paragraphs 8, 9, and 10). Going forward, a permanent solution may take different forms, including some of the options discussed in the pre-Bali negotiations that were discarded because of a lack of time to complete adequate negotiations (see Alan Matthews (2014) for a detailed discussion of different options). In the next section, I discuss some of these options and expand on the one presented in Díaz-Bonilla (2013b), which suggested the need to clarify the link between administered and market prices.

3. Potential Options for a “Permanent Solution”

Thus far, the debate has centered on the prices at which food products for the food security stocks (which may be subsidizing producers through “administered prices”) are procured, and not on the prices at which those food products are sold to domestic consumers, perhaps subsidizing those products through below-market prices. However, these two aspects have been conflated, confusing the terms of the debate.

In what follows, I will discuss the different legal options available to address the food security objectives for producers and consumers, starting with those approaches that should be already available using current legal texts and then moving to others that may require further negotiations to change/expand the language in the AOA, including the proposal presented in Díaz-Bonilla (2013b). The focus here is only on what can be done in legal terms under the WTO agreement, without judging whether those options make sense in economic or social terms (these aspects will be discussed in a subsequent section).

a) Domestic food Aid

It is clear that any developing country can provide subsidized food to its own population under paragraph 4 of Annex 2 of the AoA. The claim by some observers (see for instance, OWINFS, 2013) that it is unfair that the US can have a food stamp program while, at the same time, denying India the right to have a similar program is mistaken.

In fact, the combined footnote 5 and 6 indicates “the provision of foodstuffs at subsidized prices with the objective of meeting food requirements of urban and rural poor in developing countries on a regular basis at reasonable prices shall be considered to be in conformity with the provisions of this paragraph.” That footnote is in Annex 2, paragraphs 3 and 4 so it covers both sales from food security stocks and any other sale of subsidized food by developing countries to help the urban or rural poor.

Therefore, the question is not if a country can give subsidized food to poor and needy people, which they can under the AoA; the point is how governments may procure that food. In what follows, the options considered focus basically on the purchasing side of the issue.

²⁵ This problem also occurs with several developed countries.

²⁶ Those countries are: Botswana, Brazil, China, Costa Rica, India, Indonesia, Israel, Kenya, Saudi Arabia, Republic of Korea, Namibia, Nepal, Pakistan, Philippines, South Africa and Sri Lanka. Note the presence of Israel and Republic of Korea, which according to the WTO rules have defined themselves as “developing countries.”

b) Buy at Market Prices

One possibility is for countries to build food security stocks by simply buying food products at "market prices;" this approach is compliant with Annex 2, paragraph 3 of the AoA. The US, Brazil, and other countries do buy food for their food security programs at market prices; in Brazil, some percentage comes from small farmers (Krivonos, 2013), which is one of the aspects highlighted by the G-33's original proposal focusing on LIRP producers. India, on the other hand, uses "administered prices" announced in advance by the government, which may trigger footnote 5 of paragraph 3 of Annex 2. Those "administered prices," however, seem to have been in line with market prices, as discussed below (Hoda and Gulati, 2013).

A country that buys significantly above market prices and then wants to sell below market prices to poor and vulnerable populations will soon get into fiscal difficulties. But while selling at below-market prices imposes a fiscal cost, it may be justified in the case of assisting the poor and needy. On the other hand, buying at market prices at least will not further increase the procurement costs of the program (although other operational costs and the sales subsidy still remain). It should be noted that even when buying at market prices, the program offers some support to farmers compared to the counterfactual: without the domestic food security and domestic aid programs, poor consumers will not represent the same level of "effective demand" (i.e. demand backed by purchasing power). With the program, however, the recipients of food aid expand effective demand as actual consumers of food through the intermediation of the domestic food aid program.

c) Provide Indicative Prices, Use Trade Measures to Guide Prices, But Still Buy at Market Prices

In the absence of futures markets in many developing countries, the only coordinating device for farmers' expectations about market conditions and production decisions may be pre-announced government prices (i.e., the "administered prices"). If governments simply buy at spot market prices, they may fail to provide forward guidance to farmers in those countries; therefore, governments in these conditions may conclude that they need to announce "administered prices" in advance to the producers.

However, if the issue is simply to give producers some future anchor for their expectations and calculations, this may be done without necessarily committing to buying the production or part of it. Similarly, even if purchases occur, they can be done at market prices. Furthermore, in the case of developing countries that have room between the bound and applied tariffs, if they are importers, the government can use those tariffs to ensure that the domestic price follows the pre-announced price without violating WTO commitments as long as they stay below the bound tariffs. Such approach should consider two aspects though, one legal and another economic. In legal terms the changes of tariffs under the bound levels must take into account the WTO case against Chile on its "price band" system,²⁷ which clarified the options and limits to those practices under the current agreements. In economic terms, trying to achieve some desired level of domestic prices through changes in import tariffs will force into the world market a larger adjustment in price and quantities than it would have been the case without such manipulation of tariffs, with potentially negative effects on other countries (Bouët A. and D. Laborde, 2010).²⁸

d) Define "Eligible Production" in a Way that Focuses on Quantities Actually Bought

The calculation of the MPS that has to be counted in the AMS includes both prices and quantities. In the previous examples, procurement has taken place at the market price, thus complying with Annex 2, paragraph 3. However, if the gov-

²⁷ Case DS207 "Chile — Price Band System and Safeguard Measures Relating to Certain Agricultural Products" (a summary of this extended case is in http://wto.org/english/tratop_e/dispu_e/cases_e/ds207_e.htm).

²⁸ A related current discussion has focused mainly on export taxes. But there is a symmetry of effects for the following pairs of trade actions (when equivalently scaled): a) increasing export taxes or reducing import taxes; b) reducing export subsidies or increasing import subsidies; c) reducing production subsidies or increasing consumption subsidies; d) using export tax differentials or import tax differentials (tariff escalation); e) imposing an export quota or eliminating an import quota; f) an export ban or anticipatory hoarding by an importer. Even though all those measures that try to stabilize domestic prices may lead to destabilizing effects on world prices, affecting other countries they are treated differently (or not at all) in the current WTO framework (see Díaz-Bonilla, 2013a).

ernment is using “administered prices” (AP) rather than market prices, then footnote 5 kicks in and the AP must be compared to the fixed external reference price (FERP) of 1986-1988. If the AP is higher than the FERP, this positive gap has to be multiplied by the “eligible quantity” (not the quantity actually bought) and then compared with the de minimis. If that value is more than the de minimis, it must be counted as part of the AMS in its entirety. Obviously, if the gap between the AP and the FERP is more than 10 percent above the market price and if the eligible production is the total production, then the de minimis will be exceeded. If a developing country has a final AMS commitment (the FBTAMS), then the whole amount (not only the value of production bought) will have to be counted as part of the product-specific AMS and will have to be compared to, and not exceed, the FBTAMS. If the country does not have a FBTAMS, then it is prohibited by Article 7.b of the AoA from exceeding the de minimis.

What is key here is the definition of eligible production. This topic was adjudicated in the Korean Beef case (WTOa, 2000): it considered claims that the Korean government was violating the AoA by only using in the WTO notifications the amount of production it actually bought, when the amount of eligible production defined by the government was larger. By notifying not the total eligible production but rather the smaller amount that was actually purchased, the value counted within the AMS was reduced. This practice was challenged and the WTO Dispute Settlement Mechanism ruled that the Korean government should notify the production defined as eligible and not the amount actually purchased.

Because of this ruling, some observers appear to assume that “eligible production” is always total production. However, this interpretation is not correct. Because the Korean government had established a maximum amount to be bought, the “eligible production” was less than total production. Therefore, the ruling in the case considered only the capped amount and not total production. The Appellate Body left open the possibility that “eligible production” can be more limited in cases in which the eligibility criteria identified a specific region or in which there is a limit on the quantity purchased.²⁹ In fact, the Appellate Body uses as “eligible quantity” only up to the maximum amount the Korean Government said it was going to buy, which, as mentioned, was a less than the total production but more than the amount that it actually bought.

So if a government plans to buy, say, 30 percent of production (perhaps because that is the amount needed to run a food distribution system for the poor and needy), it may declare as “eligible production” only that volume, which would be far less than total production. Typically, developing countries running food stocks buy only a fraction of total production (see the examples in Montemayor (2014) in which purchases of rice and wheat stay largely below one-third of total production in the five countries analyzed during a period that varies between 2008 and 2011; Hoda and Gulati (2013) estimate that in India, procurement for rice was on average about 32 percent of total production and for wheat close to 27 percent during the periods of 2007-2008 and 2010-2011; this is the national average, but the percentage varies significantly across states). Governments can make those quantity limits clear in the definition of “eligible production.” It has to be noted, though, that the Panel added the qualification that in such a case, “the particular design and operation of the price support mechanism would have to be taken into account in determining eligible production” (see language in footnote).

²⁹ The relevant wording of the Appellate Body report in paragraph 827 reads (with emphasis added): “In general, with market price support programmes, all producers of the products which are subject to the market price support mechanism enjoy the benefit of an assurance that their products can be marketed at least at the support price. Therefore, the minimum price support will be available to all marketable production of the type and quality to which the administered price support programme relates, including where actual market prices are above the administered minimum price level. There may, of course, be circumstances where eligible production may be less than total marketable production, as for example where the minimum price support is only available to producers in certain disadvantaged regions. Another possible example would be where there is a legislatively predetermined, non-discretionary, limitation on the quantity of marketable production that a governmental intervention agency could take off the market at the administered price in any year. In the latter case, the particular design and operation of the price support mechanism would have to be taken into account in determining eligible production, since even governmental purchases at a level below the legislatively predetermined quantity limit could, depending on market conditions, suffice to maintain market prices at above the minimum levels for all marketable production. Hence, with these qualifications, eligible production for the purposes of calculating the market price support component of current support should comprise the total marketable production of all producers which is eligible to benefit from the market price support, even though the proportion of production which is actually purchased by a governmental agency may be relatively small or even nil.”

As mentioned, in the proposal of the G-33, purchases were limited to the product of “low-income or resource poor producers” (LIRP) as in Article 6.2. The Appellate Body in the Korean Beef case also uses language related to the eligibility of certain producers in disadvantaged regions (see footnote 29 with the relevant language). Therefore, another way to ensure that eligible production is less than the total production is to require that it come from LIRP producers. The issues then become how to define that category of producers and what are the operational safeguards to ensure that the production effectively comes from these producers.³⁰

One possible way of identifying the farmers who would qualify for assistance is to apply the usual poverty line used for international comparisons of one dollar (or two dollars) a day, or to use a relative measure of poverty within the country (for instance, producers with less than 40 percent of national income per capita; Díaz-Bonilla, Thomas, and Robinson, 2003). In practice, the use of the LIRP category in WTO notifications seems to have been relatively elastic and variable over time, even for the same country. For instance, India has moved from declaring about 80 percent of its producers as LIRP in the WTO notifications for 1995-1997 (based on a survey that showed that 80 percent of the farmers had less than two hectares) to basically considering all of its producers in that category (based on a subsequent survey that calculated that close to 99 percent of Indian producers were LIRPs; Gopinath, 2012). Such an extension of the concept of LIRP may test the limits of a notion that is supposed to offer help only to a specific type of producer.³¹

e) (Re)Define “Fixed External Reference Price” (FERP) in US dollars

Now we move to the other variable in the equation to calculate MSP: the fixed external reference price (FERP).

Article 1(a)(ii) of the Agreement on Agriculture indicates that the current AMS has to be “calculated in accordance with the provisions of Annex 3 of this Agreement and taking into account the constituent data and methodology used in the tables of supporting material incorporated by reference in Part IV of the Member’s Schedule” (emphasis added). Annex 3 in turn indicates, in paragraph 9, that “the fixed external reference price shall be based on the years 1986 to 1988 and shall generally be the average f.o.b. unit value for the basic agricultural product concerned in a net exporting country and the average c.i.f. unit value for the basic agricultural product concerned in a net importing country in the base period.”

In the tables and calculations submitted as “constituent data and methodology,” some countries presented the FERP in domestic currency, while others presented it in a foreign currency; this is because the Annex does not say anything about the currency to be used in the definition of the FERPs. The only requirements are that the FERP be “fixed,” “external,” and refer to the base period of 1986-1988. For example, in a background paper prepared by the WTO Secretariat (WTO. 2000b. G/AG/NG/S/19, 23 October 2000. Committee on Agriculture. Special Session. “Inflation and Exchange Rate Movements in the Context of Domestic Support Commitments”), one example shows the use of FERPs in dollars.³² This document notes that, obviously, it makes a big difference if the nominal variables for the commitments on domestic support and the relevant parameters (such as the external reference price) have been originally notified in the domestic currency of the reporting country or in a foreign currency. In the latter case, there is an automatic adjustment for domestic inflation, to the extent that the devaluation of the exchange rate follows the evolution of internal prices.

Certainly, considering that developing countries usually have a domestic inflation rate and a pace of devaluation that make 1986-1988 values in domestic currency outdated, those that notified the FERPs in foreign currency (say, US dollars) will have fewer problems comparing current administered prices (APs) with the FERPs than if they had notified the FERPs in their domestic currency. It is true that given the current high commodity prices in nominal US dollars (see Figure 1), even a

³⁰ One mechanism may be to establish a fixed cap on the quantity that can be bought from each individual farmer. Obviously, the administrative controls needed to ensure that purchases are from the type of farmers targeted are not trivial.

³¹ As noted before, Article 6.2 refers to “investment subsidies” which are “generally available” to “low-income or resource-poor producers.” The point to be considered is whether “generally available” means only for LIRP producers.

³² It should be noted that documents by the Secretariat are just opinions by the WTO international staff and are not meant to interpret the legal texts negotiated by the WTO Members.

1986-1988 FERP in that currency may show a gap with current administered prices (APs) even if the latter follow market prices. But that gap would be substantially higher for most developing countries if the comparison is between current APs and 1986-1988 FERPs in domestic currency. This is why some countries, including India, switched the original 1986-1988 FERPs from domestic currency to US dollars. The FERP is still fixed (in US dollars), external, and refers to the 1986-1988 base period, but is now no longer affected by the impact of devaluation.

However, it has been argued that this switch may violate at least two WTO obligations (Brink, 2014). First, because the “constituent data and methodology” was part of the commitments and was presented in domestic currency, such currency denomination cannot be changed afterwards. However, as also clarified by the Korean Beef case, there is a hierarchy of obligations: the AMS has to be “calculated in accordance with the provisions of Annex 3 of this Agreement and taking into account the constituent data and methodology.” The Appellate Body in the Korean Beef case noted that the ordinary meaning of “accordance” is “agreement, conformity, harmony”, while “taking into account” is defined as “take into consideration, notice.” Therefore the Appellate Body held that Article 1(a)(ii) accorded “higher priority” to the provisions of Annex 3 than to the “constituent data and methodology” contained in a Member’s Schedule and that the term “in accordance with” reflects a more rigorous standard than the term “taking into account.”

Therefore, by using the equivalent 1986-88 FERP in dollars that had been presented in domestic currency in the Member’s Schedule, the constituent data and methodology has been “taken into account;” in fact, it is the same economic value for the reference year. To insist that the FERP must be the same as presented originally would be to use the other criteria (“in accordance”), which the Panel indicated was not the standard for the constituent data and methodology.

