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Development Dimensions of High Food Prices

Philip Abbott

OECD

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DEVELOPMENT DIMENSIONS OF HIGH FOOD PRICES[1]

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Executive summary

International agricultural commodity prices rose dramatically from the summer of 2006 through mid-2008. Then they fell faster than they rose, until December 2008, but to levels higher than historic norms. The consensus outlook is for world agricultural prices to remain high and volatile. It is expected that the past trends of demand increasing faster than supply and the persistent new biofuels demands will continue (OECD-FAO, 2008). Today's deteriorating global economic conditions add considerable uncertainty to that prediction. Commodity prices are now linked more directly via biofuels demand and depend strongly on bilateral exchange rate adjustments and global macroeconomic outcomes.

Dramatic international food price increases have brought significant hardship to many developing countries. The poor in those countries, who spend a large share of their budgets on basic foods, were especially hard hit. The FAO (2008c) estimates that more than 75 million more people are now hungry. The World Bank (2008a) estimates that an additional 105 million people are experiencing extreme poverty as a result of this food crisis. The International Monetary Fund (IMF, 2008a) highlights negative macroeconomic consequences, especially in developing countries, noting increased inflation, lost tariff and export revenue, deteriorating terms of trade and slowing economic growth. The general commodity boom and high crude oil prices more directly affected macroeconomic outcomes, while the related food crisis had its biggest impact on poverty.

Before this crisis unfolded there was substantial poverty and hunger in the world, and agriculture had been neglected by both national governments of developing countries and international donors. There was already recognition by many that investment in agricultural development needed to be renewed both to improve per capita food availability and to spur pro-poor economic growth. It had also been recognized that hunger is more a problem of poverty than of food availability. The UN's Millennium Project and the Alliance for a Green Revolution in Africa had already launched renewed agricultural development efforts focusing on poverty in Africa.

Both national governments of developing countries and the international donor community have responded strongly to this recent food crisis. It is instructive to contrast the nature of the responses by national governments versus donors to gain insight into prospects for actions to foster agricultural

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1. This paper was prepared as a consultancy report for the OECD. The author is grateful for comments received during a series of interviews with OECD staff and with the FAO, WFP, IFAD, IFPRI, USDA and World Bank in February 2009. Numerous OECD staff also commented on an earlier draft of this report, including Joe Dewbre, Adeline Borot de Battisti, Jonathan Brooks, Andrzej Kwiecinski, Peter Bieler, Bill Nichol, Karim Hussein, Jean Sibiri Zoundi and Ken Ash. Special thanks are due to Adeline Borot de Battisti who assisted with this effort, participated in the interviews and has subsequently collaborated on related work, and to Joe Dewbre who managed this project for the OECD. The views expressed and any errors or omissions are solely those of the author and should not be attributed to the OECD.

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development or reduce poverty. The international donor community has emphasized the two prongs of the UN's Comprehensive Framework for Action (CFA) – protecting the vulnerable via emergency relief and establishing resilience through renewed investment in smallholder agricultural development. National governments have pursued policy measures that in many instances more broadly protect consumers from high international prices.

The World Food Program (WFP) realized early on that high prices could compromise its international relief efforts, a longstanding issue with food aid based on surplus disposal. Their appeal for an additional USD 755 million was oversubscribed and had yielded nearly USD 1 billion by the end of 2008. The World Bank launched a USD 1.2 billion Global Food Crisis Response Program (GSRP) in mid-2008 aimed at the CFAs two prongs and creating "fiscal space" for governments. The FAO presented a USD 1.7 billion Initiative on Soaring Food Prices in June 2008. The International Fund for Agricultural Development (IFAD), and the Asian, African, and Inter-American Development Banks all reallocated their portfolios to address this crisis. Most bilateral donor countries have also pledged additional resources to address problems in developing countries stemming from the food crisis (GDPRD, 2009). International dialogue on how to address the crisis and specifically on how to more effectively deliver aid to agricultural sectors in developing countries has ensued in light of its problematic past performance and within the context of new views on how to deliver aid. For example, the Paris Declaration emphasizes host country ownership and harmonization across donors. Coordination of aid across donors is also discussed in the context of the CFA, the Global Partnership on Agriculture and Food Security proposed by the G8, and the Financial Coordination Mechanism (FCM) that emanated from the Madrid meeting (Ad Hoc Advisory Group, 2009).

