

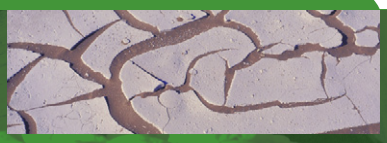

Net Food-Importing Developing Countries

Who They Are, and Policy Options for Global Price Volatility

By Alberto Valdés, Research Associate at the Universidad Católica de Chile, Santiago
William Foster, Professor at the Universidad Católica de Chile, Santiago.

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LIST OF ABBREVIATIONS AND ACRONYMS

CIF	Cost, insurance and freight (border import price)
CPI	Consumer Price Index
DICONSA	Sistema de Distribuidoras CONASUPO, Mexico (Compañía Nacional de Subsistencias Populares)
ESA	Agricultural Development Economics, FAO, Rome
FAO	Food and Agricultural Organisation of the United Nations
FAOSTAT	FAO Corporate Statistical Database
IMF	International Monetary Fund
IFPRI	International Food Policy Research Institute
LAC	Latin America and the Caribbean
LIFDC	Low Income Food Deficit Countries
NAEX	Net Agricultural Exporters
NAIM	Net Agricultural Importers
NFEX	Net Food Exporters
NFIM	Net Food Importers
NGOs	Non Governmental Organisations
NTBs	Non Tariff Barriers
OECD	Organisation for Economic Cooperation and Development
PAL	Programa de Apoyo Alimentario, Mexico
PPP	Purchasing Power Parity
UN	United Nations
UNCTAD	Conference on Trade and Development of the United Nations
US	United States of America
VAT	Value Added Tax
WB	World Bank
WFP	World Food Program
WTO	World Trade Organisation

FOREWORD

Since the Marrakesh Decision was adopted in 1993, the challenges facing poor least-developed countries and net-food-importing developing countries have evolved considerably. Most recently, these countries have had to contend with high and volatile prices for agricultural commodities, including for basic foodstuffs, limited progress in advancing the reform agenda that was agreed to in the Uruguay Round, and a new trade policy environment including more widespread application of measures such as agricultural export restrictions and biofuel subsidies.

The most appropriate approach to classifying and defining the countries affected by these developments continues to remain problematic, with substantial trade and food security differences between and within the two country groupings defined in the Marrakesh Decision (LDCs and NFIDCs), the existence of other country groupings in other institutional frameworks (such as the 'low-income food deficit countries' classification used by the FAO), and the desire of countries who are not part of the WTO classifications to achieve recognition for what they argue are similar circumstances and challenges. At the same time, donor countries have reportedly been reluctant to extend further privileges to the two groups identified at Marrakesh, on the grounds that the significant differences between the LDC and NFIDC groups warrant greater discrimination in the concessions that they may seek to accord to them.

In October 2011, net food-importing developing countries circulated a draft proposal for a work programme "to mitigate the impact of the food market prices and volatility on LDCs and NFIDCs" at the WTO, with three main components. The proposed work programme was to contribute to ensuring access of LDCs and NFIDCs to adequate supplies of basic foodstuffs; to develop rules to exempt LDCs and NFIDCs from export restrictions on basic foodstuffs enacted by other WTO members; and to address short-term difficulties that LDCs and NFIDCs face in financing imports of basic foodstuffs.

With WTO members unable to agree on how food security and other issues should be addressed in the absence of progress on the stalled Doha trade talks, the proposal was not adopted by the WTO's eighth ministerial conference in December 2011. The chair's summary issued at the end of the meeting simply mentioned that "some Ministers signalled their support for a proposal to establish a work programme on trade-related responses to mitigate the impact of food market prices and volatility, especially on LDCs and NFIDCs, for action by the Ninth Ministerial Conference".

While attention to date has focused largely on the type of trade policy framework that the international community should seek to establish in order to address the food security challenges faced by the countries concerned, relatively little attention so far has been dedicated to the types of trade policy instruments and options that may be available to domestic decision-makers in poor, net food-importing countries, and the most effective ways in which these could be deployed.

This paper, by Alberto Valdés and William Foster, therefore provides an evidence-based overview of the the type of policies and mechanisms that poor, net food-importing countries could use to overcome food security challenges in periods of high prices, in the context of the evolving trade and food security trends affecting various country groupings. It examines which countries and groups may be most vulnerable to high and volatile prices, looking at the evolution of agricultural and food trade in recent decades and projected future trends, and identifies trade policy instruments that domestic decision-makers could use in order to overcome food security challenges.

Ricardo Meléndez-Ortiz
Chief Executive, ICTSD

EXECUTIVE SUMMARY

This paper discusses net food-importing developing countries – the most vulnerable – in the light of the recent commodity price spikes: who they are, and policy options for dealing with global price volatility. From the 2007-2008 episode of rapid commodity price increases, there are three considerations to highlight for future policies. The first is that price spikes harm in proportion to the level of net food imports, a concern for the majority of developing countries. Fewer developing countries turn out to be net food exporters in 2010 compared to the mid-1990s. With the increase in the number of middle income countries there has also been an increase in the number of developing countries that are simultaneously both net-agricultural importers and net-food importers. These trends in import dependence are influenced not only by changes in world food prices, but also by increasing openness to trade integration, higher incomes and urbanisation levels which have led to altered patterns in diet, and as a consequence in trade patterns – changes likely of a permanent nature. This increasing import dependence could make more difficult selling a Doha-type trade opening.

The second policy consideration is the heterogeneity within farming. The poor are the smallest farmers, and most often are net food buyers. Moreover, the rural poor, at least in middle income countries, while having some income from farming (perhaps as labourers), more often rely on non-farm income, and so would not likely benefit directly from commodity price increases. The third consideration is that price spikes hit major commodities more than food generally. Even in the case of basic staples, the rapid transmission of price shocks from the border to consumer sales is often limited both by policy buffers and by weak market integration. The differential impact on prices of commodities and food is coupled with the correlation of higher incomes with a more diversified diet, which puts less emphasis on basic commodities and more on the value-added activities of transport, processing and marketing beyond the farm gate. Hence, even in low income countries, the concept of food self-sufficiency is today more difficult to define.

The price surges of 2007-2008 came as a surprise, exposing unprepared governments and international agencies to consumer-level concerns, especially of the poor. Government reactions were ad hoc and inconsistent, made more difficult by doubts about the permanency of higher prices. Today world prices are projected by the OECD and FAO to remain above their pre-2005 averages, although below their 2007-2008 spike levels. In addition there is likely to be a higher rate of volatility in world prices. One positive result of the 2007-2008 episode was that governments ought to be better prepared for future volatility and the next agricultural commodity price surge. But are they? As a general lesson, projections of future price trends highlight the potential social costs of neglecting farm sectors, and the importance of continuing gains in agricultural productivity. Although for most countries self-sufficiency is neither feasible nor efficient, programs to promote per-hectare productivity for smallholders (e.g., via extension and eased access to fertilizers and seeds) would boost the supply response to higher prices. Realistically, however, most food importing countries are likely to remain exposed to world price shocks.