The second objection is that if the FERP that was presented originally in domestic currency is transformed into foreign currency for the base period, and then is transformed back every year into domestic currency to be compared with the respective annual AP (also in domestic currency), then the FERP is no longer “fixed” (i.e. it would change every year in domestic currency according to the annual exchange rate). But this objection assumes that the APs and FERPs will be presented every year in domestic currency, when it is also possible a) to redefine the respective FERP into foreign currency (which is maintained fixed), b) to transform every year the corresponding AP into the equivalent foreign currency using the annual exchange rate, and c) calculate the gap in foreign currency (as in example 5 of WTO, 2000b. G/AG/NG/S/19, 23 October 2000, mentioned above).

An interesting exercise by Raúl Montemayor (2014) uses the case of five countries and several staple products to estimate whether those countries and products would stay within their actual *de minimis* under different assumptions of adjustments in key variables, basically variations of the definitions of FERPs and eligible quantity. The simulations show that if eligible production is defined as being capped by some fixed quantity (i.e. the government announces purchases of a certain quantity for food stocks or only from LIRP producers), which is then not exceeded, and if the 1986-1988 FERP is defined in US dollars, then all cases analyzed stay below the *de minimis*. Therefore, applying the adjustments discussed in this and the previous section would go a long way toward solving most of the problems that developing countries may encounter.

In summary, changing the 1986-1988 FERP to dollars is one way of dealing with the differential inflation between developing countries and the US. Still, there remains the issue of erosion of the value of the US dollar due to US inflation and other factors (see Figure 2). Therefore, one option that would further make values comparable across periods, smoothing out both inflation in developing countries and fluctuations in the US dollar, would be to define the FERPs in SDRs for the base period (which would be “fixed,” “external,” and from 1986-1988).

f) Consider Adjustments due to Domestic Inflation

Estimates for India by Hoda and Gulati (2013; Table A-4) show that "administered prices" for wheat and rice in that country have been largely below the 1986-1988 FERPs in domestic currency if the calculations take inflation into account. They justify the use of inflation-adjusted measures based on Article 18, paragraph 4 of the AoA, which says: "In the review process Members shall give due consideration to the influence of excessive rates of inflation on the ability of any Member to abide by its domestic support commitments."

Other analysts, however, believe this text does not allow individual Members to consider and adjust their notifications to "excess inflation" (see Brink, 2014). Rather, they argue that Article 18.4 should be read literally as guidance to the rest of the WTO Members so that reviewing countries (and not the Member presenting the data) "shall give due consideration to the influence of excessive rates of inflation" on the ability of that Member "to abide by its domestic support commitments."

Besides, it is not clear what is meant by "excessive inflation" or how WTO Members can adjust for it (and not only to take it into account in the notifications of other Members). These questions have not been raised in the Dispute Settlement Mechanism and therefore, the proper interpretation of those concepts remains unsettled. In this regard, several factors can be noted, some which would seem to lend some support in favor of allowing inflationary adjustments and some that would seem to go in the opposite direction.

First, some countries have used constant prices in some of the tables and calculations submitted as "constituent data and methodology." For instance, Mexico has used "constant 1991 pesos" for its Bound Total Aggregate Measure of Support. Again, Annex 3 does not specify which currency commitments should use and, apparently, no one contested the use of constant prices (i.e. inflation adjusted) in the example cited. Therefore, conceivably, if a country had notified its FERP in "constant 1986-88 domestic prices," it would have been legally valid to use the adjustment utilized in Hoda and Gulati (2013).

Second, another document by the WTO Secretariat (G/AG/W/45, 18 June 1999) indicates in paragraph 43 that "the advice consistently provided to delegations has been that, for the purposes of the Review Process and Article 18.4 of the Agreement, the relevant DS Tables should be submitted concurrently on both an unadjusted and an inflation-adjusted basis." However, as mentioned in a previous footnote, WTO Secretariat opinions cannot officially interpret WTO legal texts.

On the other hand, the background paper prepared by the WTO Secretariat on inflation and exchange rate that was already mentioned (G/AG/NG/S/19, 23 October 2000) presents an example which uses a fixed external reference price in domestic prices but does not adjust for inflation.

An overall conclusion on the issue of inflation adjustment is that it would seem to lack any economic rationale to determine whether a Member is in compliance or not, depending on how that Member defined its nominal variables in the base period: domestic currency, foreign currency, or, as in the case of some countries, constant domestic prices. However, from the legal point of view of the negotiations, some analysts and negotiators feel that countries had plenty of time to consider how to present their commitments and that once they did presented them in a particular way, they cannot keep on changing them. Still, the need to "take into account" the "constituent data and methodology used in the tables of supporting material," but not necessarily "in accordance" with them, may require further clarification.

It has been noted (Matthews, 2014) that if the objective of the WTO disciplines is to eliminate distortionary practices, the approach of defining the commitments associated with the AMS and related variables in nominal terms helps to reduce or eliminate trade distorting practices over time simply through inflationary erosion. In this view, opening the possibility of recasting commitments in inflation-adjusted terms would thwart this correction of undesirable trade practices. On the

other hand, what may be a gentle adjustment process for industrialized countries may become a drastic cut in inflation-prone developing countries, without much of an economic or social rationale for it.

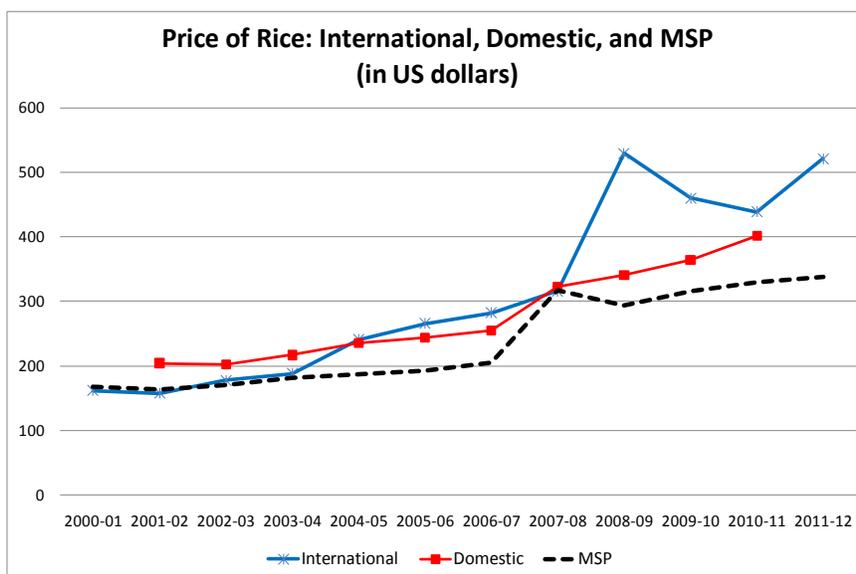
One final point to note is that the *de minimis*, which is calculated using the current value of production, automatically adjusts for inflation. So there is an automatic, but partial, built-in safeguard against inflation that operates for all countries, whether developed or developing (see WTO Secretariat (G/AG/NG/S/19, 23 October 2000).

g) Clarify Link between “Administered Prices” and “Market Prices”

The options discussed thus far have focused on adjusting some of the variables for the calculation of the MPS. The alternative presented now, which builds on Díaz-Bonilla (2013b), takes a different approach.

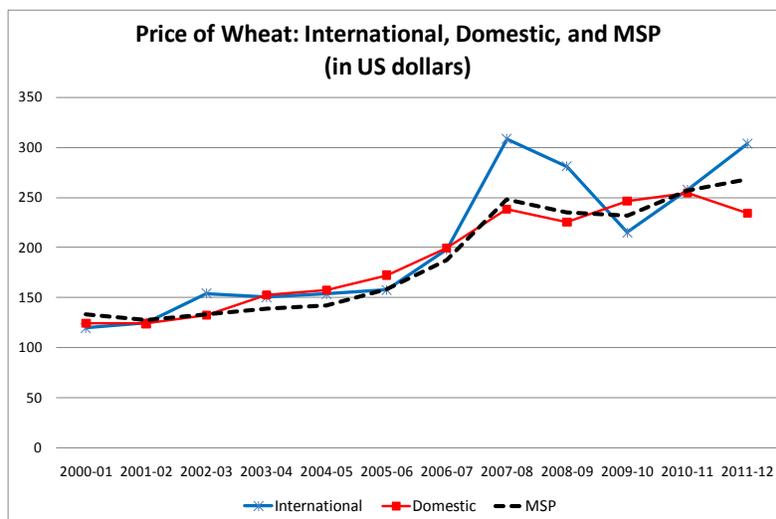
It starts by noting that the estimates for India by Hoda and Gulati (2013; Table A-4) show that "administered prices" for wheat and rice in that country have been largely below both international market prices and domestic market prices, in addition to being below inflation-adjusted FERPs in domestic currency as discussed in the previous section. Figures 3 and 4 show the international, domestic, and market support prices (MSP in the Figures below) for wheat and rice, as calculated by Hoda and Gulati (2013).

FIGURE 3. PRICE OF RICE: INTERNATIONAL, DOMESTIC, AND MSP (IN US DOLLARS)



In economic terms, it seems strange that if products for food security stocks are purchased at prices that track market prices, that purchase price is still presumed to be distortionary simply because it is called “administered price” and, as a consequence, has to be compared to an outdated 1986-1988 FERP, measured in domestic currency, and counted in the AMS. Considering this, developing countries, which saw the domestic programs of the US and the EU protected under carefully crafted language incorporated during the Uruguay Round, may consider it unfair that they have to redesign their own domestic programs just because of the possible legal interpretation of terms such as “administered prices,” FERPs, and the like. India's impatience with the idea of a temporary "Peace Clause" and its insistence on a more permanent solution should be placed in this context.

FIGURE 4. PRICE OF WHEAT: INTERNATIONAL, DOMESTIC, AND MSP (IN US DOLLARS)



As mentioned before, in the absence of futures markets, the only coordinating device for developing country farmers' expectations about market conditions and production decisions may be pre-announced government prices. In such cases, to analyze compliance with the AoA, the point to be considered should be whether the announced "administered prices" for food security products are in line with relevant market prices. Thus, one approach would be to try to clarify the relationship between the language in Annex 2 on "market prices" and that on "administered prices." In this regard, footnote 5 of paragraph 3 on food stocks could include language that a country may be considered "rebuttable presumed in compliance" with the requirement that it does not offer price support, and therefore it does not have a price gap that must be counted in the AMS, if the administered price does not exceed the appropriate domestic market price (or, if there are no clear domestic references, the import or export parity equivalent, depending on the net trading position of the country, based on the world market price of the product considered). Market protection in the form of tariffs, TRQs, or similar measures that comply with WTO obligations must be considered in the calculation of the import parity price. In this way, domestic price support would be separated from market access measures, which have a different treatment under the AoA.

This approach is based on the notion expressed in paragraph 3 of Annex 2 of the AoA, that to qualify to be considered a Green Box measure (and therefore exempted from the AMS), "food purchases by the government shall be made at current market prices." If the administered prices largely coincide with market prices, then it would seem reasonable that those purchases be considered in compliance with paragraph 3.³³ And if a WTO Member decides to challenge another Members' food security program, it would need to show that the administered price is above the relevant market prices in ways that would result in offering "price support" to producers and would then distort trade.

Regarding the concern that food security stocks might be accumulated in excess of food security requirements and end up being exported to other countries, thus disrupting their domestic markets, additional language should be considered that strengthens the current Ministerial Decision on Food Stocks. This document, as noted before, only asks that the developing country availing itself of this option should ensure that its food security stocks "do not distort trade or adversely affect the food security of others." Additional language could be added here to require that food security stocks be

³³ It is true that some language in the Korean Beef case reads (paragraph 827) "... the minimum price support will be available to all marketable production of the type and quality to which the administered price support programme relates, including where actual market prices are above the administered minimum price level" (emphasis added). But this is just a commentary that seems to question the very notion that buying at market prices does not violate Annex 2, paragraph 3. Of course, any government's purchase, even at market prices, may provide an implicit support compared to the counterfactual of no purchases, but this is allowed in Annex 2, paragraph 3.

utilized only for domestic consumption purposes linked to food security and to prohibit any exports. If exports do occur, the administered prices will have to be compared with the reference prices and counted against the AMS, as applicable. The only possible exception to this language would be if a country with food security stocks is asked by the appropriate United Nations agency to release part of its accumulated stocks into world markets due to a global, regional, or national food security emergency. This approach provides stricter disciplines than the weaker language currently included in the “peace clause” (as noted in Matthews, 2014).³⁴

In summary, this approach tries to align the economic rationale and the legal intent of the AoA by ensuring that “administered prices” utilized to build food security stocks are treated as market prices under the meaning of Annex 2, paragraph 3 when they stay at or below market prices and when products from food security stocks do not affect trade flows and, potentially, the food security of other WTO Members.

h) Other Options?

Leading up to the Bali Ministerial, WTO Member countries began to discuss other potential permanent solutions to the problem of food security stocks in the context of the AoA, in addition to the suggestions outlined in the previous sections.

One option that has been debated was to change the 1986-1988 base period for FERPs to more recent values, for a fixed period or for rolling averages (say, 3-5 years). Although from an economic point of view, the need to update the external reference prices may seem obvious, developing countries should be very careful with this option in legal/negotiating terms. The reason is that industrialized countries currently have a large legal allowance to grant domestic support under the levels of AMS permitted. If reference prices are updated to the current values (and that will most likely apply to all WTO Members), then the difference to be charged against the AMS is reduced, but the overall allowed AMS does not change. This could potentially expand developed countries’ margin to offer distortionary domestic support.

Other ideas discussed have included a) expanding the de minimis; b) exempting MPS from the AMS if the actual procurement is less than a certain percent of total production; and c) use the Equivalent Measure of Support (EMS) and notify only budgetary outlays (see for instance the enumeration in Montemayor, 2014).

All of these options, however, seem less adequate than the alternatives presented in previous paragraphs, or are subsumed in some of them. Expanding the de minimis would be a temporary solution and would go against the goal of reducing or eliminating distortionary support. Exempting a percentage of production from the MPS may be better addressed, in economic and legal terms, if “eligible production” is handled as discussed in the previous section. Using the EMS is allowed in the AoA (Annex 4) but only when calculations under Annex 3 of the MPS to be included in the AMS are “not practicable.” The calculation of the MPS in the procurement of food security stocks at administered prices is very “practicable;” therefore it does not seem that this option can be used (see also Matthews (2014) for a detailed analysis of different options).

IV. Economic and Operational Issues

The previous section discussed legal issues but these considerations are, of course, very different from the more substantive issue of whether food stock programs make sense in terms of food security, whatever the legal standing under the current AoA language or under modified language related to a potential “permanent solution.” This section will briefly discuss several economic and operational aspects relevant to the design and use of food security stocks in developing countries.

³⁴ It was noted that Pakistan complained during the Bali negotiations about rice exports from India potentially disrupting its market, while Bangladeshi consumers may have benefitted (and producers may have been negatively affected) from exports of Indian rice (Dorosh and Rashid, 2012). This is another manifestation of the constant debate about high/low prices and food security.

First, there is the consideration of some of the new circumstances in which these food security programs would operate, including changes in i) general economic and other conditions; ii) agricultural markets and policies; and iii) food and nutrition security conditions. Second, there is a group of general policy considerations related to food security and how food security stocks may fit into that framework. Finally, some economic and operational issues related specifically to public food stocks are discussed.

These three blocks of topics have implications both for the analysis of the use and design of public food security stocks and for the political economy of the negotiations mandated by the Ministerial Decision.