In response to high food prices many developing countries pursued policies to limit impacts on their domestic consumers, including tariff reductions, export taxes and restrictions, and domestic policy adjustments to keep more stable domestic prices and lower food inflation. This imperfect transmission of world prices to domestic prices showed considerable variation across countries. The extent to which these policies were successful in isolating domestic markets, and the macroeconomic costs of such adjustments, depended on the extent of import dependence, availability of domestic alternatives to imported food, and how well integrated domestic urban and rural markets were with international markets. These policy regimes reverted to pre trade liberalization modes of operation and ignored much of the advice of the last two decades on open markets. Countries were hesitant to rely on international markets to maintain an adequate degree of stability, and their consequent policy actions contributed to greater international price instability. Moreover, their policy responses and lack of market integration limited pass through of incentives to farmers, so supply responses to these high food prices was greater by exporters than by importing developing countries.

Input prices, particularly energy and fertilizer prices, rose even more than grain prices. Both international initiatives and some developing country efforts have focused short run supply based initiatives on these inputs, so as not to compromise supply response from the now better incentives to farmers. But short run grain price policies often muted those incentives.

Many countries now are advocating for greater self-sufficiency. International markets failed in large part because disciplines under World Trade Organization (WTO) did not restrict countries from taking the protectionist and isolating actions they chose. While there have been calls for completion of the WTO's Doha Development Agenda as a result of this crisis, reforms proposed in the July 2008 Framework Agreement would not have disciplined these actions, as there are not provisions to discipline export taxes or bans, and special safeguard mechanisms as well as setting bound tariffs well above applied tariffs allow the kinds of actions taken by importers. Both export tax increases and tariff reductions show the same intent – to stabilize and isolate domestic markets – and both contribute to international market instability. Developing country governments' revealed preference for domestic market stabilization must be more

explicitly addressed in WTO negotiations, and better supported by analytical work that has to date generally taken a static long run perspective.

Debate on how the international donor community can respond has raised the question: Do we know how to deliver aid to developing countries to increase agricultural production and alleviate poverty? A vaguely stated concern with the role of the state in this debate reflects evolution of thinking about broad development strategy. Privatization had been a critical component of development advice since the mid-1980s with a recent realization that development strategies may have gone too far in relying on the private sector. This concern is seen more directly in assertions by some that an agricultural development model based on the green revolution is flawed. One concern is that the state has played an excessive role in managing markets. Another is that past approaches to the green revolution paid insufficient attention to environmental externalities. Many of the concrete proposals to foster more rapid agricultural development follow much of what is the green revolution approach, broadly reinterpreted, however. The concerns highlight the need for effective, not intrusive government. The most explicit concerns with the role of the state revolve around the use of subsidies as a component of agricultural development strategy. Sustainability of that strategy is questioned. The broader concern is that there are missing markets and poorly developed institutions that hinder agricultural development, and the state must play a role in assisting development of better institutions and properly functioning markets.

In the above discussion of policy advice on responses to the food crisis several roadblocks to success were identified that largely depend on an effectively functioning national governments in developing countries. An effective international response to the food crisis and renewed investment in agriculture will need to overcome these roadblocks that have slowed development in the past by more fully engaging national governments. Regional approaches such as the African Union's CAADP may be important, but are not a substitute for national government participation in the proposed global partnerships. Moreover, successful agricultural development in the past has addressed the full range of concerns – neglect of one component may jeopardize the whole strategy.