The paper presents a brief review of the national policy responses to the price spike during 2007-08. There are some analyses of the impacts of the price spike and the various policies adopted in response, basically using simulations, but not measuring the welfare implications of real responses at the household level. This gap in our understanding is important for future policy recommendations. We know the measures, but we do not know their impact. Policy-makers and other actors will also need more explicit analyses of the fiscal implications of the various government options. There is a trade-off: funding for mitigation policies could divert resources from public goods or longer-term programs to expand food production. Another dimension is related to negative externalities of

export restrictions, which have exacerbated global prices spikes, and undermined the reliability and credibility of world food markets. There is a vicious circle: less reliable food sources along with greater world price volatility reinforces the domestic political incentives to insulate national markets.

On the import side, lowering tariffs to counteract price spikes is an effective option at the national level, but arguably has contributed to sustaining import demand, helping to keep international prices high. Some non-trade barriers can also be relaxed in times of high prices, although most NTBs are not legally discretionary in any event under the WTO. Although untargeted, the easiest and quickest response for a net importer is to adopt a variable import tariff, as was in fact used during the 2007-08 price spikes in many countries. Across-the-board food subsidies are also untargeted, but tend to benefit poorer more than richer consumers. Food subsidies also tend to endure and are difficult to remove; distort price signals; are fiscally costly and likely unsustainable for most countries. Safety-nets are the most targeted response, but require preparation and effective management. Today many middle-income countries and some large low-income countries (such as India) have such programs, but many lower-income countries have had difficulty in the implementation of these safety-net policies due to limited resources and institutional capacity. International organisations could support such targeted transfers – perhaps in the form of food vouchers – in countries with limited resources, an initiative now being pursued by the World Food Program. Lower-income countries could move in the same direction as middle income countries, where there appears to be little excuse to favour other interventions over safety nets.

In passing, we should note that tying safety-net transfers to food price spikes becomes more politically attractive in middle income countries that have enjoyed past declines in poverty due to growth, but where the poverty line is still heavily influenced by the food basket. The more permanent recent trend upward in food prices overall in middle income countries, in comparison with the non-food component of the cost-of-living index, makes poverty reduction more difficult, unless the economic growth rate is high and wages of the unskilled are climbing quickly.[1]

The 2007-2008 price surge reignited a discussion over food reserves. Some degree of domestic stock holding – "pipeline stocks" – would cushion consumption and price changes in the case of crisis-level physical shortages due to cut-offs from suppliers, or due to temporary domestic price controls causing supply disruption. Domestic stocks for responding to international price spikes could complement the tariff reduction option when stock releases could in fact reduce consumer prices. But government stocks, taken as strategic reserves, could significantly displace private stocks, if used also to smooth out price fluctuations, and not credibly committed to stock releases during crises only. There is also the possibility of holding costly government-subsidized stocks for years between price spikes. Whether or not preferable to border policies, the recent economic downturn also highlights the *fiscal* attractiveness of other policies and market-based mechanisms: commodity exchanges and price derivatives.

INTRODUCTION

Recently, international prices of agricultural and food commodities have returned to their "spike" levels of 2007-2008 (Figure 1). One might debate the degree to which these price increases are based on more fundamental changes in world supply and demand, or on the effects of currency depreciation or both. The root cause of these changes, however, matters little for the short-run impacts of such spikes on the welfare of consumers, especially poor consumers, and the wherewithal of poorer countries to sustain large food import bills. In this paper we discuss some policy instruments to address periods of high food prices in the most vulnerable countries – lower-income, net-food-importing countries. There are international programs and proposed programs that might complement domestic policy responses. For example, the IMF has a program for financial assistance to aid countries in the case of rapid increases in the food import bill. There is direct food aid from various developed countries and the World Food Program. Various authors, including the FAO, the IMF, and various ICTSD documents have dealt with proposals for responses of international agencies; here we focus on domestic options for lower-income, importing countries.[2]

But there is an initial question that we should address, which appears to be only partially understood in the current discussion over policy options: who are these poor, net-food-importing countries? Are there many such countries? Are they large, small, perhaps geographically concentrated? We present a taxonomy of various countries according to their net trade position and income category, which serves to update the earlier work in late 1990s of Valdés and McCalla (2004). We note that there has been change over time in the number of these vulnerable countries, and that there has been a transition from net agricultural exporters to net agricultural importers.