1. A New Context for Food Security

a) General Economic Conditions

It should first be noted that developing and emerging countries have been expanding their global economic presence as measured by several indicators, such as the share of global GDP, particularly when measured in purchasing power parity. According to the IMF/WEO database, developing and emerging countries' world shares of global GDP (at PPP values) grew from 31 percent in 1980 to 51 percent in 2013; during the same period, advanced countries' share of global GDP fell from 69 percent to 49 percent. In other words, in 2013, for the first time in modern history emerging and developing countries represented a larger share of global GDP than advanced economies (using the categories of the IMF, which are somewhat different from those of the WTO and World Bank). These increases in GDP and incomes have led to reduced levels of poverty and improvements in various health, nutrition, and food security indicators, although with important variations across developing countries and regions. Another implication of growing incomes in many developing countries is that additional public sector revenues have facilitated the expansion of agricultural domestic support (more on this below). Along with the changes in agricultural markets discussed in the next section, these developments have modified the political economy of the WTO negotiations, as briefly discussed later.

A second and much discussed aspect of the new global food security context is the expanded linkages between energy developments and food prices. The growth of biofuel mandates has been singled out as one of the reasons behind the price spikes affecting corn and oilseeds in the second part of the 2000s (see OECD/FAO Agricultural Outlook, 2011, 2012, and 2013; Schnepf R, 2013; Laborde and Msangi, 2012; Torero, 2012). Going forward, OECD-FAO (2013) estimates that without significant policy changes, global production of ethanol (mainly from coarse grains and sugar) and biodiesel (mainly from oilseeds), will require 12 percent of the world's coarse grains, 29 percent of sugar cane, and 15 percent of vegetable oil production by 2022. Simulations by the International Food Policy Research Institute (see Rosegrant et al, 2013; Al-Riffai, Dimaranan, and Laborde, 2010) suggest that biofuel policies, if maintained in their current state, will imply higher prices for food products in the coming decades. The evolution of this connection may thus be crucial in the coming years since the energy market is far larger than the food market.³⁵ Developments in energy markets may drive outcomes in agricultural markets, adding another source of volatility for food production, demand, and prices. This topic warrants a more careful review within the WTO (Blandford, 2013), considering the implications not only for the AoA (including issues of distortionary and green-box domestic support) but also for other WTO legal texts, such as the Agreements on Subsidies and Countervailing Measures and Technical Barriers to Trade.

A third and widely noted development that arises when discussing food security concerns is climate change. Whatever the uncertainties about the evolution of "green-house gas" emissions and the overall and geographical medium- and long-term impact on agriculture and food production, it is important to consider the probability that world may be on its way to

³⁵ Estimates for 2006 (Díaz-Bonilla and Robinson, 2010) suggest that food energy amounted to about 28 exajoules, while the market for non-food energy was some 460 exajoules for a population of about 6.4 billion people. In other words, the market for non-food energy was about 16 times larger than the market for food energy. Projections only increase the disparity in the future; for instance, for 2050 the non-food energy market would be 21 times bigger than the food energy market (Díaz-Bonilla and Robinson, 2010; see also Meyer and Schmidhuber, 2013).

surpassing the 2°C temperature increase threshold during the coming decades (IPCC, 2014; Rosegrant, et al., 2014). This will affect agriculture and food production and will require sustained R&D investments in both adaptation and mitigation, with implications for the AoA, particularly in regards to domestic support measures (Blandford, 2013). In the shorter term, however, of more immediate importance for agriculture is increased climate volatility around the long-term trend. The warming of the atmosphere seems to have already increased the frequency of extreme weather events (Hansen, Sato and Ruedy, 2012; IPCC, 2014). This greater volatility, with a more frequent realization of extreme events such as droughts and floods, is the most important effect of climate change currently affecting food security.

Both the new linkages between energy and food/agriculture and increased shorter-term weather variability, all of which is increasing the volatility of food quantity and prices, add further urgency to the consideration of the food security stocks and domestic food issues debated at Bali (Murphy, 2010).

b) Changes in Agricultural Markets and Policies

General economic advances in developing countries have been accompanied by changes in agricultural production, trade, and policies, which, among other things, have modified the landscape for the political economy of global trade negotiations (Díaz-Bonilla, 2013c). In terms of global production, developing countries may now represent about 75 percent of total agricultural production (as measured in constant international dollars by FAO/FAOSTAT). The increase in developing countries' share in production since the 1960s (almost 29 percent points) can be explained mostly by Asia's expanded production (23 pps, of which China represents about 14.6 pps and India almost 2 pps); however, production in Latin America and the Caribbean (LAC) has also increased (3.5 pps), as has production in Africa (1.2 pps) (Díaz-Bonilla, 2013c).

Considering trade data and looking at individual countries, the composition of the group of net agricultural exporters has also changed significantly since the Uruguay Round was finished and since the Doha Round was launched. Table 2 shows the evolution of the countries that were net agricultural exporters in the 1990s, the 2000s, and two more recent years (data is also from FAOSTAT).

TABLE 2. NET AGRICULTURAL EXPORTS (MILLIONS OF CURRENT DOLLARS)

Rank of Countries	Average 1990s	Rank of Countries	Average 2000s	Rank of Countries	2010-2011
USA	19951	Brazil	32120	Brazil	60796
Netherlands	14054	Netherlands	21989	Argentina	36157
France	11309	Argentina	20727	USA	31164
Australia	10804	Australia	14630	Netherlands	30686
Argentina	8008	USA	14528	Thailand	22729
Brazil	7662	France	12294	Indonesia	20888
Denmark	5313	Thailand	11434	Australia	18740
Thailand	4864	New Zealand	8851	France	15672
New Zealand	4681	Indonesia	8658	Malaysia	14481
Ireland	3819	Malaysia	7185	New Zealand	12919
China, mainland	3563	Canada	6264	India	11288
Canada	3455	Denmark	5966	Canada	8782
Malaysia	3065	Spain	4881	Spain	7695
India	2104	India	4869	Denmark	6879
Colombia	1951	Ireland	3428	Ukraine	5307

During the 1990s, only one developing country (Argentina) was in the top five net agricultural exporters by value; only two more (Brazil and Thailand) were in the top ten. By 2010-2011, Brazil and Argentina had displaced the US and Netherlands; along with Thailand, there were now three developing countries in the top five exporters. Altogether, in 2010-2011, five out of the top ten agricultural exporters were developing countries.

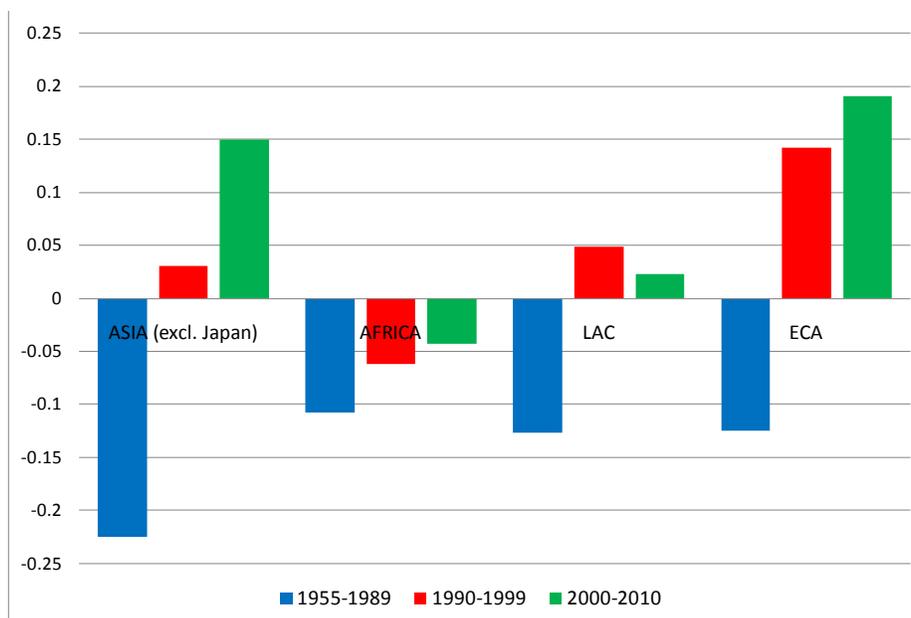
While China has dropped from the list, India has been climbing the ranks as a significant net agricultural exporter. In fact, in recent years, India has become the main global exporter of rice and the second of both beef and cotton (see USDA, 2014a; 2014b). On the other hand, India's agricultural sector includes a large number of very small farmers affected by

poverty and vulnerability. In recent trade negotiations, India has emphasized the latter aspect but its trading partners have taken note of the country's increasing presence in global food and agricultural exports.

Not only have developing countries as a whole been advancing in production and trade globally, they have also increased their agricultural support. The old notion that the policy framework in developing countries is biased against agriculture needs to be significantly revised, judging from the Nominal Rate of Assistance (NRA) (as calculated by a World Bank project), the Producer Support Estimate (PSE) (computed by the OECD), and the categories of domestic support as defined in the AoA that must be notified to the WTO (which will be called here WTO domestic support, or WTO DS). In the context of agricultural products, PSE and NRA are related economic measures of support to agricultural producers, while the WTO DS is an indicator for trade negotiations. Increases (decreases) in their values in a country broadly indicate expanded (reduced) support to agricultural producers, but these measures differ among themselves, particularly when comparing the first two with the WTO DS.³⁶ Overall, the data shown below for all three indicators suggest that support for the agricultural sector in developing countries has been clearly increasing. Figure 5 shows the nominal rate of assistance (NRA) for the agricultural sector in several developing regions.³⁷

The shift from taxing the agricultural sector (a negative number in the Figure 5) to supporting it through different measures (a positive number) becomes particularly clear in Asia and Europe and Central Asia, where the NRA moved from a tax equivalent of about 10-20 percent of the value of total agricultural production from 1955-1989 to a positive transfer to agriculture since the 1990s, reaching some 15-20 percent of total agricultural production in the 2000s. LAC countries also shifted from taxing agriculture in the 1950s-1980s to supporting the sector since the 1990s, but the NRA in this region has stayed below 10 percent and declined even further in the 2000s. Africa, on the other hand, continues to tax agriculture but at smaller rates, moving from about -10 percent to somewhat less than -5 percent in the 2000s.

FIGURE 5. NOMINAL RATE OF ASSISTANCE (NRA) TOTAL (%)



³⁶ For the calculation of the NRA, see Anderson (2009). Comparisons of PSE and different WTO measures of domestic support can be found in Effland (2011); see also Brink (2009).

³⁷ The data in the Chart is from Anderson and Nelgen (2013), as part of a recent World Bank exercise covering a large number of developing countries (see the main publications at www.worldbank.org/agdistortions).

The Producer Support Estimates (PSEs) calculated by the OECD provide a comparative view of the advances in support in developed and developing countries (see also Bureau and Jean, 2013). Table 3 shows the value of the PSEs in billion dollars for selected countries covered in the OECD database.³⁸ Although the developed countries considered (particularly the combination of the EU, Japan, and the US) still show the largest values of support compared to developing countries (about 215 billion USD in 2010-2012 compared to 211 billion USD), the aggregate PSEs have remained broadly stable since the 1990s. On the other hand, the developing countries included have significantly increased their PSEs, from about 15 billion USD in the 1990s to some 211 billion USD in recent years, although this has been mainly driven by the large increase in China's support, which includes significant investments in infrastructure. Not counting China, the value of the PSEs in developing countries drops to about 75 billion USD, about a third of the level of the group of developed countries but still a more than six-fold increase since the 1990s.

TABLE 3. PRODUCER SUPPORT ESTIMATES (PSES)

	1995-2000	2000-2005	2005-2010	2010-2012
Developed Countries ^a				
Total USD billion	215.7	210.1	215.5	214.6
w/o EU USD billion	106.6	104.6	93.3	109.2
EU % total	50.6	50.2	56.7	49.1
Japan % total	25.4	22.3	20.5	28.3
US % total	18.1	20.9	15.2	13.9
Developing Countries ^b				
Total USD billion	14.8	47.9	114.7	210.8
w/o China	12.1	27.6	52.6	75.4
China % total	18.1	42.4	54.2	64.2

^a The developed countries included are Australia, Canada, European Union, Japan, New Zealand, Norway, Switzerland, and the United States.

^b The developing countries included are Chile, Mexico, Turkey, Brazil, China, Indonesia, Kazakhstan, Russian Federation, South Africa and Ukraine.

Source: OECD database

The WTO DS, and the AMS within it, is a different measure than either the NRA or the PSE. In particular, the adequacy of the AMS to measure the economic extent and impact of domestic support has been questioned (Orden, Blandford, and Josling, 2011), in good measure because in the WTO framework the comparison uses the fixed reference prices of 1986-1988 (which would not provide an interpretable economic measure of present domestic support), while the NRA and PSE use current market prices.

The careful calculations in Orden, Blandford, and Josling (2011) for the period 1995-2008-9 show that using WTO categories, the developing countries considered in the study (Brazil, China, India, and Philippines) have increased their domestic agricultural support in recent years; India in particular has moved from a level of domestic support of about 6 percent of the total value of agricultural production in the 1990s to a level above 18 percent in 2008-9 (or above 11 percent if the domestic food aid program and related public stockholding is not counted). China moved from 6.5 percent to 9.6 percent in the same period. Domestic support in Brazil and Philippines, on the other hand, stayed relatively flat at somewhat less than 6 percent and 4 percent of the value of agricultural production, respectively. Still, the levels of domestic support in these developing countries clearly remain below the levels seen in developed countries. In 2008-09, the comparable percentages of domestic agricultural support over total value of agricultural production were 33 percent in the US, 29.1 percent in Japan, and 28.7 percent in the EU.³⁹

³⁸ See data in <http://www.oecd.org/agriculture/agricultural-policies/producerandconsumersupportestimatesdatabase.htm#summary>

³⁹ The PSEs in Japan and the EU are far larger than those of the US because their calculation includes a market protection component through border measures that is not part of the WTO measure of domestic support.

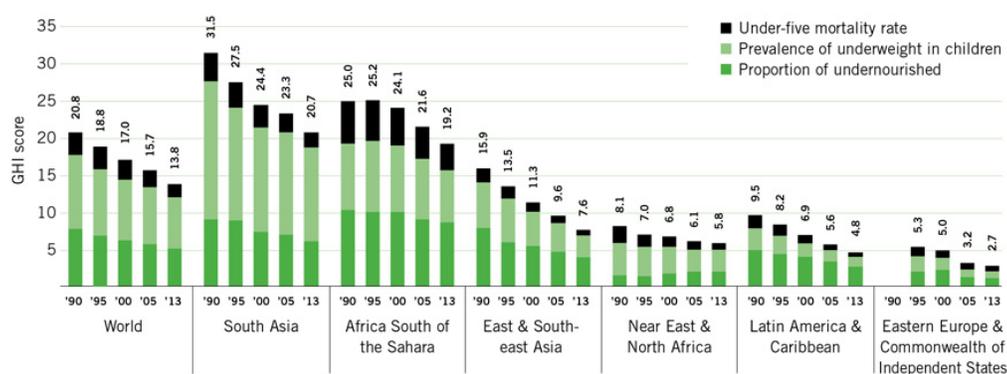
Orden, Blandford, and Josling (2011) also provide calculations of the levels of what the 2008 Modalities call Overall Trade-Distorting Support (OTDS), which would be limited under that text.⁴⁰ According to those estimations, China and India would have allowed levels of OTDS that are comparable or above the levels permitted to developed countries: China (85.5 billion USD), the EU (33.1), India (25.6 billion USD) and then Japan and the US with about 14 billion USD.