The OECD has a long and significant involvement in providing agricultural policy advice to both member countries and international markets, emphasizing support for WTO negotiations, international integration, and measuring the extent and impact of distortions in agricultural markets – all issues in short term policy responses. It also has a significant involvement in broader development strategy through its contributions to the Development Advisory Committee (DAC), backstopped by the Development Cooperation Directorate (DCD) and the Development Center. Allied entities such as the Sahel and West Africa Club (SWAC) and the African Partnership Forum (APF) bring OECD's attention to Africa. The OECD can play two critically important roles in future debates on policy responses to high food prices, drawing on its past experience. All OECD entities have contributed policy advice, and have expertise to offer, particularly for short to medium run trade/stabilization policy of developing countries and how that interacts with longer run agricultural development strategy. Analytically based and data supported policy advice have been a hallmark of OECD contributions both to the high food price debate and to broader agricultural policy debates. It also has a key role to play in facilitating dialogue between donors and recipients, not only in agriculture as it broadly relates to development strategy, but also in the specific African context.

The recent food crisis has renewed interest in existing problems with developing country agriculture, but presents opportunities to build upon, as well. Much is now known about how to implement safety nets, to foster more rapid agricultural development, and to bring pro-poor growth. The international community seemed better able to deliver emergency relief. Innovation in delivery of food aid, and use of cash transfers rather than targeted aid were pursued where existing programs allowed this. Local procurement lowered costs and complemented agricultural development efforts.

Much has been learned on how to renew efforts to foster agricultural development, as well. A green revolution based approach that provides public goods to agricultural, fosters market development for inputs, outputs and credit, and builds better institutions can lower poverty and improve welfare. Needs for more rapid agricultural development include sustainable new market institutions, time consistent national policies, functioning and predictable international markets, and committed national governments. Key to this is resolving the role of the state, and recognizing there is a role it must play.

Policy recommendations that follow from this diagnosis can be grouped into the three policy response domains that were followed by national governments and international donors: emergency relief and safety nets, trade and domestic stabilization policies, and policies to foster more rapid agricultural development. Best practices were followed to a greater extent, and need for reforms least evident, in efforts to establish safety nets and provide emergency relief. Understanding the consequences of stabilization policies, and of tradeoffs in international versus domestic markets, requires further research before definitive policy recommendations are formulated.

While the high international food prices revealed the longstanding problem that safety net programs might be in jeopardy under those circumstances due to inadequate budgets, response to WFPs appeal and increased food aid contributions by donors alleviated those concerns in this instance. Nevertheless, a more stable funding mechanism that automatically responds to shortfalls, high prices and consequent budget pressure is needed. Better targeting of safety nets to the poor would also more effectively utilize available resources and minimize fiscal impacts. While much progress has been made in moving to best practices, including local procurement and cash rather than in-kind transfers in addition to targeting, in many countries policies to provide safety nets could be improved. Institutions need to be in place before a crisis begins.

Short term policy responses in the form of market interventions conformed much less well to conventional policy advice. Closing of borders and domestic stabilization measures contributed to international market instability at a high fiscal cost. Ideally, freer trade would have resulted in smaller world price increases. Effective, well targeted safety nets could have protected the poor while consumers absorbed some of the adjustment international market signals were calling for. Higher prices would have also signaled a stronger supply response from farmers, although input subsidies and other producer support measures helped to insure that response. A fundamental unanswered question is whether markets would have been sufficiently stable, and price increases acceptable to national governments, had exporters not restricted exports and had importers not maintained demand in the face of high prices. A related question is whether safety nets would have adequately protected poor consumers under the resulting larger price increases. Policy responses by developing countries exhibited a mistrust of international markets, but thin markets are inherently unstable. Research investigating international market stability under alternative policy regimes is now quite dated (Tyers and Anderson, 1992) and invoked simplistic assumptions. Surely more openness than was exhibited in 2008 is desirable, bolstered by better safety nets targeted to the poor. More work is required on both domestic and international impacts of policy alternatives, however, emphasizing stability outcomes, before more definitive policy recommendations are possible.