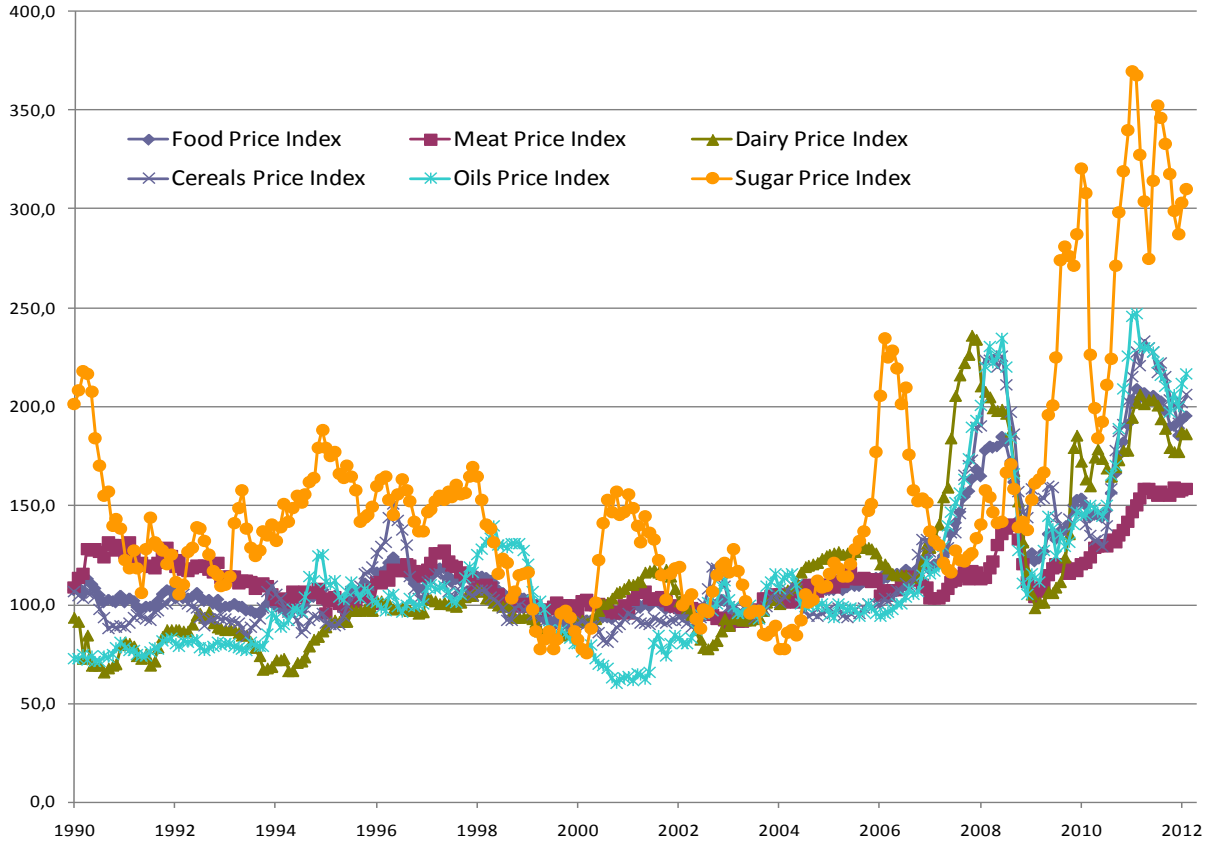
In making this country taxonomy, the policy analyst would like to put emphasis on the exposure to risks associated with international price shocks, taking into account countries' food import capacity and the importance of trade for agriculture (sometimes referred to as agricultural tradability). Vulnerability to price spikes depends on three important parameters: (1) income levels, (2) net trade position, and (3) the availability of foreign exchange reserves and earnings net of short-term foreign debt. A focus on low income levels is important, because they are associated with food having a higher share in household expenditures. The distinction between the net *food* trade position and the net *agricultural* trade position is important. It might be the case that a country, although food deficit and dependent on imports, gains overall from spikes in commodity prices, because the country is a net agricultural exporter. That net agricultural exporters were the majority of developing countries was the perception of many analysts in the debate surrounding multilateral trade negotiations.

1. CONTEXT: WORLD POVERTY IN DECLINE, BUT STILL DAUNTING

During the last three decades, the share of world's population in poverty has been declining, from 70 percent to under 50 percent, using the US$2/day threshold. Although the challenge is still daunting in many countries, an individual country's current policy response to food price increases is likely dealing with a relatively smaller proportion of the population that is vulnerable (Figure 2). As noted in the World Bank's Global Poverty Update for 2012, "For the first time since this monitoring task began, the data indicate a decline in both the poverty rate and the number of poor in all six regions of the developing world" (p. 2). But note in Figure 2 that the data end in 2008. The FAO (2010) reports that the number and the population percentage of undernourished increased during the 2008-2009 commodity price spikes, although in 2010 the proportion returned to the long-term declining trend.

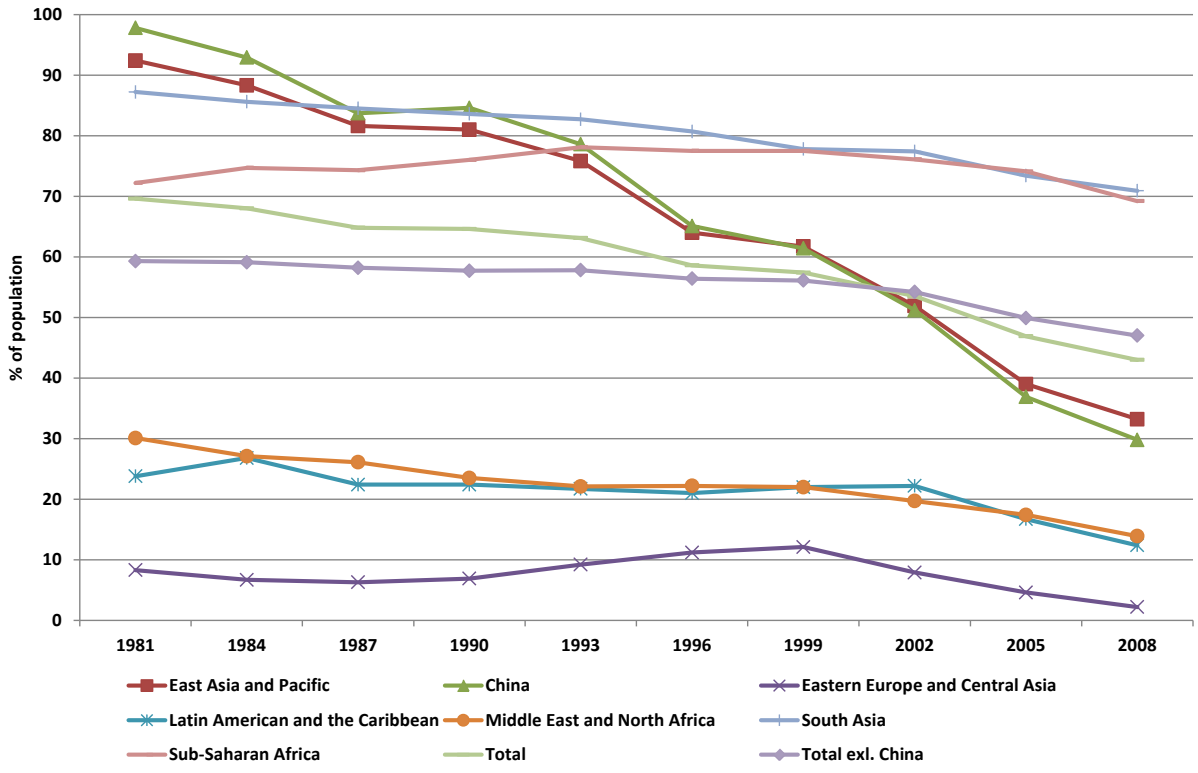
A further consideration is that the composition of household consumption baskets becomes more diverse as incomes rise, both at the micro and national level, altering the short-run dependence of a country's population on specific commodities. Diets in many countries, which have enjoyed economic growth over the last several decades, likely have become less "tropical" and more oriented to tradable commodities. Nandakumar, et al. (2010) note that, for India, China and other countries from south and south-east Asia, higher incomes have led to more diversified diets. For example in India, cereals in consumption have been increasingly overtaken by vegetables, fruits, milk, and meats, although grains are still important for farmers' income. As the consumption basket shifts, exposure to food price risks also shifts from local conditions to international conditions. Mitigating this exposure is that, with the increased basket diversity, consumers have more flexibility to move from foods with increasing prices to other foods that become relatively less expensive.[3] At the country level, in the case of increasing food imports that accompany higher overall incomes, there might be a declining import capacity – but one should always consider the net effect, given the correlation of world prices of exportables and importables.