The political economy of the negotiations under such a scenario may change significantly. Developing countries that do not have the fiscal space to grant higher levels of support and developed countries that may have the money but are legally constrained under the WTO rules embedded in the 2008 Modalities may join forces against those large developing countries that have both the financial resources and the legal space under the SDT provisions of the 2008 Modalities (see Brink, 2011). WTO Members may also be less willing to accept at prima facie the food security concerns of countries that are large exporters in the global food market.

c) Changes in Food Security and Nutrition Conditions

Although there is a large heterogeneity of food (in)security conditions among developing countries, it is clear that there have been improvements at the global level. Figure 6 shows the evolution in different developing regions based on the Global Hunger Index (GHI).⁴¹ South Asia and SSA show the worst indicators (a higher number implies worse hunger conditions), with the countries in Near East and North Africa, LAC, and Eastern Europe and Central Asia on the other extreme. However, there has been a general decline of the GHI over time, implying improvements in hunger conditions in developing countries, although with important differences across regions and countries.

FIGURE 6. CONTRIBUTION OF COMPONENTS TO 1990, 1995, 2000, 2005, AND 2013 GLOBAL HUNGER INDEX SCORES, BY REGION



Note: For the 1990 GHI, data on the proportion of undernourished are for 1990–1992; data on child underweight are for the year closest to 1990 in the period 1988–1992 for which data are available; and data on child mortality are for 1990. For the 1995 GHI, data on the proportion of undernourished are for 1994–1996; data on child underweight are for the year closest to 1995 in the period 1993–1997 for which data are available; and data on child mortality are for 1995. For the 2000 GHI, data on the proportion of undernourished are for 1999–2001; data on child underweight are for the year closest to 2000 in the period 1998–2002 for which data are available; and data on child mortality are for 2000. For the 2005 GHI, data on the proportion of undernourished are for 2004–2006; data on child underweight are for the year closest to 2005 in the period 2003–2007 for which data are available; and data on child mortality are for 2005. For the 2013 GHI, data on the proportion of undernourished are for 2010–2012, data on child underweight are for the latest year in the period 2008–2012 for which data are available, and data on child mortality are for 2011.

Source: IFPRI, Concern Worldwide, and Welthungerhilfe, 2013.

At the same time, it has been argued that the world now suffers from a “triple burden” of malnutrition (Pinstrup-Andersen, 2007): under-nutrition, the traditional focus on insufficiencies in calories and proteins; over-nutrition, particularly fat, sugar, and salt, leading to problems of obesity, diabetes, and cardiovascular disease; and micronutrient deficiency,

⁴⁰ The OTDS, however, does not include all domestic support, distortionary or not. Therefore, the potential levels of domestic support under the 2008 Modalities are larger than the numbers mentioned in the text. For the intricacies of those calculations, see the chapters in Orden, Blandford and Josling (2011), in particular Brink (2011).

⁴¹ The International Food Policy Research Institute (IFPRI), Concern Worldwide, and Welthungerhilfewith developed the GHI to reflect the multidimensional nature of hunger, combining three equally weighted indicators into one index: a) the proportion of undernourished people as a percentage of the population; b) the proportion of children younger than age five who have low weight for their age; and c) the mortality rate of children younger than age five (see IFPRI, Concern Worldwide, and Welthungerhilfe, 2013).

which has a variety of negative consequences for nutrition and human development. In developing countries, both under- and over-nutrition may coexist even within the same families (see Garret and Ruel, 2003).

There been important changes in consumption patterns in developing countries linked to increasing incomes, urbanization, and important structural modifications in the processing and marketing of food products, all of which have led to a diversification of consumption and a decline in the percentage of calories and proteins associated with the usual staple crops considered in food security stocks. Some of these changes relate to improved infrastructure and integration of markets (Rashid, Gulati, and Cummings, 2008). Reardon, Chen, Minten, and Adriano (2012) document the modernization of rice and potato value chains in four Asian countries due to the expansion of roads, electricity, and government support to small traders and processors.

More generally, Reardon and Timmer (2012) review the expanding literature on the important changes in the processing, wholesale, and retailing sectors taking place in many developing countries. They document the different waves of transformation, starting with processing and moving to the marketing channels, particularly the advance of supermarkets. Although the expansion of supermarkets started earlier and has gone further in LAC, the “retail revolution” has also expanded in Asia, and more recently in Africa as well. Reardon and Timmer (2012) show that modern food retail in many developing countries is spreading, or has already spread, beyond the upper and middle classes into low-income markets, small cities, and rural towns in a variety of small formats. Those small formats, cheap prices, and flexible inventories have facilitated the penetration retail food stores into rural towns and poorer urban areas. However, these transformations have not advanced equally in several regions in Africa, where land-locked areas and countries still lack the modernized marketing chains that are present in other countries. However, the overall tendencies point in the same direction (see also Reardon, Timmer and Berdegue, 2004).

In summary, along with improvements in more traditional indicators of food and nutrition security in developing countries, new concerns of over-nutrition and its related health problems have emerged. At the same time, there are clear changes toward more diversified diets, and new marketing channels for food delivery, even in poor urban and rural areas, have been evolving. These changes in nutrition concerns and consumer demand as well as in retail channels suggest that an approach to food security limited to a reduced number of staple crops distributed by the public system may become progressively less and less relevant in many developing countries.

2. General Policy Considerations and Food Security

As previously noted, the economic context for food security concerns has changed significantly, including the seeming persistence of higher food prices (at least in nominal terms; in inflation-adjusted terms, they are mostly below the levels of the previous food price shocks of the 1970s; see Figure 1). Notwithstanding those changes, however, some of the policies advocated to address food security concerns seem very similar to those put forth in the past to deal with lower food prices. In many countries, the alarm about high prices and price volatility has led to proposals to increase “self-sufficiency” using import barriers and distortionary domestic support; this is similar to what was done to try to help producers affected by low prices. Proponents of this line of thinking view international markets as unreliable; what is needed is the expansion of production to some level of “self-sufficiency” so that countries can depend less on external sources.

This approach, however, must consider the fact that domestic production in individual countries is far more volatile than global and regional aggregates (see, for example, Díaz-Bonilla, Thomas, and Robinson, 2003; World Bank, 2005).⁴² Thus, using international trade to supplement domestic production should in fact stabilize domestic food availability. Although some developing countries have successfully managed external volatility, there are likely more examples in which efforts to shield domestic markets from global volatility in fact led to increased internal volatility (see Minot 2011; 2012;

⁴² While the comment in the text refers to production, Hazell, Shields, and Shields (2005) also document that the domestic prices of food products tend to be, in general, more volatile than the respective world prices, although the period of analysis does not cover the recent global price spikes.

Chapoto and Jayne (2009) also show the destabilizing results of government interventions aimed at stabilizing maize prices in several SSA countries).

While many policymakers and observers in civil society would always suggest protection (and distortionary support) as their preferred policy option, with either low or high prices, other standard economic policy advice seems to recommend trade liberalization in all circumstances. Here, as in other things, a more nuanced approach is required.

a) Food Security: A Multidimensional Concept

It is always useful to remember the definition of food security adopted at the World Food Summit in 1996 because this definition shows that the concept is multidimensional, including 1) availability (which depends on domestic production, stocks, and trade); 2) access (which is influenced by income, employment, and poverty patterns related to economic growth and development); 3) utilization (which depends on the quality of food, as well as on other factors such as health services, water and sanitation infrastructure, education, and women's empowerment); and 4) stability (the fact that physical and economic access to and proper utilization of food should take place "at all times," and that many factors can affect this stability).

It is widely recognized that food (in)security is strongly correlated to poverty, also a multidimensional concept affected by many factors.⁴³ For instance, Sinha, Lipton, and Yaqub (2002) consider that poverty, poverty severity at a point in time (for instance, measured by the squared poverty gap), poverty persistence in individuals, and intergenerational transmission of poverty are all associated with what they call "damaging fluctuations." This is a general concept that goes beyond "risks" or "shocks" and encompasses changes over time which potentially harm people's welfare. The authors identify six major damaging fluctuations affecting the poor: 1) violence (wars, civil strife, community violence, and domestic violence); 2) natural disasters; 3) harvest failure; 4) disease or injury; 5) unemployment or under employment; and 6) shocks that worsen the relative prices of food when compared to income.

For poor and food insecure households, the main issues are exposure and vulnerability to these "damaging fluctuations." However, typically only part of such events may be caused by food price fluctuations; rather, most are related to the other factors mentioned such as weather shocks, health events, and the spread of conflict and war. In particular, macroeconomic crisis with subsequent drops in production and employment, chaotic devaluations, and high inflation are some of the major causes of poverty and food insecurity (Díaz-Bonilla, 2008).

While the current period of higher and volatile prices in global food markets has focused much attention on the impact on poverty and food security, economic access to food is not just a problem of food prices. Access to food also depends on the relationship between household incomes (broadly defined), on the one hand, and the cost of the minimum household food requirements (MHFR), on the other. Both income and costs involve the consideration of prices, wages, employment, and other variables, not only a comparison of food prices with wages. Therefore, in order to assess economic access to food, the proper equations to consider are:

Incomes = Wages*Employment (or Prices*Quantity of goods and services sold by the poor)⁴⁴ + Subsidies or Taxes from the Government + Other transfers and public services to the poor, and

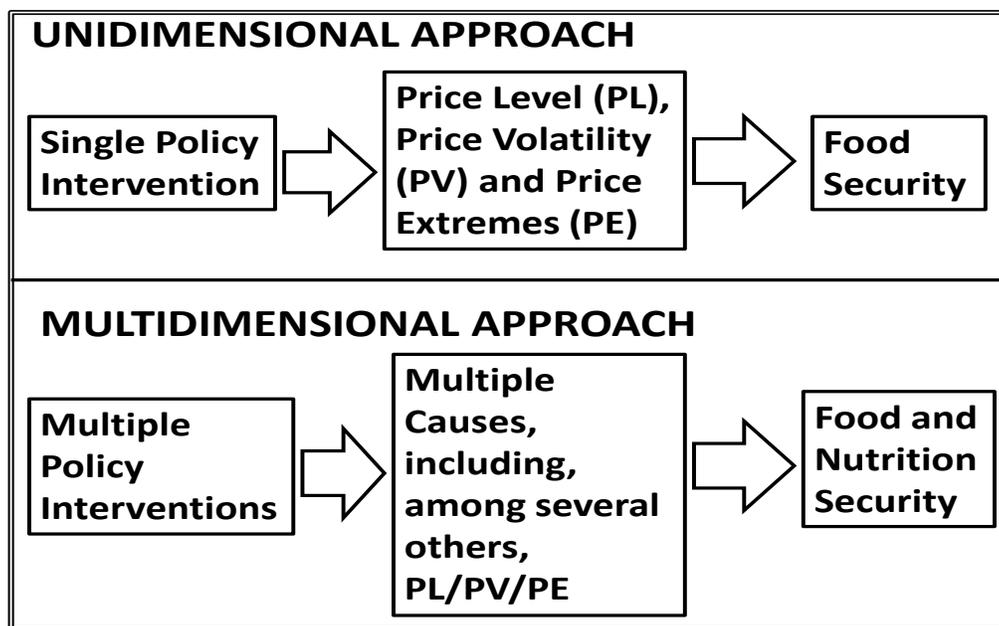
⁴³ There is also a definitional relation between food insecurity and poverty to the extent that the general poverty line is usually the cost of minimum household food requirements (MHFR), with an additional mark-up representing other expenditures; the line for indigence is usually the cost of MHFR without any additional expenditures. Therefore, poverty and food insecurity measures should move closely together by statistical construction. An implication is that if a policy measure increases the cost of MHFR, this, keeping other things constant, it would increase both the poverty headcount and the number of food insecure households among those that are net food buyers. However, other things may not be constant (more on this below).

⁴⁴ The sign "*" means multiplication. Obviously, taxes enter with a negative sign.

Costs = Food prices*MHFR + Costs of complementary goods and services needed to properly utilize food (Sinha, Lipton, and Yaqub, 2002; Diaz-Bonilla and Ron, 2011).

The implication is that a more multidimensional view of the problem is needed (Figure 7): a single policy intervention will not address the multiplicity of factors affecting food security (Díaz-Bonilla, 2013a). Furthermore, food stocks, while ostensibly focusing on price instability, may generate broader macroeconomic problems (perhaps associated with fiscal deficits) which may damage food security more than the price instability that those policies tried to solve (see for instance, Timmer, 1989; Dorosh, 2008).

FIGURE 7. UNIDIMENSIONAL VS. MULTIDIMENSIONAL POLICY APPROACHES



b) Differentiated Impacts of Policies

It must also be noted that the same policy intervention may have different effects on the general economy and on different households.

Looking first at the general economy, the impact of a policy will most likely depend on its interactions with other policies and structural factors. Therefore, the same policy intervention may have different impacts depending on the context in which it is implemented. For example, a reduction of agricultural tariffs will have different impacts on a country depending on, among other things, whether it is done unilaterally by that country or is the result of a multilateral exercise and whether it happens only for those products or includes other products and services as well. Structural aspects such as land distribution and rural infrastructure are also crucial to determining the effects of a policy: reducing (or increasing) agricultural tariffs in a country with relatively equal land distribution and good infrastructure is most likely to have very different impacts than it would in a country with unequal land holdings and bad infrastructure.

The same applies to external shocks. The analysis of the 2010-2011 food price shock by Ivanic, Martin, and Zaman (2011) shows that poverty increased in 27 out of the 28 countries studied, the exception being Vietnam. Vietnam was different because of its urban-rural division and the structure of land holdings in rural areas; the authors note that in the last two food price shocks of the late 2000s, total poverty actually decreased in Vietnam due to a larger rural population and a more egalitarian land structure, which led to more poor people being net producers of food.

Moving on to households, it is widely accepted that any policy with economy-wide impacts will have differentiated impacts on households because of their diversity. Such heterogeneity needs to be considered because food security issues take concrete form at the household and individual levels. Therefore, any general policy may be a blunt instrument with which to address food security problems; more differentiated policy approaches are needed.

For instance, looking only at the price of food, the impacts on households will be different depending on whether households are net food buyers or net food sellers. Urban households are typically net buyers; however, there is an important number of families within rural households that are net buyers, including landless rural workers and a significant percentage of small farmers, some of whom may experience seasonal variations as net sellers/buyers. Only poor families that are net food sellers (which may not necessarily be the largest percentage of rural families in many developing countries) would benefit from higher food prices.

Table 4 (from Poulton, Kydd, Wiggins, and Dorward, 2006) shows a general typology of households for Africa and the price issues that may affect them (it should be noted that category 3 is nested into category 2, which in turn is nested into category 1; category 4 is separate) (see also World Bank, 2005⁴⁵).

TABLE 4. WHO IS AFFECTED BY FOOD PRICE INSTABILITY, AND HOW

Affected Group	Significance	Problem	Inter- or Intra-seasonal variability the bigger issue?
Poor Consumers	Majority of both rural and urban population; includes nearly all poor households	High prices reduce real incomes, especially in years of low harvest.	Peaks in both
Net Deficit Producers	70-80% of rural households	As in 1, but high prices also discourage investment in high value crops.	Peaks in both
Net Deficit Sellers	10-15% of rural households, including some of the poorest	As in 2, but low prices immediately after harvest also reduce real incomes.	Intra-seasonal troughs
Surplus Producers	20-30% of rural households; often non-poor but important to food security of poor	Price collapse at bumper harvest and (to a lesser extent) low prices immediately after harvest reduce real incomes and depress initiatives for investment in intensification.	Troughs in both, particularly inter-seasonal troughs

These structural characteristics may explain why some empirical estimates (Warr, 2013) have found strong and statistically significant links between higher real food prices and increases in the prevalence and depth of undernourishment, as well as the incidence of poverty. This result would be reinforced in the case of price spikes (see Ivanic, Martin, and Zaman, 2011). However, these may be just short-term effects, and a longer-term policy perspective may be needed as well (more on this below).