Research on both international and domestic stabilization schemes is also lagging, but considerable work had been done following the first food crisis. That works indicated that stockpiling, whether domestic or international, is costly and difficult to manage. Very old literature recommended variable levies to avoid the costs of holding stocks for long periods (McIntire, 1981). Literature was also suspicious of insurance schemes and virtual reserves that did not affect market quantities (Wright, 2009). While more research is needed on these issues as well, it is unlikely that stockpiling will emerge as an important component of policy recommendations on market interventions.

In the actions of national governments, and in expenditures to date by donors, more attention has been paid to short term measures than to accelerating agricultural development. While debate on how best to expand efforts to foster agricultural development persists, a few keys lessons have been learned from considerable experience in this area. First, both national governments and donors should fund public goods. Agricultural research is the obvious area meriting greater funding, but extension, market information and infrastructure are also public goods in need of greater support. Moreover, national institutions in particular, such as national agricultural research programs, need better support. Second, it is also evident that market failures need to be addressed through replacement of missing input and output markets, and building of institutions such as quality control, legal frameworks, value chains, marketing systems and stabilization mechanisms. Many of the institutions that had been provided by parastatals were not replaced by the private sector following privatization initiatives. Effective agricultural development programs require that each of these areas is addressed, and failure may results if one component is missing. Key to success is overcoming political failures, so effective national governments are critical to success.

Several controversies persist, including the debates on fertilizer subsidies, on targeting smallholders (only), on the role of stabilization, and on how to deliver aid. Economic research is needed in three priority areas to further improve policy responses. Research priorities include developing a better understanding of the impacts on hunger and poverty as a result of actual experience and policy responses invoked, the extent to which those responses achieve domestic and international market stability or instability, and whether the focus of subsequent agricultural development initiatives is appropriate.

Research addressing hunger and poverty impacts utilized models benchmarked to dated household surveys and based on strong assumptions on price impacts rather than on data. That work needs to be verified using recent household survey data that encompasses this episode and well as actual domestic price outcomes realized. Systematic comparisons could elicit how well alternative policy responses fared in mitigating impacts from this crisis.

Research should evaluate lags in price adjustment or incomplete price transmission to better anticipate in-country impacts of world commodity price variations. More importantly, a more robust approach would eventually divide imperfect price transmission into market integration and policy factors. That work should then be coupled with the household survey work, asking if safety nets adequately protect the poor should governments collectively rely more on free trade to achieve greater market stability. The medium to long run market and welfare impacts of policy measures also need to be considered in light of better information on price transmission and market integration, especially to rural areas.

Two controversies stand out in the current debate on agricultural development: the effectiveness of input subsidies and of targeting only small holder farmers. New work must ask if proposed interventions not only increase input use cost effectively, but also if interventions solve the institutional and missing market problems that may exist. Work on effectiveness of targeting smallholders has to show whether ignoring a broader set of interest groups means this is as or less effective as an agricultural development strategy than as a poverty reduction strategy.

A more consistent policy environment must set appropriate incentives to agriculture, cognizant of effects on the vulnerable and consumers more broadly. A better balance needs to be achieved between short and long run outcomes, reflecting shared priorities of donors and national governments. Consistent, sustainable financial commitments of international donors based on long run visions and goals can accelerate that process. The Paris declaration would have donors contribute to an overall plan development by a recipient country government, with the priorities set by national governments. This may prove challenging when launching new agriculture initiatives, in light of the priorities revealed by differing responses of national governments versus the international community.

Introduction

After remaining at relatively low and stable levels for nearly seven years, international agricultural commodity prices began to rise in mid-2006, reaching extraordinarily high levels at their peak in mid-2008. The price of corn had already doubled relative to its average value in 2002 by January 2008 and tripled at its peak in June of 2008[3]. The price of rice had increased somewhat earlier, had doubled relative to its low 2002 value in January 2008, and had increased by over a factor of five at its peak in May 2008. The subsequent decline of these international food prices has been equally dramatic, albeit to somewhat higher levels than had been realized from 2000 through 2005. The price of corn fell by half, to 164% of its 2002 average value by December 2008. At that time the price of rice was also at half its peak value, but was still nearly three times its 2002 value. Price variations for other commodities and inputs to agriculture, and in particular for fertilizer and energy, have been at least as volatile, and many began to increase well before agricultural commodities. Since December these international food prices have exhibited considerable volatility, as have other commodity prices as the global recession and international financial crisis have unfolded.