Figure 1. FAO monthly real price indices for food 1990-2012. (2002-2004 = 100)



Source: FAO. Real is defined here in terms of the manufactures unit value index of the World Bank.

Figure 2. Poverty rates for the developing world (US$2/day PPP), 1981-2008.



Source: An update to the World Bank's estimate of consumption poverty in the developing world. 2011

2. AN INCREASE IN NUMBER OF NET AGRICULTURAL IMPORTERS: A TAXONOMY OF COUNTRIES

The FAO classifies countries according to income levels and food import position, the group of most concern comprising low-income, food-deficit countries (LIFDC). Small island developing countries (SIDC) are of particular interest due to their vulnerability and high dependence on the smooth flow of trade. More generally, we classify countries as net food importers and exporters (NFIM, NFEX) and net agricultural importers and exporters (NAIM, NAEX), based on import and export value data from the FAO. Income classifications we take from the World Bank. In determining net trade positions in all agricultural goods, we use the entire list of FAO, but for the purpose of assessing the net trade position in *food* we consider the commodities most important for basic diets: cereals, meat, dairy and eggs, vegetable oils, and sugar. The reader should note that food here is different from FAO's list of food, which includes a large range of raw and processed items, from almonds to chocolate to yoghurt.

One notes from Tables 1 and 2 that there has been a transition in the count from low to middle income since the mid-1990s. The analysis of the net trade position of countries by Valdés and McCalla (2004) counted 43 percent of 148 developing countries as "low income", but today 24 percent of 145 are "low income". The number of developing countries has increased from 74 to 89 that are simultaneously both net-agricultural importers and net-food importers, and this increase has happened in all income categories. Over the last decade this increase in the number of countries with greater exposure to food and commodity price spikes is mainly due to a switch from net agricultural exporters to net agricultural importers, while the number of net food importers remains constant. Table 3 shows the countries that switched from being net agricultural exporters to net agricultural importers over the last decade. Many of these countries are relatively small, and in several cases this change from exporter to importer reflects internal political disruptions and civil wars. In these latter cases, agronomists would play a minor role in resolving production problems resulting from political instability. A few countries are transitioning from an agricultural economy to a more diversified one. In all cases, these countries represent a small fraction of world trade.

How probable is it that the world price situation could reverse in the future in such a way that it changes the count of net agricultural and net food importers? To begin to answer this question, more in-depth research would require correlating relative price changes with the evolution in the composition of exports and imports, and thus in the net trade status of countries. But more important than changes to simple relative prices of commodities and food, international trade integration, higher incomes and urbanisation levels in developing countries have led to altered patterns in diet, domestic demands and, as a consequence, in trade patterns. These demographic and development-related changes are likely of a more permanent nature, and so are apt not to be reversed in the near future.

This discussion invites the question of whether or not it is getting more difficult to "sell" a Doha-type trade opening. The question is more relevant as the number of countries which are both net-agricultural importers and net-food importers increases while the near future appears to be of increasingly volatile world prices. And not all volatility of the food import bill is due to international price fluctuations. One does not know at this level of aggregation to what degree the variability of a specific country's net import bill for agricultural goods and foods is due to quantity changes or to price changes.

To the degree that a country's switch from net agricultural and net food exporter to importer is due to production and consumption associated with higher incomes, this is a positive

development and associated with an enhanced ability to absorb price volatility. Of course, the additional exposure that a greater dependence on agricultural imports might open a country to risk would depend on the net domestic demand for components of such imports: food staples (wheat) versus non-staples (fruits and wine) versus non-food (cotton and feedstuffs). As a historical reference point, Valdés and Konandreas (1981) show that during the 1960s and 1970s only about 25 percent of the variability of food import bills was due to price variability, the rest due to quantities, which is mainly a result of internal supply and demand fluctuations. (At the time world grain prices were more stable and food aid relatively more important.) More recently, Konandreas (2012), decomposing the increase in food import bills between volume and price changes, showed that for the majority of countries much of the total increase was due to price rises (and for some countries, 100 percent).

Table 1: Developing Country Trade Balance and Income Taxonomy 2005-2009

2005-2009

Country type	Low income	Low middle income	Upper middle income
Low income food deficit	34	32	0
Small island developing	3	15	15
Net food importing	35	37	39
Net food exporting	0	14	11
Net agricultural importing	26	31	37
Net agricultural exporting	9	21	13

1995-1999

Country type	Low income	Low middle income	Upper middle income
Low income food deficit	34	32	0
Small island developing	3	15	15
Net food importing	34	38	40
Net food exporting	1	13	12
Net agricultural importing	19	26	33
Net agricultural exporting	16	26	17

Source: Authors from FAOSTAT. Note that low income is $1,005 or less; lower middle income, $1,006-3,975; upper middle income, $3,976-12,275 (WB 2011). Note that LIFDC is FAO's definition, not ours. All other categories follow our definition.

Table 2: Net food and agricultural importers/exporters in developing countries by region

2005-2009					
Trade position					
Region	**Net ag and net food importing**	**Net ag exporting and net food importing**	**Net ag importing and net food exporting**	**Net ag and net food exporting**	**Total**
East Asia & Pacific	13	1	0	6	20
South Asia	6	1	0	1	8
Latina America & Caribbean	16	6	0	8	30
Europe & Central Asia	11	2	3	4	20
Middle East & North Africa	12	0	0	0	12
Sub-Saharan Africa	31	12	1	2	46
Total	89	22	4	21	136
1995-1999					
Trade position					
Region	**Net ag and net food importing**	**Net ag exporting and net food importing**	**Net ag importing and net food exporting**	**Net ag and net food exporting**	**Total**
East Asia & Pacific	12	2	0	6	20
South Asia	6	1	0	1	8
Latina America & Caribbean	11	9	1	9	30
Europe & Central Asia	9	5	2	4	20
Middle East & North Africa	11	1	0	0	12
Sub-Saharan Africa	25	18	0	3	46
Total	74	36	3	23	136

Source: Authors from FAOSTAT.

Table 3: Countries that switched from being net agricultural exporters to net agricultural importers over the last decade and the period in which the change occurred.