So far it has been argued that food security is affected by many factors, including prices, and that multiple policies are needed to address the multidimensionality of the problem. In the following sections, I will focus only on price developments.

c) Prices: Trends, Cycles, Volatility and Extreme Lows/Highs

Food production and consumption are affected by both price levels and price variability. Different policies have been utilized to ensure desired price levels for food and agricultural products and to reduce volatility, but before discussing specific policy responses, it is necessary to clarify some conceptual issues.

⁴⁵ World Bank (2005) presents the following estimates of the percentages of rural households that are net sellers: Zambia (maize), 24%; Mozambique (maize), up to 25%; Kenya (maize), 27%; Ethiopia (maize and teff), 25% (all those numbers include farmers who are net buyer at some point during the year); Indonesia (rice), 29%; Vietnam (rice), 43%; Mexico (maize), 25%.

In the context of monetary policies, the idea of price stability takes into account inflation in the range of 0-2 percent per year. Recently it has been suggested that the definition of price stability could be expanded to an annual inflation of up to 4 percent (Blanchard, Dell’Ariccia, and Mauro, 2010). Obviously, a “stable” inflation of 2 percent per year means that the nominal price level is permanently increasing (at 2 percent per year, the price level increases almost 50 percent in nominal terms in 20 years; at 4 percent, it more than doubles during the same period). In other words, stability in levels is one concept, and stability in the rate of change of those levels (i.e. stability of inflation) is another.

In the case of food and agricultural prices, the notion of (in)stability refers mainly to levels. It is important to distinguish between the trend, potential changes in that trend (i.e. the emergence of a new trend), and some notion of variability/volatility around the trend. This last concept may take the form of i) a reasonably smooth business-cycle movement⁴⁶; ii) shorter-term volatility around that cycle; or iii) extreme price events (which tend to be shorter in duration but that represent price shocks that may fall outside a “normal range,” such as two standard deviations above/below the trend or the cycle, depending on the time horizon utilized) (see a discussion in Díaz-Bonilla and Ron, 2010).⁴⁷

The impacts of changes in price trends on food production and food consumption are different than the impacts of changes in volatility around those trends (cycles and spikes). In what follows both aspects (price levels, on the one hand, and cycles and spikes, on the other) are briefly discussed immediately.

Prices levels affect producers’ profits (and therefore their incentives to produce) and consumers’ costs (and consequently their economic access to food, as already discussed). Therefore, much of the debate regarding different policy approaches to food security usually revolves around a traditional policy dilemma (Timmer, Falcon, and Pearson, 1983): what contributes more to generating food security, high prices for producers or low prices for consumers?

High food prices benefit food producers (other things being equal), while low food prices help consumers, at least in the short run. But in the medium to longer term, there may be positive dynamic effects for net food buyers if higher food prices generate economic processes that rise employment and/or wages at the same time (both in rural and urban areas) by amounts that compensate for the greater cost of food. For example, higher agricultural and food prices may lead to increased investments by the private and public sectors in agricultural production and in rural areas that generate positive employment and wage effects. There may also be some positive dynamic effects if a policy, even though it increases food prices in the short term, leads to investments in productivity that may reduce production costs and prices in the medium term.

Of course, the opposite may also happen: farmers shielded by high protection and pampered by subsidies may not need to incur additional costs and investments to attain their desired profit levels; therefore, protection and subsidization may lead to fewer investments and slowed productivity. Mogue, Yu, Fan, and McBride (2012) conduct an extensive review of the impact of public sector expenditures on agriculture and show that subsidies have limited impact in terms of their contribution to agricultural productivity in the case of India and other countries. In the case of LAC, López (2007) estimates that public agricultural expenditures labeled as “non-social subsidies” or “private goods” (export subsidies, forestry

⁴⁶ For instance, in Figure 1 it is clear that after the spike following the breakdown of the Bretton Woods system, nominal prices followed a clear cyclical pattern (accompanying the global business cycle) around a rather flat linear trend, until the events of the second part of the 2000s led to what appears to be a change in the underlying nominal trend (see Canova (1999) for the complex analytical issues involved in distinguishing trends and cycles in macroeconomic analysis).

⁴⁷ Other issues to be clarified in those analyses include: a) how the trend is measured (there are several methodologies); b) the use of global or domestic prices; c) if the focus is on global prices, the proper currency to use for pricing products (US dollars, Euros, Special Drawing Rights, and so on); d) the relevant markets for price formation and measurement; e) whether volatility is analyzed for nominal prices or for real prices (and in the latter case, which deflator is utilized); f) the relevant time horizon for volatility analysis (annual, seasonal, monthly, or daily; the time horizon selected depends on the purpose of the analysis, with consumer issues usually requiring shorter horizons than those of producers) (see Díaz-Bonilla and Ron (2010) for a more detailed discussion).

subsidies, targeted rural production subsidies, and so on) have a negative impact on per capita agricultural GDP, as opposed to the positive impact of “public goods” (such as investment in R&D, plant and animal disease control, and environmental protection).

In summary, both high prices and low prices result in adjustment processes if markets operate normally and if signals are transmitted properly to producers and consumers. Higher prices should eventually lead to more production and less consumption; these effects push prices lower (and vice-versa, in the case of a low-price policy). A good part of the debates about food security in developing countries revolves around how to solve this policy dilemma: high (low) food prices should normally lead to more (less) food production, improving (worsening) the physical availability of food, while at the same time making food consumption more (less) costly and reducing (increasing) “economic access.”

Those who take the perspective of poor producers prefer high prices, arguing that agriculture’s multiplier effect has important benefits for employment and poverty alleviation; some tend to gravitate toward protection and price support. Those who take the perspective of poor consumers, on the other hand, emphasize the importance of low prices because of the impact on urban and rural poverty and malnutrition. They usually suggest lower levels of protection and the use of consumption subsidies. But governments need to consider the welfare of both producers and consumers, which many have tried to do with diverse measures and mixed results.

The debate about price volatility, cycles and spikes, differs from that about price levels. It has been argued that price instability generates uncertainty about the “true” price level for producers and consumers, and therefore that production and consumption decisions may lead to suboptimal outcomes compared with what would have been the case under more stable price conditions. For producers, price volatility may reduce investments and shift production toward lower-risk, but also less productive technologies (although World Bank (2005) estimates that these effects may not be that large).

High and variable food inflation and price spikes affect consumers negatively through reduced or at least uncertain access to food. This is particularly true for poor and vulnerable households whose incomes do not adjust with inflation and who do not have assets to stabilize consumption patterns. There may also be negative macroeconomic impacts, such as inflation and balance-of-payment and public deficits, as well as a decline in total investment, with second round effects on poverty and food security (Timmer, 1989). It is also important to consider the political impacts linked to social unrest and riots caused by increases in food prices. However, it has been noted that, rather than volatility per se, what seems to count in political riots and unrest are high price shocks, which is only one form of (asymmetric) volatility (see Barrett and Bellemare, 2011). Persistent food inflation also tends to generate political problems, but in many cases, sustained inflation (as different from price shocks) is the result of macroeconomic difficulties, which may not be related to developments in food markets.

In summary, it is important to consider trends, their potential changes, business-cycle variability around those stable or changing trends, and shorter-term variability, particularly events of extremely high (or low) prices. Still, it must be emphasized that prices are not the only factor influencing food security and that there is obviously a variety of policies that affect prices. Therefore, as argued before, a one-dimensional analysis looking at a specific policy instrument’s impacts on price levels or price volatility would leave a significant part of the causes of, and potential solutions to, food security out of the picture.

d) Protectionism and Food Security

As noted, the current period of price volatility has led to more interest in food self-sufficiency. Clearly, developing countries will be very well advised to invest more in expanding and stabilizing their domestic agricultural production. The instinctive reaction of some policymakers and civil society advocates, both in the previous context of low world food prices and in the

new context of higher prices, has been to resort to protectionist measures, but Green Box measures linked to investments in public goods are the real basis for competitiveness and productivity.

Some people have argued that such investments “cost money and are difficult to administer,” with the implication that protection does not cost money and is easier to implement (see the discussion and references in Díaz-Bonilla et al, 2003). But in fact, protectionism does cost money. It operates as a privately collected, and regressive, tax on food, whose costs are paid relatively more by poor consumers (given the incidence of food in their total expenditures) and whose benefits accrue relatively more to large producers (considering that protection is a mark-up received per unit produced). High tariffs and related import restriction measures also increase the price of agricultural inputs to other sectors, negatively affecting production and employment there. Higher costs of wage-goods may lead to higher salaries, affecting other labor-intensive export industries. Large trade protection also tends to overvalue the real exchange rate, with negative implication for other tradable sectors. Finally, increased trade, rather than protectionism, seems to have greater positive effects on technological advancement, investments, and productivity (see the literature review on total factor productivity by Isaksson, 2007).

Import barriers and distortionary domestic support to expand production are usually less than optimal, and potentially costly, ways to try to insure against price volatility. For instance, in Minot (2011) and (2012),⁴⁸ it is shown that: a) food price volatility in several Sub-Saharan countries seems more prevalent in domestic markets than in international markets; b) such domestic food price volatility has not changed much with recent increases in international price volatility; c) commodities that are more traded internationally have lower volatility than those less traded; and d) volatility is higher in countries and for commodities where governments intervene actively in markets through state-owned enterprises (see also Hazell, Shields, and Shields (2005) for several products, and Chapoto and Jayne (2009) for maize).

If import barriers are utilized, domestic prices will also be kept at higher levels, which may affect the food security of poor and vulnerable populations. In any case, stable high prices, which may lead to the expanded domestic production and employment dynamics postulated by the high-price advocates, must be compared to the consumption losses and the displacement effects on production in other sectors that may have to contract to accommodate the larger use of resources by the artificially expanded agricultural sector (assuming that at least some of those resources are not unemployed). Finally, considering that domestic production tends to be more volatile than global production for most countries, self-sufficiency may in fact increase volatility. If distortionary domestic support measures are implemented, they will have fiscal impacts that need to be considered as well. These impacts may displace other public expenditures that have more positive impacts on production and poverty (Fan, 2008; Mogues, Yu, Fan, and McBride, 2012).

So far I have argued against some approaches that in the context of, both, high and low prices would suggest protectionism as the preferred policy option. But there is also a mirror image case to be considered with caution: the argument, based on undifferentiated trade theory that proposes trade liberalization also irrespective of the context of low or high prices. Proponents of this approach should consider the fact that slow or no mobility in labor, capital, and land implies that any reallocation of factors and resources will take time and would include potentially significant transaction costs. In particular, small and vulnerable producers may not be able to adjust to the new policy environment and may see a definitive negative impact on their livelihoods.⁴⁹ This possibility highlights the need for carefully modulated policies for poor producers and consumers.

⁴⁸ For the analysis of patterns of volatility, the dataset uses wholesale and retail food prices compiled from local statistical agencies by the Famine Early Warning System Network (FEWS NET) for 10 staple foods (beans, bread, cooking oil, cowpeas, maize, millet, rice, sorghum, teff, and wheat) in 15 countries (Chad, Ethiopia, Guinea, Kenya, Malawi, Mali, Mauritania, Mozambique, Niger, Nigeria, Rwanda, Tanzania, Uganda, Zambia, and Zimbabwe).

⁴⁹ In trade theory this would apply to models with “specific factors of production,” i.e. that cannot be converted easily or at all into other activities.

e) What are the Outlines of an Adequate Policy Approach?

In terms of aligning objectives and instruments, two general policy rules must always be considered. One is the “Tinbergen rule” (1952), which indicates the need to have as many instruments as objectives; using just one policy (or focusing on just one intermediate variable) will not effectively ensure the welfare of both producers and consumers at the same time. In theory, with adequately operating markets, policymakers should be able to just let those markets deliver an acceptable price for all through supply and demand, but markets do not necessarily operate adequately in many developing countries. The problems may be compounded when policymakers seek to modify those market-based results, sometimes trying to increase prices for farmers above market-clearing values, sometimes pushing prices for consumers below market-clearing values, and sometimes aiming to do both simultaneously.

Leaving aside the more involved debate about which market failures would need such correction through public policies, and what potential fiscal and other costs of such correction would be, the point here is more mechanical. If there are two policy objectives, there need to be at least two policy instruments. Proposals in favor of just one policy (say, protection or free trade) or one situation (high or low prices) would most likely not deliver the multifaceted results needed by increasingly complex societies.

A second policy imperative can be called the “Bhagwati rule,” following the pioneer article on distortions and welfare (Bhagwati, 1971). An implication of that analysis is the need to tailor policy interventions to the source of the problem as closely as possible in order to avoid second-round problems that can arise if the policy targets a proxy that is just hoped will help achieve the objective.

For example, if a country wants to help its poor and vulnerable people, targeting specific food products (even if called “food security” crops) is an indirect, and at times inefficient and inequitable, way to reach the intended objectives of poverty reduction and food security. In addition, if the concern is about the incomes of small and poor producers, trying to increase the prices of some agricultural products would be an indirect mechanism that, by necessity, will benefit larger producers more than smaller ones. Here, as in other cases in which food security concerns are invoked, the focus of the policy analysis should be on people rather than on crops or food products.

Overall, the most effective way out of this policy dilemma is through interventions that increase production efficiency and reduce costs (agricultural R&D, infrastructure, and related investments allowed in the Green Box), all of which increase profits and incomes for food producers while contributing to reducing prices and expanding food availability for consumers. At the same time, the challenges faced by poor and vulnerable populations can be addressed through properly designed and funded safety nets and cash transfer programs (Hidrobo, Hoddinott, Peterman, Margolies, and Moreira, 2012; Hoddinott, Gilligan, Hidrobo, Margolies, Roy, Sandström, Schwab, and Upton, 2013). An overall adequate policy framework for food security and poverty alleviation would include good governance; macroeconomic stability; a relatively neutral trade policy; investments in infrastructure, R&D, and human capital (health, nutrition, and education) focusing on the poor and vulnerable; policies and investments that facilitate the adequate functioning of product and factor markets; land and water policies that favor a more equitable agrarian structure, facilitating access to the sustainable use of natural resources by poor rural households and small and family farmers; women’s empowerment programs; support for community organization and participation, particularly for the poor and vulnerable; and maintenance of law and order in rural areas.⁵⁰

⁵⁰ It was already mentioned that Sinha, Lipton, and Yaqub (2002) identified violence and conflict (wars, civil strife, community violence, and domestic violence) as one of the “damaging fluctuations” that deeply affects the poor and vulnerable. This fact is corroborated by the study “Voices of the Poor” of the World Bank, summarized in Narayan, Chambers, Shah, and Petesch (1999), which suggests the importance of effective and non-corrupt public law and order for the poor. Therefore, the maintenance of public safety in rural areas is crucial for food security.

The specific debate about the economic and operational aspects of food security stocks, which is the topic of the next section, should be placed in this general context.

3. Food Security Stocks and Domestic Food Aid

The G-33 proposal analyzed in Section III, which led to the “peace clause,” would address the policy dilemma of high/low food prices by adjusting two separate policy instruments included in the AoA. It would allow for the payment of higher prices to LIRP producers (using purchases for food security stocks with modifications to Annex 2, paragraph 3) and it would offer lower prices to consumers (through domestic food aid, Annex 2, paragraph 4).

Leaving aside legal aspects, the design of food stocks for food market stability and domestic food aid needs to take into account a variety of economic and operational issues. The operational problems and costs involved are likely more important in developing countries than the issue of policy space within the WTO framework.⁵¹

a) Food Stocks: Unidimensional and Multidimensional Approaches

I start by placing public food stocks in the general context of policies related to food security. Figure 7 distinguished between unidimensional and multidimensional approaches to food security. It should be reiterated that prices are not the only variables that impact food security, nor are they even always the main ones. The crucial importance of health and sanitation and women’s empowerment and education (Smith and Haddad, 2000), all topics that are largely unrelated to price issues, have already been mentioned. We must also remember that there are many policy instruments that affect the level and volatility of prices, not just public food stocks. Therefore a unidimensional approach to policy analysis would be highly constraining.