These international food price increases have brought significant hardship to many developing countries. The poor in those countries, who spend a large share of their budgets on basic foods, were especially hard hit. The Food and Agriculture Organization of the United Nations estimated that at least than 75 million more people are now hungry, according to their annual food security assessment (FAO, 2008c). The World Bank (2008a) estimates that an additional 105 million people are experiencing extreme poverty as a result of this food crisis. The International Monetary Fund (IMF, 2008a) highlights the macroeconomic consequences of these international commodity price increases, noting increased inflation, lost tariff and export revenue, deteriorating terms of trade and slowing growth. Results vary substantially across countries, with those who are dependent on imports of crude oil or food being most severely affected. The nature of the effects also depended on the extent to which countries are naturally integrated into international markets or were able to isolate their domestic markets from international market changes, and on the means by which that isolation was accomplished.

The short term emergency relief response from the international community to this crisis has been substantial and timely, and initial pledges were quickly made to foster agricultural development. The World Food Program (WFP) realized early on that these high prices could compromise its international relief efforts. Their appeal for an additional USD 755 million was oversubscribed and had yielded nearly USD 1 billion by the end of 2008. The World Bank launched a USD 1.2 billion Global Food Crisis Response Program (GSRP) in mid-2008. The FAO presented a USD 1.7 billion Initiative on Soaring Food Prices in June 2008. The International Fund for Agricultural development (IFAD), Asian Development Bank (ADB), African Development Bank (AfDB), and Inter-American Development Bank (IADB) all reallocated their portfolios to address this crisis. Most bilateral donor countries have also pledged additional resources to address problems in developing countries stemming from the food crisis (GDPRD, 2009). Debate on how to implement these efforts and how to spend these additional monies continues.

Responses to the food crisis have emphasized the two prongs of the Comprehensive Framework for Action developed by the UN High Level Task Force on Global Food Security Crisis (UNHLTF, 2008) – protecting the vulnerable (emergency relief) and establishing resilience (renewed investment in agricultural development). International dialogue on how to address the crisis and specifically on how to more effectively deliver aid to agricultural sectors in developing countries has ensued. Major international meetings sponsored by the UN, the World Bank or the G8 were held nearly every month from April through October, 2008 and Spain convened a High Level Meeting on Food Security in January 2009 (GDPRD, 2009). Most recently, the Development Assistance Co-operation Directorate (DAC) from the

3. International agricultural commodity price data are taken from the IMF (2009).

OECD, jointly with the Global Donor Platform for Rural Development, hosted a policy dialogue on high food prices in February 2009 (OECD, 2009a). These discussions reflect interest in reversing the trend of declining assistance to agriculture, and to funding new initiatives, such as the Green Revolution for Africa (AGRA, 2009) and the UN Millennium project (UN, 2009). Much of that debate focuses on how to more effectively use aid for agriculture, in light of its problematic past performance and within the context of new views on how to deliver aid, such as the Paris Declaration that emphasizes host country ownership as well as harmonization and alignment of donor countries. Coordination of aid across donors is also discussed in the context of the CFA, the Global Partnership on Agriculture and Food Security proposed by the G8, and the Financial Coordination Mechanism (FCM) that emanated from an advisory group to the Madrid meeting (Ad Hoc Advisory Group, 2009).

Developing countries took action to isolate their domestic markets from developments in international markets and to protect their consumers (Demeke, Pangrazio and Maetz, 2008). This included reductions of import tariffs and domestic taxes on food, export taxes and bans, and consumer subsidies of various types. While these actions mitigated somewhat the dramatic changes of commodity prices, they exacerbated instability in international markets and muted incentives to their own domestic producers to respond to the crisis with greater production (Diouf, 2008; Timmer, 2008a; Daviron *et al*., 2009). Domestic political imperatives (and food riots) often drove these policy responses, and reflected the extent to which urban consumers were affected by the crisis (Wodon and Zaman, 2008). The emphasis in developing country responses was somewhat different from the priorities laid out in the CFA, and reflected a response to short term pressures more so than getting incentives right for longer term adjustments. Costs of these approaches varied according to import dependence and the extent of integration with world markets.