Benin	2005-2009
Burundi	2000-2004
Chad	2005-2009
Cuba	2000-2004
Dominican Republic	2000-2004
El Salvador	2000-2004
Kazakhstan	2005-2009
Kyrgyzstan	2005-2009
Madagascar	2005-2009
Mali	2005-2009
Mauritius	2005-2009
Mongolia	2000-2004
Saint Vincent & Grenadines	2000-2004
Solomon Islands	2005-2009
Somalia	2000-2004
Sudan	2000-2004
Srian Arab Republic	2000-2004
Tajikstan	2005-2009
Turkmenistan	2005-2009
Zimbabwe	2005-2009

Source: Authors' elaboration based on FAOSTAT data.

3. OBSERVATIONS FROM THE 2007–8 PRICE SPIKES

3.1 Three Considerations for Future Policy Development

There are three considerations to highlight that arise from the 2007-2008 episode of rapidly rising commodity prices and which should be taken into account when thinking about future policies. The first is that price spikes harm in proportion to the level of net food imports, which, as it turns out today, is a concern for the majority of developing countries. Fewer developing countries turn out to be the net food exporters that could benefit from agricultural commodity price spikes. Of course commodity producers gain, but also the country as a whole can benefit from net food exports in the form of foreign exchange earnings. Some governments can also reap fiscal revenues from export taxes. Such taxes and other export restrictions, to the extent that they discourage exports, raise concerns at the international level, because net exporters, by giving in to the temptation to use such measures, could amplify world price increases in global markets.

The second consideration is one of policy concern for those interested in rural development and poverty alleviation: regardless of whether a country is a net food/agricultural importer or exporter, there is always heterogeneity within agriculture. The poor are the smallest farmers, and most often are net food buyers. Moreover, the rural poor, at least in middle income countries, while having some income from farming (either as farmers or farm labourers), more often rely on non-farm income sources, and so would not likely benefit directly from commodity price increases.[4]

The third consideration is that price spikes hit major commodities more than food generally, the prices of food reflecting not only farm products but other costs all along the agro-processing chain. Even in the case of basic staples, the rapid transmission of sharp price shocks from the border to consumer sales is often limited both by policy buffers and by weak market integration – that is, the high transaction costs linking national to international markets. Price transmission in the case of non-commodities – mainly processed products – is probably even more limited in the short term. As noted previously, this differential impact on prices of commodities and food is coupled with the correlation of higher incomes with a more diversified diet, which puts less emphasis on basic commodities and more on the value-added activities of transport, processing and marketing beyond the farm gate. This income effect has occurred even in low income countries. A lower transmission to individual consumers, however, for whatever reason, does not change the fact that the country as a whole must pay more for imports of the basic commodity, and so the country suffers an income loss.

And from a longer term perspective basic commodity prices have generally shown a downward trend. Among commodities, tropical agricultural product prices have experienced the strongest downward trend since the late 1800s, followed by non-tropical agricultural commodities and minerals - except importantly oil (Erten and Ocampo, 2012, who include data until 2010). In other words, the relative terms of trade of tropical agriculture have been declining. Only recently, since the early 2000s, have non-tropical agriculture and minerals been reversing the historical trend, and with higher relative prices there are incentives to invest more in agriculture, to move resources from urban to rural activities.

With global development come “new” products, which are more likely not to be commodities in the sense of being standardized and relatively easily stored and transported. Moreover, due to their non-commodity nature, there are (as yet?) few exchanges for these products, such as more-processed foods, fruits and horticulture. In summary, these non-commodity agricultural products have “stickier” prices and are less prone either to spike or to collapse. The magnitude of the price increases for these “new” products during 2007-08 was much

lower, smoothing the impact on real household incomes. We suggest that, in addition to the exchange rate appreciation against the dollar of many emerging economies, this diversification of diet beyond basic staples was a reason for the muted reaction in some countries to the international commodity price spikes. This suggestion, of course, would require further investigation into the evolution of consumers' food baskets in various countries.

3.2 The Range of Government Policy Responses to the Price Spikes

The immediate response of many governments was to protect consumers by keeping the lid on food prices. Active governments made use of a variety of border measures: both tariffs and non-tariff barriers were reduced in order to reduce the domestic prices of importables. Some governments – Argentina, Ukraine, and Thailand – made use of export restrictions, including export taxes and simple export bans. Without resorting to outright bans on exports, some countries employed export quotas. Such export restrictions worsened the international price situation; insulating domestic markets from world price spikes with export bans and quotas exacerbates price increases in global markets. In the case of Argentina, export taxes and quantitative restrictions, while generating government revenues, appear to have failed to secure low prices to local consumers, although negatively affecting domestic agricultural output (Nogues, 2011).

Border measures, including export restrictions, are easy and quick. There are some fiscal costs, but restricted exports might even increase government revenues. Table 4 (taken from Demeke et al., as summarized by Abbott, 2010) shows the counts of countries that undertook a variety of interventions during the 2007-2008 price spikes. Table 5 is our compilation of responses of individual countries in Latin America and sub-Saharan Africa. The most frequent action was a reduction in tariffs (and customs fees). Several countries reacted by supporting consumers more directly, such as through cash transfers to poorer households. During the price spikes, there were also non-trade interventions to control prices (such as on the basic staples of bread, grain, and milk). Some governments sought to release buffer stocks, expand food distribution programs, and subsidize food prices. Although many countries had removed subsidies during the reforms of the 1990s, some maintained such food subsidies schemes (e.g., Egypt and Tunisia). As a general rule, however, initiating internal measures for food distribution and subsidies are fiscally costly and logistically difficult to implement.

With respect to the efficacy of using tariffs, if tariffs are low, the margin for reduction is limited on the down side. But if tariffs are high, large decreases might have fiscal consequences.[5] In any event, the pass-through from border to domestic farm and retail prices (often called the price transmission elasticity) varies among countries and across products even within the same country. Some countries have been able to shelter their domestic markets far more than others, and some authors suggest that the pass-through of prices tends to be higher in lower income countries (de Janvry and Sadoulet, 2008).

Many governments simply did nothing, sometimes because domestic markets were insulated from commodity price spikes for a variety of reasons (e.g., a greater reliance on non-tradables, such as cassava and yam), and sometimes because of a lack of resources or the institutional capacity to respond.

More interestingly from the perspective of future exposure to risks of net food importers are the interventions to increase levels of support for domestic production. The export restrictions imposed by net exporters contributed to the perception that international markets were unreliable; and so some net importers sought to reduce future risk by pushing for greater self-sufficiency in food staples. These reactions emphasize the importance of an open and rule-based trading system that would mitigate price volatility and so contribute to global food security.