However, as food stocks are often discussed in the context of price stabilization, I will here focus on prices as the intermediating variable. Galtier and Vindel (2013) identify a variety of policies within four broad strategies resulting from a 2-by-2 matrix, which combines markets and governments, with the goal of stabilizing prices or managing and coping with the consequences of price volatility. The four quadrants define what they call A (use of market-based policies to stabilize prices), B (use of market-based policies to cope with volatility), C (direct interventions by governments to stabilize prices), and D (direct interventions by governments to cope with volatility). They emphasize the C strategy, which, in their view, is often missing in the advice given to developing countries.⁵²

Figure 7, taken from the report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security (HLPE, 2011), expands the ABCD framework by defining a 3-by-3 matrix. The left column identifies policies and interventions operating through markets and the private sector, directly implemented by the governments, or carried out by the civil society; the top row distinguishes policies and interventions that focus on stabilizing prices or that assume that price volatility and shocks will occur and therefore try to manage those problems ex-ante or to cope with them ex-post.

The HLPE classification also includes a useful list of possible policies and interventions in all the ABCD strategies, including food stocks as part of the “C” strategies of direct government interventions to try to stabilize prices. The point here

⁵¹ There is a long list of theoretical and empirical studies on food stocks which cannot be reviewed here. Different evaluations of the uneven experiences of food stocks for stabilization of prices in developing countries can be found in Islam and Thomas, 1996; Hazell, 1993; and Knudsen and Nash, 1990. Recent analyses include Galtier and Vindel (2013) who are more supportive of the use of food stocks for price stabilization; less sanguine assessments can be found in World Bank (2005) and (2012) and Gilbert (2011). See also HLPE (2011). Gouel (2013) provides a review of different approaches, including simulations with dynamic optimizing models. Here I focus on domestic food stocks; discussions about regional and international food stocks can be found in World Bank, 2005 and 2012; von Braun and Torero, 2009; and Tangermann, 2011.

⁵² Timmer, who has consistently highlighted the importance of price stabilization in the successful expansion of agricultural production in Asian countries such as Indonesia (Timmer, 1989), has written the preface to the book by Galtier and Vindel (2013). There he argues that “It is not easy to stabilize food prices, but it is not impossible either. We just need to stop arguing that stable food prices are a bad thing and get on with the tough analytical and empirical work to learn how to do it effectively, efficiently, and honestly.”

is not to discuss or rank all the possible policies and interventions but to simply point out that there is an extensive array of options for policymakers that should be analyzed and deployed in an integrated framework for food security, including public stocks for food security purposes as a potential component of that framework, among others.

FIGURE 7. ABD FRAMEWORK

Policies and Programmes	Reduce the eventuality and size of price shocks	Ex-ante interventions relative to price shocks	Ex-post interventions relative to price shocks
Programmes	Reduce price volatility	Manage price volatility	Cope with price volatility
Interventions through markets and with the private sector	<p>A. Make markets work better in time and space</p> <ul style="list-style-type: none"> - Information systems - Transport and communication infrastructure - Increase competition in domestic market and trade - Private sector storage development through improved access to financing - Grades and standards 	<p>B1. Financial products</p> <ul style="list-style-type: none"> - Crop/livestock insurance (index-based) - Credit and savings associations <p>B1. Investment in agriculture</p> <ul style="list-style-type: none"> - Increase domestic food production - Diversification and resilience of food systems - Growing local crops - Food storage systems at all levels including community storage 	<p>B2. Emergency loan programmes</p> <ul style="list-style-type: none"> - Access of importers to trade loans - Loans to producers and consumers
Direct state interventions	<p>C. Intervene in markets</p> <ul style="list-style-type: none"> - Public stocks - Price bands schemes - Price stabilization 	<p>D1. Enhance productivity in smallholder farming</p> <ul style="list-style-type: none"> - Resilience of farming systems - Targeted input subsidies (seeds, fertilizer) - Production for home consumption <p>D1. Employment in the rural non-farm economy</p> <ul style="list-style-type: none"> - Decentralization - Small and medium rural enterprise programmes 	<p>D2. Social protection for vulnerable households</p> <ul style="list-style-type: none"> - Cash and food transfers - School feeding programmes - Taking into account human life-cycle
Interventions through and with civil society		<p>E1. Negotiated ex ante social protection</p> <ul style="list-style-type: none"> - Minimum wage, right to food <p>E1. Producer organizations' services to members</p> <ul style="list-style-type: none"> - Rotating credit schemes - Group insurance - Local purchases for food distribution systems (e.g. WFP's P4P) 	<p>E2. Community-driven productive social protection</p> <ul style="list-style-type: none"> - Workfare (coping) with community-driven development projects (management)

b) Objectives and Types of Food Stocks

A common operational problem for food stocks is that they lack clear objectives or have multiple and at times conflicting ones (NEPAD, 2004; Dorosh, 2009). Those objectives may include coping with emergencies, helping population suffering from chronic hunger, stabilizing prices for producers at profitable levels, providing food to urban populations at prices that are stable and affordable, and other similar ones. (NEPAD, 2004). These varying objectives can result in food stocks of an inadequate size (too high or too low), confusing decision-making and managing structures that are prone to political interference and short-term horizons, high costs and operational inefficiencies, and inappropriate levels of funding and misallocation of resources (NEPAD, 2004). A basic starting point, therefore, is to properly categorize those food stock's objectives into one of three general categories (NEPAD, 2004; World Bank, 2005; 2012).

First, emergency food stocks try to cope with natural disasters and other disruptions in the domestic or international supply of food. These are usually small and are supposed to bridge the supply gap until the arrival of commercial supplies or food aid. Hazell (1993) suggests that relatively small percentages of total consumption (which he estimates at 5 percent of total consumption in the case of SSA countries) may suffice to act as an insurance mechanism. More recently, NEPAD

(2004) suggests that such stocks should be able to cover 2-3 months of consumption, which amounts to 17-25% of total consumption.

A second category can be called food redistribution stocks. These serve as a rotating stock that backs up the distribution of food in programs that can take several formats such as: targeted safety nets to help the poor and vulnerable; special programs such school lunch programs, supplementary feeding programs for women and children, food-for-work (FFW) schemes, and the like; and semi-targeted public distribution systems (such as “fair price shops,” “ration shops”, etc.) or even non-targeted public systems (although this option has been generally discontinued because of its high cost). These stocks may also cover some emergency functions.

Food redistribution stocks are typically bigger than emergency stocks depending on the coverage and scope of the food distribution system of which they are a component. For instance, India’s Targeted Public Distribution System (TPDS) is the largest food system of this type in the world (Dorosh, 2008); it has reached some 600 million people considered food vulnerable or undernourished. The National Food Security Act of 2011, expanded and revised in 2013, will increase this coverage to about 800 million people. This large system obviously requires large inventories, which has led to the government purchasing up to one-third of the country’s wheat and rice produced in recent years (Hoda and Gulati, 2013).

Although additional consumption may not increase one-to-one with the rations distributed (see Rashid and Lemma, 2011), the people receiving food support represent an additional level of demand that would not have existed without the domestic food security and domestic aid program. As noted before, this additional demand tends to support food prices.

At the same time, different studies show that at different points in time over the last two decades, India has accumulated inventories far in excess of the amounts needed for its food stock program, which generated large fiscal costs for the government and led to subsidized exports (Dorosh, 2008). The program’s operation may also have been pro-cyclical in recent episodes of global price spikes, without adequate releases of food stocks in the domestic markets and with even further stock accumulation during moments of high prices. This, coupled with additional exports, would not have helped poor consumers (Gouel, 2013). The direct costs of the current TPDS have been estimated to be about 0.9 percent of India’s GDP in 2009-2010 and 2010-2011 (Hoda and Gulati, 2013). If the increase in coverage leads to a proportional increase in costs, the fiscal cost of the new scheme may reach close to 1.2 percent of the GDP. That cost, however, may not necessarily translate into an equivalent support to poor consumers considering that there are other costs associated with waste and loss because of inadequate storage, handling, and transportation, leakages of funds and products, and diversion of food from the poorest members of the society: Hoda and Gulati (2013) estimate leakages of the TPDS to be about 36 percent of the subsidized food grain, and diversion to be some 21 percent. Further, Reardon, Chen, Minten, and Adriano (2012), in their analysis of rice distribution in several Asian countries, found that, according to the surveys conducted in New Delhi, Fair Price Shops were closed during business hours in about two-thirds of the cases, which they find consistent with other studies about the inefficiency of the public distribution system.

However, it must be noted that India has avoided a major food crisis since it started to procure cereals domestically in the mid-1970s for the public distribution system, even though there have been several instances of sharp declines in production (for instance, 1976, 1979, 1982, 1986-1987, 2002, and 2009 saw declines of more than 7 percent in cereal production). Furthermore, the country has also been able to maintain reasonable stability in the domestic price of major food products, even in the face of important exogenous price shocks in recent years (although at the cost of exporting volatility to global markets) (Gouel, 2013). The question here relates more to the costs of the current system and the possibility of designing a more efficient and equitable scheme to support competitive agricultural production, provide a safety net for the poor, and insure against food shocks. It should be noted, though, that improving and modernizing such

an enormous program, reaching hundreds of millions of poor producers and consumers, may take many years, and the country should be given enough time to find its way.⁵³

The third category is buffer stocks whose purpose is to stabilize prices. These stocks generally tend to handle larger quantities of food than the other two categories; they may carry enough food to also serve as emergency relief and as a back-up for the operation of a public distribution system (World Bank, 2005; 2012). This is true in the case of India, where the system of public purchase and distribution, given its size, appears to have helped to stabilize prices in the domestic market, although at significant costs compared to other countries in the region that followed other, more market-based strategies (Dorosh, 2008).

Stabilization stocks differ in the definition of the price targets, such as a) a single price; b) symmetric price bands (of different width); and c) extreme values (in many cases asymmetrically, trying to ensure that they do not go above or below some level considered highly disruptive for consumers or producers).

If the real objective of the food stocks is price stabilization (and not subsidizing producers with above-market prices or taxing them with below-market prices), the target levels for prices or price bands should be updated to track mean trend values over the period of stabilization, such as a three-five year rolling average (Timmer, 1989). However, historical examples show that these stabilization stocks tend to drift into subsidized price support to producers, to the detriment of consumers and taxpayers, or into taxing producers with low prices to help consumers.

Theoretical and empirical analysis of the welfare effects of price stabilization (as a notional concept) have generally found small positive effects for consumers (Gouel, 2013) and also some efficiency gains for producers, although still not very large (World Bank, 2005). The main gains may come not from stabilization per se but from preventing large upward spikes (which may affect poor consumers irreversibly by hurting their health and nutritional status) and downward price spikes (which may force small and vulnerable producers into bankruptcy or a fire-sale of assets). At a macroeconomic and political level, the argument is that these large upward or downward spikes affect political stability and the general economy in ways that are not captured in the more limited welfare and efficiency measures mentioned before (Timmer, 1989; there are different views on whether these political and macroeconomic benefits from avoiding price spikes are as large as postulated; see World Bank, 2005).

The question is how to move from the notional idea of price stabilization to operational schemes that actually deliver that outcome. Both food redistribution stocks (which in principle try to help specific poor and vulnerable consumers) and buffer stocks (which are not targeted in their effects on consumption) are more relevant when a country's consumption depends on a reduced number of basic products and when those products are less perishable (World Bank, 2005). According to the food balance sheets calculated by FAO (FAOSTAT, 2014), Indonesia (highlighted by Timmer (1989) and (2013) as a positive example of price stabilization) is a clear example in which a product that is storable (rice) represents (using 2009 data) around 48 percent of the calories and 40 percent of the proteins consumed on average (these values were 56 percent and 53 percent, respectively, in 1980). On the other hand, many African countries have a more diversified structure that utilizes some products (such as cassava and yams) that are difficult and costly to store. In 2009 in Western Africa,⁵⁴ the percentage of average calorie consumption was distributed as follows: 5.4 percent wheat and wheat products, 12.6 percent rice, 9.1 percent maize and maize products, 10 percent millet and millet products, 9.1 percent sorghum and sorghum products, 8.7 percent cassava and cassava products, and 7.9 percent yams. India is closer to Indonesia, but still

⁵³ It must be recalled that the process of reform of the CAP of the European Union, started in 1992 with the McSharry program, is far from finished after more than two decades. In the United States, agricultural policy reform has shifted across different approaches over the years; the current 2014 Farm Bill, if anything, is a movement away from WTO disciplines on trade or production distorting support (Orden, 2014).

⁵⁴ Benin, Burkina Faso, Cabo Verde, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Saint Helena, Ascension and Tristan da Cunha, Senegal, Sierra Leone, and Togo

more diversified with 21 percent of the total average calories in 2009 resulting from wheat and wheat products and about 29 percent from rice.

The importance of food security stocks may change depending on how advanced a country is in its development, which, among other things, defines the quality and extension of infrastructure and the operation of the private sector.⁵⁵ The geographical position also matters; a land-locked country with infrastructural limitations will face more challenges than a country with easy access to maritime routes.

In summary, emergency and redistributive food stocks can play an important role in food security arrangements. However, carrying stocks as an insurance mechanism or as a component of safety nets is different from using stocks to stabilize domestic grain prices, which, as noted, usually requires larger stocks and may be expensive and not always effective in reaching the expected stabilization. While stabilization schemes seem to have worked well in Asia, the same cannot be said in the case of many stabilizing schemes in African countries (see Galtier and Vindel, 2013; NEPAD, 2004). This last observation coincides with the findings in Minot (2011) and (2012) about the destabilizing effects of domestic policies in several SSA countries. Developing countries in LAC, with relatively diversified diets and more developed private systems for food processing and distribution, have in general moved away from public food stocks and linked domestic food programs to general safety nets.

Neither emergency or food redistribution stocks should have problems with the WTO disciplines if the products are purchased at market prices;⁵⁶ the only additional conditions mentioned in Annex 2, paragraph 3 (besides the issue of purchasing prices) are that stocks must be an integral part of a food security program identified in national legislation, must correspond to predetermined targets related solely to food security, and include a financially transparent process of stock accumulation and disposal. As noted, for developing countries these conditions are further relaxed by footnote 5 in Annex 2, paragraph 3, which only requires that public food stocks operate a transparent manner and be “conducted in accordance with officially published objective criteria or guidelines.” These reasonable conditions can help with transparency and limit opportunities for corruption and misallocation. The main issue, both operationally and for the AoA, is rather the purchasing price in the third case of buffer stocks for stabilization purposes.

c) Purchasing Prices

It has been noted that stabilization stocks may focus on single prices, defend price bands (mostly symmetrically), or price extremes (which may have an asymmetric definition, such as avoiding price spikes that hurt consumers). What follows discusses some operational aspects of the different approaches.

It has been argued that the single-price approach may be very costly and may eliminate all incentives for private sector traders to offer storage, which in turn forces the public sector to undertake a larger role in the operations needed to stabilize prices (Gouel, 2013). In addition, if the level at which food prices are stabilized is higher on average than what it would have been without stabilization, this would help producers but hurt consumers, particularly poorer ones (Sumner, 2000). Thus, there may be a trade-off for the poor between price stability and price levels, with price stabilization schemes at higher price levels possibly driving more people into food insecurity (Sumner, 2000).