The functioning of international markets has subsequently come under increasing criticism. The notion that open markets and free trade could lead to greater international market stability (Bale and Lutz, 1979; Tyers and Anderson, 1992) was not in evidence in this experience, as countries reverted to past isolationist policies, and many now are advocating for greater self sufficiency. International markets failed in large part because disciplines under World Trade Organization (WTO) did not restrict countries from taking the actions they chose. While there have been calls for completion of the WTO's Doha Development Agenda as a result of this crisis (*e.g.* von Braun, 2008; Bertini and Glickman, 2009), reforms proposed in the July 2008 Framework Agreement would not have disciplined these actions, as there are not provisions to discipline export taxes or bans, and special safeguard mechanisms allow the kinds of actions taken by importers.

The ensuring debate has focused on the two prongs of the CFA – providing emergency relief and fostering agricultural development. This has raised questions of aid effectiveness – Do we know how to deliver aid to developing countries to increase agricultural production and alleviate poverty? Much has been written both before and after this crisis on how to renew investment in agriculture, and that such investment could alleviate poverty if properly targeted (OECD, 2006; World Bank, 2007; GDPRD, 2008; Bertini and Glickman, 2009). Less evident but highly relevant are questions as to appropriate policy responses, particularly of developing country governments. Moreover, policy reforms must be assessed in the context of broader development strategy.

Roadmap

The next section of this paper assesses the recent history and outlook for international agricultural commodity prices, as well as for crude oil and fertilizer prices. We then explore impacts of high international prices on developing countries, including transmission of those international prices inside borders; impacts on consumption, poverty, hunger; supply response; and macroeconomic outcomes. Prior conditions which also give rise to renewed interest in poverty reduction through agricultural development, and that influence policy decisions, are then examined. National and international policy responses to last