Table 4. Number of countries adopting policies during the 2007-2008 price surge.

Measure	Africa	Asia	LAC	Total
Tariff and fee reduction	18	13	12	43
Ban or restricted exports	6	13	4	23
Reduction of VAT and other taxes	14	5	4	23
Stock releases	13	15	7	35
Administered prices	10	6	5	21
Cash transfers	6	8	9	23
Disposable income aid	4	8	4	16

Source: Demeke, Pangrazio and Maetz (2008) as presented by Abbott (2010).

Table 5. A survey of country responses to the 2007-2008 commodity price spikes.

Countries: Latin America, Sub-Sahara Africa and China	Border measure change in response to price spike				
	Reduction or elimination of import tariff and quota	Raising export taxes	Export quota or control yes	Export ban	Govt to govt trade*
China		yes	yes	yes	
Argentina		yes		yes	
Bolivia	yes	yes*		yes	
Brazil	yes	yes*			yes*
Chile	Did nothing				
Cuba					yes*
Dominican					
Rep.	Did nothing				
Ecuador	yes				yes*
El Salvador	yes				yes*
Guatemala	yes				
Haiti	Did nothing				
Honduras	yes			yes	
Mexico	yes				
Nicaragua	yes*				yes*
Peru	Did nothing				
Benin	yes				
Burkina Faso	yes		yes		
Ethiopia				yes	
Guinea				yes	
Madagascar	Yes			yes	
Malawi				yes	
Niger	yes				
Nigeria	yes				
Senegal	yes				
United Rep. of					

Table 5. *Continued*

Countries: Latin America, Sub-Sahara Africa and China	Border measure change in response to price spike				
	Reduction or elimination of import tariff and quota	Raising export taxes	Export quota or control yes	Export ban	Govt to govt trade*
United Rep. of					
Tanzania	yes			yes	
Zambia			yes	yes	
Did nothing: Angola, Burundi, Cameroon, Central African Rep., Chad, Cote d'Ivoire, Dem. Rep. of the Congo, Eritrea, Ghana, Guinea-Bissau, Kenya, Lesotho, Liberia, Mozambique, Namibia, Sierra Leone, Somalia, Africa, Sudan, Swaziland, Uganda, Zimbabwe.					

Sources: Yes, without star from FAO, The State of Agricultural Commodity Markets 2009. Annex Table 1, Policy responses to rising commodity prices in selected countries. With a star, from the World Bank draft policy note, "Don't play with food: Managing volatility in agriculture markets in LAC".

3.3 For Recommendations, Ideally Evidence Should Be from the Household

Do we have an evaluation of the impacts and cost effectiveness of these governments' actions during the "crisis"? There are some analyses of the impacts of the 2007-2008 price rise and the various policies adopted in response. Most of these analyses make use of simulations,[6] and are not measuring the impacts of the price increases in terms of real responses at the household level, with the endogenous adjustments in consumption, production and labour income. Certainly, we would anticipate a range of effects on prices along the marketing chain, and the change at the farm gate would be different than that at the wholesale and consumer level. There are at least three cost levels at which price transmissions from the border could be measured: farm, wholesale and retail. Moreover, with processing one could distinguish between, say, bulk wheat as grain and bulk wheat as flour. In any event, border price changes would exaggerate the impacts on both consumers and producers.

For future policy recommendation we would like to have an analysis of the actual 2007-2008 post-spike impacts on individual households, both anticipated and unanticipated, of government policies. There are few analyses of the realized effects of price spikes at the household and farm level and the accompanying dynamics in adjustments to consumption and production patterns and income generation.[7] And at the state level, did the crisis induce a more-permanent deviation from pre-spike policies? Or was the reaction during the crisis transitory? Which economies are now more integrated into world markets, which retreated toward more self-sufficiency? Which governments sought longer-term buffers? Many announced, but how many implemented? For example, Brazil, Ecuador, Honduras, Mexico and Bolivia announced reserves, but only Brazil actually has one of significant size.

One recent attempt at analysis is the set of descriptive and interpretative country case studies sponsored by the FAO Regional Office for Latin America and the Caribbean in Santiago.[8] For three of the countries studied, Bolivia, Dominican Republic and Peru, governments were assisted in cushioning the effects on consumers of the jump in the cost of food by the appreciation of the local currency. (We know that this was also the case for Brazil and Chile among other countries – but not something on which these countries can reliably count for the future.) For Mexico, where there is greater and continuous documentation at the household level, evaluations are available of policy impacts during the price spike. Mexico has many programs to aid the poor that have been operating for several years prior to the price spikes, and so the government was able

to reach quickly poor consumers likely to have been negatively impacted. For example, the program *Oportunidades* had access to two-thirds of the population in poverty, or 80 percent of the first income quintile. The national food program, PAL, covered about 680,000 families and was able to deliver a cash bonus equivalent to about one-fourth to one-third of the increase in the cost of food. Diconsa, a government-subsidized food distribution network for remote areas, was able to absorb in part the effects of the food-price increase. Soloaga (2012) estimates, by simulating what would have been the case in the absence of these programs, that the impact on poverty would have been 2 percentage points higher during the 2007-2008 price jump.

One point we should highlight is that the welfare effects of government policies should be measured at the household level. Households are not static in the face of price changes, whether due to international market changes or domestic policy changes. Beyond the first-order effect of a price change, there are at least three aspects that an evaluation should consider.[9] The first is the adjustments in consumption by all households and the adjustments to farm production in rural areas. In the case of commodity price increases, consumers will shift to cheaper substitutes and farmers will move to produce more of the higher price goods. The second aspect to consider is the effect at the rural household level of incomes changes due to prices changes. A price increase would stimulate consumption and investments by farm households, especially in the presence of credit constraints. For poorer countries this is likely of more importance than middle-income countries. Some households that are marginal buyers can go from being net consumers to net sellers of food, affecting family labour decisions. This in turn suggests a third aspect of household responses: in the case of price increases, enhanced profitability of commodity production (along with some farm households becoming net food suppliers) increases rural wages, absorbing to some extent the shock of the price spike. This last aspect is not likely to be enjoyed by urban workers. In any case, beyond the first-order effects estimated from simulation efforts, there are little household- and farm-based data and analysis of what really happened due to the 2007-2008 price spikes. Nevertheless, we suspect that the food-price spikes of 2007 and 2008 – especially in net-food-importing countries – did indeed stimulate private investments in agriculture, in addition to stimulating governments to promote their domestic agricultural sectors.