⁵⁵ For instance, Galtier and Vindel (2013) argue that the price stabilization scheme could be adjusted according to the level of a country's development: a less developed country where agriculture is in a pre-green-revolution stage may need price bands, not too narrow but not too wide; developing countries with more productive agricultural and market institutions may reduce and even eliminate the lower support price, but may maintain the upper part of the band to avoid shocks to consumers; finally, developed countries, where producers are competitive and food has a smaller incidence in consumers' expenditures, the stabilization stock may be abandoned.

⁵⁶ The source of food for these food stocks may be food aid and/or international purchases, both of which raise other issues. However, these issues are unrelated to the problem of domestic support discussed here.

Purchasing prices above market-clearing prices can also lead to excessive accumulation of stocks, which eventually will have to be disposed of in the domestic or international markets, depressing prices. In the case of exports (which, to be competitive in world markets, may have to receive an explicit or implicit subsidy with respect to the purchasing price), this disposal of surpluses in global markets will most likely generate trade frictions with other countries (see Dorosh, 2008; 2009).

Gouel (2013) shows that structuring purchases to defend a price band (to avoid excessively high or low prices) will lead to better prices for producers during the build-up of stocks but to lower prices (although also less volatility) once those levels have been reached, provided the stocks are not exhausted to defend certain levels and then permanently replenished, which will keep prices higher at significant fiscal costs (Thompson and Tallard, 2010). Gouel, in line with other literature, also disputes the notion that wider price bands lead to lower costs (supposedly because the government buys low and sells high and does not have to intervene that often) because this notion does not take into account the carrying costs of such policies, which increase with wider price bands because of the longer time that stocks have to be immobilized and maintained (see also World Bank, 2012).

Thompson and Tallard (2010) analyze asymmetric interventions used only when prices are excessively high. I will discuss their simulations in greater detail because they focus on the problem that many observers have in mind when discussing price stabilization issues (i.e., sharp upward price spikes such as were seen in 2007-2008 and 2011) and because it illustrates in an empirical simulation many of the trade-offs related to the high/low food price policy dilemma highlighted before.

Thompson and Tallard use the OECD's Aglink-Cosimo economic model of global agricultural markets to simulate three policies to confront a sudden price increase in the international wheat and rice markets: a) trade measures to prevent domestic prices from going above 35 percent of the pre-shock level; b) consumer subsidies that limit the increase in consumer prices by 20-40 percent; and c) additional public stocks for up to one-third of domestic consumption that are built and then released on domestic markets, if domestic prices rise by at least 40 percent in a specified period.

The policies are assumed to be implemented by a group of ten countries (Argentina, Brazil, Chile, China, India, Indonesia, Russia, South Africa, Ukraine, and Vietnam) but not in the rest of the world (which nonetheless suffers the consequences of the policies implemented in the core group).⁵⁷ The new policies are in addition to any existing measures that these countries may already have in place. The prices for wheat and rice are simulated to jump a sizeable 70 percent over the previous year (which the authors argue would be similar to the 2007-2008 price shock) and then revert to trend levels. The results calculate the levels of producer and consumer prices in these countries, the fiscal costs of the policies, changes in the per capita consumption of wheat and rice, and the impacts on world prices. The baseline (without the price surge and the new policies) and the simulated paths with the new policies cover a total period of 10 years, with the price shock taking place somewhat before the mid-point of that period and the consequences of the shock and policies playing out until the tenth year.

I will discuss only some of the results linked to building and releasing food stocks. World prices are higher than the baseline when food stocks are being built, but then are obviously lower during the year of the price shock when food stocks are released (about 20-25 percent lower than world prices would have been with the shock alone). Prices are then higher again if stocks are rebuilt. Producers benefit and consumers lose while the stocks are being built; during the price shock, the reverse happens. Producers in the rest of the world (outside the 10 core countries considered) also benefit from

⁵⁷ The countries selected represented about half the world's population and some two-thirds of rice consumption and production, 45 percent of world wheat consumption for food, and 43 percent of world wheat production in 2010-2011.

the higher prices (underlining the fact shown in simulations by Gouel and Jean (2012) that additional trade measures are needed to keep the economic effects of building and releasing food stocks within the country).

If the stocks are built and the price shock does not then take place, prices will have been maintained higher during the build-up and will then return to the trend once the desired level is achieved; however, the costs of building the stocks and of keeping them afterwards increase significantly (about 160 billion US dollars over 10 years for all the ten countries considered).

It is important to look at the results in terms of rice and wheat consumption, which is what should count for food security. Over the ten-year period of the simulations, consumption of both those products is lower in the countries applying the policies and in the rest of the world. To understand these results, the following pair of scenarios must be considered: first, a world without a price surge and without new policies compared to a world without a price surge but with new food stocks; and second, a world with a price surge and without new policies compared to a world with a price surge and with new food stocks. The first result is obvious: food stocks have been built for no purpose (i.e. there was no price shock), leading only to price increases and therefore, to a reduction of consumption. The second result is the combination of the period of the shock, when prices are lower and consumption is higher due to the release of stocks, and the rest of the years when the positive effect in consumption is more than compensated for higher prices and lower consumption during the periods of stock build-up.⁵⁸

So the old dilemma of high/low prices cannot be avoided. In these simulations, producers in the ten countries (and in the rest of the world) benefit from higher prices; consumers, both in those countries and the rest of the world, lose on average (although they suffer less during the price shock), and the whole scheme implies significant fiscal costs.⁵⁹ The latter problem highlights another point made before. If as shown in Hazell, Shields, and Shields (2005), a non-trivial part of the domestic price variability is related to macroeconomic crises, then fiscal deficits caused by price food stabilization schemes may lead to macroeconomic problems and destabilize domestic prices through other channels (as recognized in Timmer, 1989). More generally, macroeconomic crises lead to increases in poverty, with negative effects on food security, nutrition, and health (see, for example, Díaz-Bonilla, 2008).

It is also important to note that in the simulations, the build-up of stocks only goes up to a fixed level of consumption (one-third) and then is firmly maintained at that level; experience shows that farmers' pressures to maintain prices high (or to increase them further) once stocks have been built may lead to excessive accumulation of stocks (Dorosh, 2008; 2009). Therefore, food stocks must be designed with a strict limit (see Gouel, 2013).

These results are based on food stock operations in which purchases are made at market prices. However, in many cases the objective may be to provide further price support to farmers. We turn now to that issue.

d) Additional Price/Income Support to Farmers

The proposal by G-33 countries seems to consider that making purchase for food security stocks or domestic food aid at market prices may be a somewhat ineffective way to attain developing countries' food security objectives. Therefore, their suggestion focuses on exempting purchases from LIRP producers from domestic support limits.

It is not clear, though, why buying at market prices should be ineffective. Certainly, to build food security stocks for emergencies and to provide domestic food aid for poor consumers, governments in developing countries would be far

⁵⁸ The simulations are conducted in quantity units (not in monetary welfare metrics) and the results are not discounted over time.

⁵⁹ It is also interesting to note that the other policies simulated (trade measures and consumer subsidies) increase the level of wheat and rice consumption in the ten countries considered when compared to a counterfactual of a price surge but no new policies; consumption increases more with consumer subsidies than with trade measures. However, in the rest of the world, both policies lead to smaller consumption in addition to the decline caused by the price shock, although with consumption subsidies, that further decrease is very small (more on this later).

better off financially if they buy at market prices (especially now in a context of high food prices). For poor countries, it makes sense not to add to the costs of the food security program by using above-market administered prices, which generate losses through buying high to support farmers and selling low to subsidize consumers. In addition, conducting the operations at market price, ideally using some sort of auction, will ensure that the program be part of the Green Box.

If the objective is to pay LIRP producers above the prevailing market price, then obviously the previous comment does not apply. Still, it is important to note that even when purchases are made at market prices, the program still offers some support to farmers⁶⁰ (as noted in the simulations of Thompson and Tallard, 2010). Furthermore, that impact is reinforced if the food stocks are used annually and rotated as part of social safety nets or other public systems of food distribution targeting the poor and needy. As noted before, this type of redistributive program expands “effective demand” (i.e. demand backed by purchasing power, in this case intermediated by government purchases) and leads to higher prices for producers than would have been the case otherwise. This cost would be borne by those consumers who do not receive food aid and by the taxpayers, but has the counterpart of poor people acceding to higher levels of food consumption.

It should be further noted that an income redistribution program with discounted food vouchers for poor consumers would also lead to higher demand and therefore higher prices for farmers when compared to the counterfactual of no program, without the government having to physically intermediate the purchase of food and the distribution of food aid.⁶¹ Of course, this assertion depends on the existence of a private sector that adequately covers the national territory, whose operations are reasonably efficient (i.e. no large losses in the physical handling of the products) and that behaves competitively along the procurement and marketing chain (i.e. there are no intermediate actors with dominant market positions that may retain a larger share of the benefits of the redistribution, charging lower prices to farmers and higher prices to consumers). In this situation, the comparison is between the quality of the coverage, efficiency, and competitive behavior of the private sector, on one hand, and the performance of the public bureaucracy distributing food in terms of potential additional costs and inefficiencies, on the other.

But if a government is still focused on providing additional income support to LIRP producers (which is a separate objective from food security and nutritional support to consumers), in addition to the investment and input subsidies of Article 6, paragraph 2,⁶² developing countries can use direct payments to producers (paragraph 5, Annex 2 of the AoA). Those payments should be not more difficult to implement and monitor (particularly with the extension of national identity cards in many countries and with the detailed household records kept under conditional or unconditional cash transfer programs) than a system of public purchase solely from LIRP producers, in which the problems of properly identifying appropriate sellers and avoiding leakages and abuses will be present as well.

Furthermore, if poverty is the concern, providing income support to LIRP producers goes directly to the heart of the matter. This is another application of the “Bhagwati rule” noted before regarding the need to target policies as closely as possible to the source of the problem in order to avoid second-round problems if the policy targets a proxy. In fact, as argued before, if a country wants to help its poor and vulnerable populations, then targeting crops or livestock production is an indirect, and many times inefficient and inequitable, way to achieve poverty reduction and food security. Therefore, when food security concerns are invoked, the focus of the policy analysis should be on people rather than on crops or food products.

⁶⁰ See also Islam and Thomas (1996), who argue that if a government buys, say, 10 percent of the production of a crop at harvest time, paying market prices to achieve a stock-to-consumption ratio defined for food security reasons, then that operation would increase prices compared to the counterfactual of no intervention.

⁶¹ In the case of the United States, the political economy of the series of Farm Bills has always featured the alliance of farmers and social advocates who support food vouchers and similar redistributive programs. That alliance was maintained in the 2014 Farm Bill (Orden, 2014).

⁶² Article 6, paragraph 2 has the advantage, from the point of view of equity, that it encourages developing countries to design specific programs for rural development or alleviation of rural poverty, instead of resorting to general and non-transparent subsidy schemes that may benefit richer farmers or be wasted in corruption.

If there were sharp downward price spikes because of international shocks (including import surges, perhaps due to unfair trade practices from other countries), trade measures such as safeguards and countervailing duties can be utilized as well, and developing countries, many of which have applied tariffs below bound ones, can also adjust these measures.⁶³ The drawback is that this approach would force the adjustment onto the rest of the world and be self-defeating, as argued by Martin and Anderson (2012), if other countries did the same. In many cases, problems of competitiveness in the farming sector (i.e. imports coming at very low domestic prices) also may result from overvalued exchange rates due to macroeconomic mismanagement. In this case, the right approach is to correct the overvaluation, which will help all tradable sectors, not just agriculture.

e) Consumer Issues 1: Impact and Delivery Mechanisms

For poor consumers, it may be more efficient to use cash transfers or food vouchers and to let the private sector manage the physical handling of the product (see Hodinot et al, 2013). Some NGOs have argued that managing cash transfers or food vouchers is far more cumbersome than the physical distribution of the food items, but this argument seems largely incorrect. If the government has a system to identify poor households and to distribute the physical product, it can do the same with food vouchers. The administrative costs and the possibility for corruption and misallocation are similar in both schemes, but with food vouchers, the government avoids losses stemming from handling the grain through bureaucratic structures (although those losses need to be compared to the ones affecting potentially ineffective and underdeveloped private sector channels). The other challenge stems from the possibility of abuse of market position by private sector operators, which must be compared as well to the possibility of corruption and abuse by the public staff operating governmental schemes.

The simulations in Thompson and Tallard (2011) also show that consumer subsidies seem to have more beneficial food security effects (as measured by wheat and rice consumption) for the countries applying them when compared to the use of trade measures and food stocks to avoid price peaks (that, as explained before, reduce consumption over the decade simulated because of the higher prices resulting from building up the stocks). Furthermore, consumer subsidies in those simulations have smaller negative impacts on the quantities of wheat and rice consumed in the rest of the world, as well. However, they carry an important fiscal cost (which may be more or less than the building of public stocks, depending on the prices at which those stocks are released).

Of course, there is still the issue of how to ensure the physical delivery of the product to isolated areas, which cannot be guaranteed by simply handing out vouchers. The expansion of a private sector delivery network is something that will evolve along with general economic development and supportive government policies. Then the question of whether the government or the private sector is better equipped to handle physical distribution for the poor and for isolated areas becomes an empirical issue.

f) Consumer Issues 2: Public Food Security or Nutrition Security?

The previously noted triple burden of malnutrition also poses new challenges when considering food security stocks. Each one of the components of the triple burden has different negative impacts on human health and may be affected differently (or not at all) by the policies negotiated under the AoA, in particular by the operation of food security stocks and domestic food aid.

For instance, a food security program centered on a limited number of products selected mainly because of their calorie content will have to contend with the fact that a lack of dietary diversity appears more correlated with the prevalence of child stunting and wasting and with underweight mothers (Arimond and Ruel, 2006; Headey, 2013). If lack of dietary

⁶³ Galtier and Vindel (2013) argue that such adjustments should not be ad-hoc but rather follow a rule such as variable levies and price bands. These mechanisms, which basically force adjustments into the rest of the world on a permanent basis, have been banned in the WTO.

diversity is a more relevant indicator to assess food security and nutritional problems, then food security stocks and programs focusing on a limited number of staple crops may not address the main problem.

More generally, changes in consumption patterns linked to increasing incomes in developing countries, which have led to the expanded use of other products exceeding the usual staple crops considered in food security stocks, also question the traditional focus of these programs (see Hoda and Gulati (2013), who criticize India's National Food Security Act of 2013 for being "cereal centered.")

In addition, except for the decreasing number of countries in which a significant proportion of calories and nutrients depends on only one or two products, the issue of food price inflation (and upward price spikes) is associated with a larger basket of goods; when those problems do occur, they are mostly related to macroeconomic imbalances. Food security stocks do not have the product breadth to address those problems and may actually contribute to creating those macroeconomic imbalances.

g) Other Concerns

Another concern that supports building public-sector operated systems for the distribution of food is the exercise of monopoly power by private operators that may push down prices for farmers and increase prices for consumers. If such a problem exists, it is important to understand the causes. One reason for monopolies to exist in generally consumed food products may be a public policy that, directly or indirectly, grants such powers (such as discretionary import licenses or domestic trade licenses and restrictions). If the monopoly (or monopsony) power has its origin in market imperfections (as opposed to a policy-induced imperfection), then, the persistence of the problem may be related to the fact that the government is failing to implement adequate regulatory approaches to eliminate abuses. Therefore, a better approach would be to eliminate the policy-induced monopoly/monopsony in the first case, and to establish adequate anti-competitive regimes in the second, rather than trying to establish a governmental distribution system to counterbalance the potential abuses of the private sector, which may lead to larger costs than the assumed lack of market competition.

h) Final Comments

This section has tried to show that food security is a multidimensional concept, influenced by many policies and contextual variables, and that any one policy may have diverse impacts depending on other policies, structural issues, and household types. In particular, focusing on price instability (or even price extremes) leaves aside many other factors that heavily influence food security at the household and individual level. Furthermore, food stocks are just one possible policy instrument, whose contribution to national welfare varies significantly with consumption diversification, the perishability of the main food products, the level of the country's development (which, among other things, defines the quality and extension of infrastructure and the operation of the private sector), and its geographical position (land-locked or not). Rather than a system to manage price volatility to address food security (which seems to be a main focus of current attention), a broader, multidimensional approach is needed. Research and policy dialogue should consider integrated frameworks for food security and poverty alleviation; within that general framework, the problem of price volatility and price extremes, as well as the possible contribution of food security stocks, can be discussed as one component among several others.

Governments of land-locked countries, with concentrated consumption of some food products that are less perishable, and with difficult access to international markets, may find it both useful and necessary to maintain food security stocks to ensure against potential breakdowns in supply. If that food is procured domestically, those purchases, well-timed at harvest, will provide some price support during a crucial time for farmers, even if those purchases follow prevailing market prices.

Depending on the conditions of the country, a food redistribution stock (the second category mentioned before) could also be an important component of a country's social safety nets and targeted food programs. It is important to have such safety nets (conditional cash transfers, nutritional programs for women and children, school lunches, food for work programs, and so on) in place already so that they can be scaled up if and when a sharp upward price spike occurs. But again, buying at market prices is the best option to build these stocks, and not because of AoA constraints; rather, if a developing country is buying food above market prices to provide farmers with high price support and selling below market prices in order to help poor and vulnerable populations, it will most likely get into severe fiscal problems long before a trade case is brought up against it. Along with the extension of safety nets for poor consumers, it would also be useful to consider safety nets for poor and vulnerable agricultural producers that can provide income support when harvests fail or in the case of sharp downward price spikes.

If public food stocks are built, they must operate with clear objectives and decision-making rules, as well as with strong financial, accounting, and audit safeguards; they should also be adequately sized and properly located (with the necessary transport, storage, and communications infrastructure). Finally, there should be adequate funding arrangements with properly trained staff (NEPAD, 2004; World Bank, 2005; 2012).

Whatever type of public food stocks is implemented, it is always important to consider additional policies such as credible early-warning and food-security information systems about harvest prospects, potential food shortages, and emergency needs, as well as embedding the operation of stocks in an integrated policy framework for food security. The latter should consider a full array of policies that support production, ensure market development, invest in infrastructure (transport, storage, and communications), help farmers and farmers' associations create and expand their own stock-holding facilities (including traditional on-farm options) and support those efforts with additional instruments such as warehouse receipts and credit, adequately use trade to enhance food security, expand safety nets for the poor and vulnerable; and avoid ad-hoc policy interventions by the government (NEPAD, 2004).

As noted before (IV.2.e), those interventions should be part of an integrated policy framework for food security and poverty alleviation that should include other components as well, from overall good governance and macroeconomic stability to different types of investments, to programs supporting women's empowerment and community organization and participation.

A permanent solution for the treatment of public food security stocks, as requested by the Bali Ministerial Decision, will require a careful consideration of many of these legal, economic, and operational issues.

V. Conclusions

Food security concerns again threatened to derail the negotiations of the Bali Ministerial. This paper has analyzed several aspects of the links between food security and WTO agricultural and trade negotiations, focusing specifically on the issue of food security stocks.

I started by explaining the background to the debate and the interim solution (the "peace clause") agreed upon at Bali. Under one interpretation, the agreement strengthens the negotiating position of India (or any other country following the same approach), which will be protected from challenges under the AoA until a "permanent" solution is found (which seems to leave the end date open ended). Under another interpretation the period in which to find a permanent solution is not open-ended but has been postponed until the 11th WTO Ministerial (four years after Bali). In any case, the WTO Members that want to be protected by the "peace clause" will face more stringent notification and transparency requirements regarding domestic support, forcing those that are extremely behind schedule in their notifications to become current in their obligations under the AoA. This would facilitate closer scrutiny and monitoring of the different programs of domestic support in the countries using the "peace clause" option.

The Ministerial Decision also instructs WTO Members to establish a work program in the Committee on Agriculture to make recommendations for a permanent solution no later than the 11th Ministerial Conference (i.e. about four years from now). As a contribution to that effort, this paper analyzed a variety of options, including an update of the one presented in Díaz-Bonilla, 2013b. Here it is argued that carefully defined eligible production (perhaps by capping the percentage of production to be bought, by restricting purchases to come only from a certain type of producer such as the “low income or resource poor” ones, or by other similar approaches) and allowing the FERP to be defined in US dollars (or a basket of currencies, such as the SDRs) may go a long way to solving the problem that developing countries may face about exceeding the *de minimis*. Additionally, to align the economic and legal aspects of the operation of food stocks, it would be useful to clarify the relationship between “administered prices” and “market prices” and not to penalize schemes in which the former basically do not exceed the latter, therefore complying with the requisite that food stocks should be purchased at (no more than) market prices to be considered within the Green Box (Díaz-Bonilla, 2013b; see also the interpretation of Matthews, 2014).

The paper further discusses some economic issues that frame the discussion about food security stocks, noting the new context of higher (in nominal terms) and perhaps more volatile food prices, in part associated with expanding links between energy markets and food production, supply and prices, and greater weather variability associated with climate change. These developments highlight the importance of considering diverse instruments, including food security stocks and domestic food aid, which were the focus of much debate before and during the Bali Ministerial.

Several general considerations about trade and other policy instruments and food security were also mentioned. It is important to note that trade, in most countries, has helped with food security by stabilizing domestic consumption versus more erratic domestic production and by decreasing food import bills as a percentage of total exports because of increases in world trade (Díaz-Bonilla, 2013a).

The current period of higher nominal prices has also led to more interest in food self-sufficiency. Clearly, developing countries will be very well advised to invest more in expanding and stabilizing their domestic agricultural production. But while the instinctive reaction of some policymakers and civil society advocates, both in the previous context of low world food prices and the new context of higher prices, has been to resort to protectionist measures, Green Box measures linked to investments in public goods are the true basis for competitiveness and productivity.⁶⁴

In that regard, the AoA does not constrain “good” policies used by developing countries to address poverty and food security, such as programs aimed at poor producers or consumers, stocks for food security, and domestic food aid for populations in need. However, it also does not much constrain “bad” policies either, in both industrialized and developing countries.

Overall, the most important constraints in developing countries to designing and implementing adequate trade and non-trade policies to help with food security continue to be their limitations in financial and human resources and institutional capabilities. It must also always be remembered that general trade policies are not necessarily the main factor affecting food security and that, in any case, trade policies are blunt instruments with which to address the challenges of poverty and hunger: the latter materialize at the level of heterogeneous households and individuals and require a multi-dimensional approach. Therefore, special and differential treatment defined at the national and crop level (even if called

⁶⁴ Several developing countries claimed that the measures listed in the Green Box, including the one related to General Services (Annex 2, paragraph 2) refer to public investments and services as they exist in rich countries, and therefore they asked that the list be expanded to include other programs more related to the needs of the developing countries. The 2008 Modalities reflected that request and included a modified list in the corresponding paragraph, with measures which were supposed “to promote rural development and poverty alleviation.” At Bali a watered-down version of the language of the 2008 Modalities was approved. In Díaz-Bonilla and Laborde (forthcoming) we discuss this issue further. In our opinion, developing countries were asking for something that they already had under any reasonable interpretation of the current AoA, and further, the new language does not change what there was already there.

“food security crops”) may not focus on the main problem; rather, it is important to have well targeted safety nets for the poor, both consumers and producers.

Rather than some approaches that focus on price volatility or price extremes as the main cause of food insecurity (a unidimensional approach), this paper has highlighted a variety of “damaging fluctuations” and governance and macroeconomic problems that are crucial determinants of poverty and food insecurity. It has also been mentioned several times the need to take a multidimensional approach and develop an integrated framework for food security and poverty alleviation, which includes but goes clearly beyond the potential link between high and volatile prices and food security.

The best policy approach would include: a relatively neutral trade policy; support to land and water ownership by small producers and landless workers; investments in human capital, infrastructure, climate change adaptation and mitigation, and agricultural R&D; appropriate management of natural resources; strengthened safety nets for the poor and vulnerable (conditional cash transfers, school lunches, women and infant nutrition programs, food-for-work); women’s empowerment programs; community organization and participation, particularly for the poor and vulnerable; adequate functioning of product and factor markets; macroeconomic stability; and overall good governance, including strong efforts to reduce corruption and ensure public safety.

The paper then focuses specifically on food stocks and the issue of prices stabilization. After reiterating that price stability is just one among many factors affecting food security, it was noted that food stocks are not the only, and in many cases not even the best, policy tool to stabilize prices and incomes. A unidimensional policy analysis going lineally from food stocks to price stability to food security would ignore significant parts of the relevant policy issues and contextual variables that affect food security. In particular, inadequate monetary, fiscal, and monetary policies may have more relevance for inflationary pressures in food markets than product-specific policies, including food stocks.

Still, considering that the debate that almost derailed the Bali negotiations focused on food security stocks, several economic and operational issues merit analysis. In line with other analyses, this paper distinguished food stocks for emergencies (type 1) and redistribution (type 2) from stocks for price stabilization (type 3). In turn it was noted that the latter may focus on single prices, price bands, and price extremes, and briefly discussed some aspects related to the operation of these various types of stocks.

Depending on a country’s conditions, emergency food stocks (type 1) and food redistribution stocks that are part of safety nets and targeted food programs (type 2) may be necessary to achieve food security objectives in some categories of countries. If there is enough production, buying food domestically at market prices would be the best option. This would not only make their operation compatible with the Green Box of the AoA, but it would make economic sense as well. Poor countries should not add to the costs of their food security programs (emergency and redistributive) by using administered prices that may generate further losses by buying high to support farmers and then selling low to subsidize consumers. This approach would most likely generate severe fiscal problems long before other WTO Member consider the possibility of bringing a trade case against the country.

The paper also noted that food stocks for emergency purposes and those that operate as redistributive devices backing up safety nets and other targeted food aid programs, if purchased domestically, expand domestic food demand and support prices compared to the counterfactual that no such program existed. Still, in the case of the redistributive food stocks plus food aid, it is necessary to evaluate the development and competitive operation of markets by the private sector against the costs and benefits of having the government perform the purchasing and distribution functions. With the continuous integration of markets in LAC and Asia, and the slower but nonetheless similar process present in Africa, the cost/benefit analysis of the different options should be reassessed in those countries with large governmental intervention in food markets. Reardon, Chen, Minten, and Adriano (2012) note that Fair Price Shops in the public distribution system in

India handle about 15 percent of the rice consumed in New Delhi, while the incipiently expanding supermarkets are already reaching 7 percent of consumption (although it may be the case that customers from those two types of retail outlets differ).

The issue of food price inflation and price extremes would be better managed by a combination of macroeconomic, trade, and investment policies combined with safety nets that try to supplement the incomes of the poor. But whatever type of public food stocks is implemented, it is important to consider additional policies such as credible early-warning and food-security information systems and embedding the operation of the stocks in an integrated policy framework for food security. And when public food stocks are built, they need to have properly defined objectives and managerial rules and be adequately sized, financed, and operated.

The section on the new context for food security also noted the challenges posed by the triple burden of nutrition and recent studies that show that increases in dietary diversity, not in calorie availability, are more closely related with declines in stunting and wasting in children and underweight in mothers. Thus, food security stocks based on a limited number of staple crops, usually selected for their calorie content, may not be the best approach to tackle the multiple challenges of under- and mal-nutrition.

The need to look for a more permanent solution to replace the “peace clause” will keep food security concerns at the center of future WTO negotiations. The consideration of food security stocks and domestic food aid in Annex 2 of the AoA will require a full debate of the legal, economic, and diplomatic issues involved. That debate will benefit from the on-going efforts to revisit the topic of the operation of food stocks (for emergencies, food security, and stabilization) and to understand what has worked and what has not (as suggested by Timmer, 2013). More generally, WTO Members need more precise analysis of the quantitative impacts of the different options considered, not just food stocks, when defining food security policies that are equitable and efficient. This is separate from the legal issues that are part of the search for a “permanent solution” to the issues discussed at Bali.

However, even if the variety of WTO legal options to address food security concerns are clarified and the main economic, social, and operational problems are understood, the more complex political economy of the trade negotiations and trade issues may impose further constraints to finding an adequate resolution during the next WTO Ministerials, given the important changes in the world economy. Some of those new developments include the strong growth of developing countries (which now represent more than half of global GDP at PPP prices), the important advances of these countries in agricultural production and trade, and the increases in policy support to developing countries’ agricultural sector. The dual situation of countries like India, which is now a net food exporter overall and a leading exporter in several key food items (such as rice and beef) but at the same time has an agricultural sector with a large presence of small and poor farmers, was also mentioned as a further complication to future negotiations.

As noted in Díaz-Bonilla (2013a), these developments have led to the emergence of at least two very different narratives. On the one hand, developing countries see industrialized countries that have productive advantages in farm size, land, water, climate, infrastructure, R&D, credit conditions, and the like, and ask, legitimately, why those countries need the levels of protection and distortionary subsidies that they are allowed under the Agreement on Agriculture (AoA). Many developing countries see their own producers, who as a general rule are clearly poorer, farm significantly smaller areas, struggle with water and climate constraints, and suffer from weak infrastructure and lack of R&D and credit support, and conclude that there are clear imbalances in the AoA that benefit industrialized countries and disadvantage poorer countries. Therefore, developing countries try to expand their “policy space” and limit that of industrial countries,

On the other hand, industrialized countries see developing countries’ advances in production and trade (and their own shares decreasing), the expansion of these countries’ agricultural support, the sheer number of farmers in developing

countries, all the potential policy space already existent in the AoA, and the possible expansion of this space under the 2008 Modalities, and worry not only about current and future access to the markets of developing countries, but also, eventually, about potential displacement of production in their domestic markets by exporters from the largest emerging economies. Industrial countries therefore are reluctant to diminish their levels of protection and subsidization, as demonstrated by the refusal at Bali to accept further disciplines on agricultural export subsidies, a practice that is already prohibited for non-agricultural products under the WTO. Besides clinging to the trade dispensations they got in the Uruguay Round, developed countries have also resisted general expansions of “policy space” for developing countries.

These two narratives must eventually converge on a more realistic appreciation, on all sides, of the new facts and responsibilities of the global agricultural system if improvements in the governance of global trade are really going to take place (Diaz Bonilla 2013a; 2013c).

Furthermore, an analysis based only on the dichotomy of developed and developing countries may miss much of the increasing complexity in substance and in the political economy of global trade negotiations, as the experience at Bali showed (Díaz-Bonilla, 2013a and 2013c; Díaz-Bonilla and Laborde, forthcoming). Intricate bifurcations of interests are clear among WTO membership, even among low-income developing countries. In particular, the increases in economic size and in the full use of policy instruments to support agriculture in several large developing countries may lead to changing alliances within the heterogeneous group of developing country Members

Another consequence of the complex political economy of the future negotiations may well be the fragmentation of the single undertaking envisaged in Doha into parallel negotiations involving different topics and varying numbers of WTO members. The drafting of the work program for 2014 and beyond to chart a reasonable path for the multilateral trading system, including finding a permanent solution to the issue of public food stocks, will require substantive economic analysis, foresighted political flexibility, and a realistic dialogue among WTO Members.

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