4. LOOKING AHEAD: SOME NATIONAL POLICY OPTIONS FOR ADDRESSING FUTURE PRICE VOLATILITY

Tangermann (2011) has underlined that the price surges of 2007-2008 came as a surprise, exposing unprepared governments and international agencies to consumer concerns and the consequences of a reduction in real household incomes, especially of the poor. The reactions of governments and agencies were ad hoc and inconsistent, the situation being made more difficult by doubts about the permanency of the higher price environment. In some ways, the commodity price spikes and the reactions of government and agencies were a reminder of the 1973 commodity era, when there was a perception that the world was entering a new regime of resource constraints and Malthusian predictions. Global prices eventually fell, and rather quickly after 1973, and until recently there was an anticipated continuing decline in world commodity prices. After 2005 perceptions began to change again, and today world prices are projected by the OECD and FAO to remain above their pre-2005 averages, although below their 2007-2008 spike levels. There are, of course, many complications to these projections in terms of real prices (i.e., purchasing power) facing world consumers and farmers, not least owing to the volatility of exchange rates.

One positive result of the 2007-2008 episode was that governments ought to be better prepared for future volatility and the next agricultural commodity price surge. But are governments today better prepared for the next price shock? Certainly, after all the analysis and the improved analytical experience since 2007, government should be better informed, at the very least. What might we have learned from this episode and the intervening few years? Several authors and organisations have developed a number of recommendations.[10] As a general lesson, projections of future price trends highlight the potential social costs of neglecting agricultural sectors, and the importance of continuing gains in agricultural productivity. Enhancing the domestic supply response – say, by raising small farm productivity – could promote food security by reducing import dependence. The fact is, however, that most countries will remain exposed to international shocks. But there are national policy responses to address price volatility. The question is, which are the policies that are least distortionary while at the same time effective in mitigating the impacts of price volatility? One important consideration is to avoid raising government expenditures beyond sustainable levels while lessening the effects of price spikes – but still letting price signals reach farmers. There is a trade-off: funding for mitigation policies could divert resources from public goods or longer-term programs to expand food production.

What we do know is that there are negative externalities of export restrictions, which have exacerbated global prices spikes, and undermined the reliability and credibility of world food markets. There is a vicious circle: unreliable markets propel countries to shift toward self-sufficiency, incurring high social costs – domestically and internationally. The resulting enhanced world price volatility reinforces the domestic political incentives to insulate national markets.

On the import side, lowering tariffs – when they are high – to counteract price spikes is an effective option at the national level, but arguably has contributed to sustaining import demand, helping to keep international prices high. Some non-trade barriers can also be relaxed in times of high prices, although most NTBs (e.g., sanitary and phyto-sanitary measures) are not legally discretionary in any event under the WTO.

The easiest and quickest response for a net importer is to adopt a variable import tariff, as was in fact used during the 2007-08 price spikes in many countries. The efficacy of this variable tariff is limited by the initial level, and there are fiscal costs, which, for some governments, would be a significant burden. The longer the

tariff reduction, the longer is the burden of the price increase shifted from consumers to the government in the form of lost tax revenue. Of course, from the perspective of global welfare, reducing tariffs in times of high international prices has fundamentally the same negative implications for international market volatility as imposing export taxes/restrictions. Moreover, if commodity prices continue rising, the tariff options becomes fiscally too costly for some countries, and consumers would eventually have to resume the burden of the higher food prices.

A more subtle problem with using the tariff option is that periods of high prices can be inducements for domestic investments in agricultural production. The opportunity for farmers to take advantage of occasional price increases can lead to a positive supply response, which in turn reduces the dependence on imports. In countries that set high tariffs as the norm before a price spike, having the one-shot tariff reduction option on the table, and having used it to mitigate past price spikes, would make uncertain the ability of investors to capture future returns, reducing the supply response (although it would help consumers in the short run). This is another example of the politicians' time-consistency problem for promoting longer term private investments. For countries that set low tariffs before a price spike, there would be little gain for the consumer to the lowering of the tariff level, and cash transfers or vouchers to consumers might be the best policy.

A tariff reduction in response to global price spikes is untargeted with respect to the degree of harm among consumers. Perhaps poorer households might benefit relatively more to the extent that they devote greater budget shares to importable food than richer households. Across-the-board food subsidies are also untargeted, although they do tend to benefit poorer consumers more than richer ones. Food subsidies also tend to endure and are difficult to remove; distort price signals; are fiscally costly and likely unsustainable for most countries.

Safety-nets are the most targeted response, and the most favoured by economists (Tangermann, 2011), but require preparation and effective management. Today many middle-income countries have such programs, and relied on them during the 2007-2008 increases (such as Chile, Mexico and South Africa).[11] But many lower-income countries have had difficulty in the implementation of these safety-net policies due to limited resources and institutional capacity. Where such programs are weak, it would be a mistake to rely only on them as instruments of delivering support during food price spikes. Dawe (2010) examined the responses of governments in Asia to the spike in rice prices and concluded that, for future food price surges, policy options should include both safety nets and border policies. We agree with Tangermann (2011) when he stresses that, given the limited effectiveness of market interventions, emphasis should be placed on moving toward well-designed and managed safety nets. Targeted cash transfers – triggered by higher local food prices – have been used in several middle-income countries, where the resources and administrative capacity are available. International organisations could support such targeted transfers – perhaps in the form of food vouchers – in countries with limited resources, an initiative now being pursued by the World Food Program. Another potential approach that could be supported by the international donor community is a type of global food stamp program, as described by Josling (2011).[12]

There appears to be little excuse for middle income countries to favour other interventions over safety nets. And lower-income countries could move in the same direction. In addition, safety nets avoid the price-volatility spillovers onto international markets of adjusting border measures to cushion domestic consumers. Given the external benefits of a country using safety nets, rather than border measures with negative spillovers, there is a role for multilateral agencies and the donor community to assist the design, implementation and financing of safety nets, as has been addressed by the World Bank in many country programs.

And such safety nets are not simply a potential response to food price increases, but are more general and can address the vulnerabilities associated with nutrition, health, and housing.

The 2007-2008 price surge has also returned to the fore a discussion of food reserves (Gilbert, 2011, and Abbott, 2012). Some degree of domestic stock holding ("pipeline stocks" – some number of months of consumption) would cushion consumption and price changes in the case of crisis-level physical shortages due to cutoffs from suppliers (export ban and taxes), or due to temporary domestic price controls causing supply disruption. Domestic stocks for responding to international price spikes could complement the tariff reduction option when stock releases could in fact reduce consumer prices. But government stocks, taken as strategic reserves, could significantly "displace" private stocks, if used also to smooth out price fluctuations, and not credibly committed to stock releases during crises only. And there is the possibility that there could be several years of holding costly government-subsidized stocks in between price spikes.

Although government food stocks are often expensive and controversial, there are perhaps some versions of public stocks that might offer another attractive instrument to confront local food-price volatility. For example, Ethiopia's Emergency Food Security Reserve Administration is a promising approach (Rashid and Lemma, 2011). It aims to be an independent agency where grain is "deposited" by donors, a one-time stock build-up by the government and NGOs, and with a commitment to minimize carrying stocks. It acts as grain custodian, responding to requests for loans, lending grain to the government and other agencies under strict rules. It serves as a type of grain bank, where loans must be repaid. But the Administration is not involved in where and when the grain is used by those requesting it.

But in general, as experience has shown for most countries, starting and managing large enough reserves of tradable commodities that could serve significantly to impact prices is expensive and likely distorting. Reserves limit transmission of signals along the supply chain, influencing private storage and users of commodity exchanges. Most middle income countries that have liberalized trade, and which are price takers in world markets, have opted for leaving stocks in the hands of the private sector.

Whether or not preferable to border policies, the recent economic downturn also highlights the *fiscal* attractiveness of other policies and market-based mechanisms: commodity exchanges and price derivatives. The benefits are straightforward of such policies, when they work: lower transaction costs, price discovery, the availability of hedging instruments, and allowing more sophisticated financing along the marketing chain. Certainly, there is a world price discovery role that is usually played by developed country exchanges, and many analysts suggest that improving local exchanges would help not only to hedge against sudden price spikes but also to promote local transactions. But there are barriers to the domestic use of international futures and options markets, the most obvious being product quality differences (e.g., white maize in Mexico and southern Africa) and local basis risk. For example, in the case of rice, international exchanges play a limited role due to the low correlation of local price with CIF prices for specific varieties and qualities. Nevertheless, even in the case of rice, world exchanges can offer a useful hedging tool in the event of a severe price spike. And moreover for more standardized commodities, such as wheat, soy and yellow corn, international exchanges can play and are playing a role in local markets.

In some developing countries, local exchanges are well established; in others, they are absent. Although developing country buyers, importers, processors and other enterprises have increased their use of local and international exchanges, one should not expect small farmers to participate. But consumers and farmers benefit from price discovery regardless. And policies that would facilitate local exchanges would reduce the financial exposure of investments all along the supply chain.

In general, however, the use of futures and options contracts is usually associated with deep markets and so prices of such contracts tend to be set in international exchanges. Governments could use hedging for food imports that are to be sold at pre-set prices domestically. (Some experiments along these lines have been done, such as in the case of Mexico using options to help assure farmer revenues, which in principle could also assure the costs of the agro-processer as buyer.) There is also the possibility of using call options against counter-cyclical safety net expenditures in the event of a price spike. A government could let the imports be handled by traders but pay for income supports to poor consumers from government hedging gains when prices rise. These suggestions, however, are of a more speculative nature. Individually many risk-exposed importing countries have more basic problems with effective administration, and would likely have difficulty with the financial wherewithal to pay "premiums" and to sustain the remaining idiosyncratic basis risk (the inability to contract insurance for specific risk at the country level).

In principle, the use of international derivative exchanges could reduce the risk to governments associated with the volatility of world commodity prices. There are, however, institutional barriers and the complexity of policy design and implementation. As suggested by Sarris (2010), this is an area where international assistance to developing countries could make a contribution by supporting national agencies and the private sector in constructing workable strategies and perhaps by financing initial start-up efforts.

ENDNOTES

1 The case of Chile is interesting. A high-middle-income country (slightly more than US$ 16,000 per capita PPP), Chile between 2009 and 2011 (post price spikes) had the food price component of its CPI increase by 13 percent while various other components fell, leaving a final CPI increase over the three years of 6.1 percent. For example, the clothing component of the index fell by 25 percent over the same period. The use of "bonos solidarios" – i.e., direct cash payments to lower income families – during the price spike episode was all the more attractive given that Chile's effective tariff levels on imports, including food, is zero.

2 Ahmad (2011), Gilbert (2011), Josling (2011) Konandreas (2012), Tangermann (2011).

3 See, for example, the household response analysis of Porto (2010) for the case of Mexico. His analysis takes into account demand responses to prices and rural wage responses to higher commodity prices.

4 Economists have developed simulation models of rural household behavior, disaggregating the types of rural household groups according to farm sizes, remoteness, dependence on farming, differing profiles of household labour resources, and differing assets. For a recent application see Brooks, Filipski, Jonasson, and Taylor (2012).

5 The World Bank has a program – Global Food Crisis Response Program – to compensate governments for loss of revenues due to lowering tariffs on imported food.

6 See, for example, Rapsomanikis (2009), Nouve and Wodon (2008), Coady, Dorosh and Minten (2009), Bouet and Laborde (2010), Yu, et al. (2011), Zezza et al. (2007).

7 One simulation analysis by Filipski and Covarrubias (2012) should be noted. It is based on household data from nine developing countries in Asia, Africa and Central America, and simulates the first-order, immediate impacts on income and expenditures across income quintiles due to the 2007/2008 food price spikes. This approach does not give endogenous adjustments to production, labour and consumption decisions as might a behavioral model.

8 Descriptions of various governmental responses for Argentina, Bolivia, Brazil, Dominican Republic, Ecuador, Mexico and Peru were presented in the FAO Regional Office for LAC Seminar "Policy Reactions to the Food Price Increases 2007-2008", Santiago April 2, 2012.

9 An interesting empirical analysis of household response to price changes is that of Porto (2010) for Mexico.

10 For a very useful example, various international organisations - FAO, IFAD, IMF,OECD, UNCTAD, WFP, the World Bank, the WTO, IFPRI and the UN HLTF – produced in June 2011 a joint policy report, entitled *Price Volatility in Food and Agricultural Markets: Policy Responses*.

11 See Jones and Kwiecinski (2010) for the OECD.

12 Food stamps are fungible, but the real impact on food consumption is less than the nominal transfer value due to "leakages" – that is, displaced expenditures shifted to non-foods. A food-price-triggered cash transfer scheme would essentially effect the same outcome, but – in terms of political support both in donor countries and by domestic producers – might be less attractive. Indeed, Josling (2011, p. 13) cites the enduring "success" of the US food stamp program: "And, as important, the interests of farmers and consumers in developing countries would coincide, perhaps reproducing in other countries the coalition that has kept support for food stamps in the US alive for fifty years".

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