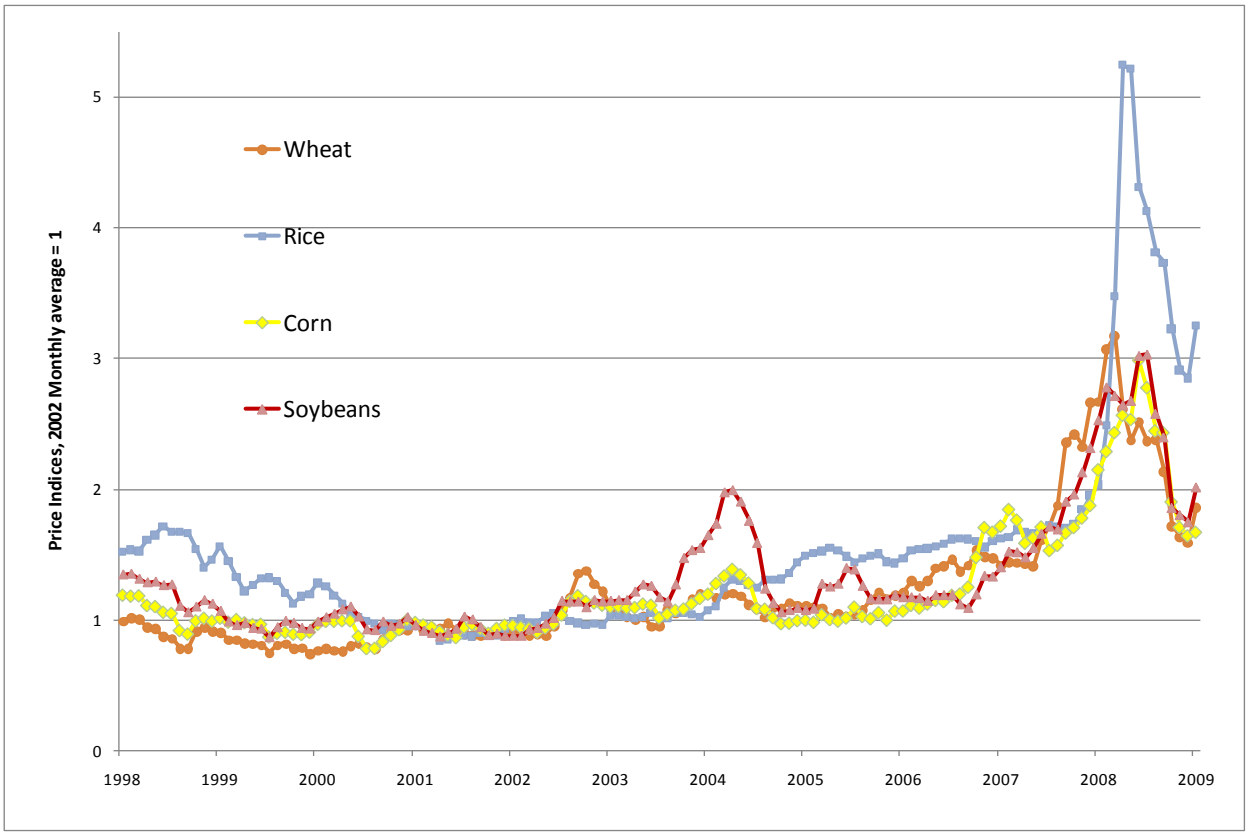
year's food crisis are discussed, and issues as well as roadblocks to implementing those policies are identified. We categorize key policy responses into four areas -- safety nets, investment in agriculture, consumer protection/trade policy, and broad development strategy – and consider the state of the art as well as controversial frontier issues in each area. In light of its past role in international agricultural policy debate, the OECD's contributions in these areas are explored. Recommendations for the OECD and the international community more generally are drawn from our examination of the issues, OECD's competence, and its mandate. The paper concludes with implications for broad global strategy to meet future food crises and to expand investment in agricultural development. General policy recommendations and an agenda for future research to respond to food crises are provided.

International commodity prices

As noted above, international agricultural commodity prices, along with other commodity prices, increased significantly relative to historic norms in 2007 and 2008, and then fell to levels that remain high relative to those norms. Figure 1 presents data on monthly international prices for wheat, rice, corn and soybeans from 1998 through January 2009 (IMF, 2009). In order to compare series, price indices presented in that figure have been normalized to set the average monthly price for 2002 equal to one. Prices had been relatively high around 1995-97 and by 1998 were falling to quite low levels in real terms, even by historic standards. These prices remained low and stable until mid-2006, with two exceptions. Soybean prices had risen in 2004 due to a short crop. The price of rice began to rise from very low levels in 2004 to levels comparable to those realized in 1999-2000, and began its extraordinary ascent with corn in late 2007, a bit behind increases for wheat and soybeans. Peaks for these prices varied somewhat, coming earlier for wheat, and then for rice, with corn and soybeans then falling together starting in July 2008. Minimums were reached in December 2008 and these prices have been quite volatile since then.

Agricultural prices were a late arrival to the most recent commodity boom. Figure 2 shows price trends from 1998 to January 2009 for crude oil, fertilizer, and IMF indices for food and for commodities generally using the same normalization to 2002 monthly values as in Figure 1. Both crude oil prices and the IMF commodity index began to rise in mid-2003 and realized somewhat higher peaks at about the same time as corn and other agricultural commodities peaked. Crude oil prices increased by over a factor of five from 2002 to mid-2008. The IMF commodity index increased by nearly a factor of four over that same period. Some non-agricultural commodities such as copper began their ascent before crude oil. The food index rose somewhat earlier than corn, since as noted above some agricultural goods realized increases sooner than corn (rice, soybeans). The food index peaked at an increase of slightly more than 100%, less than the grains and oilseeds, because a number of agricultural commodities never realized the gains of either crude oil, metals or grains and oilseeds. These included exports from developing countries such as cotton, coffee, cocoa and tea.

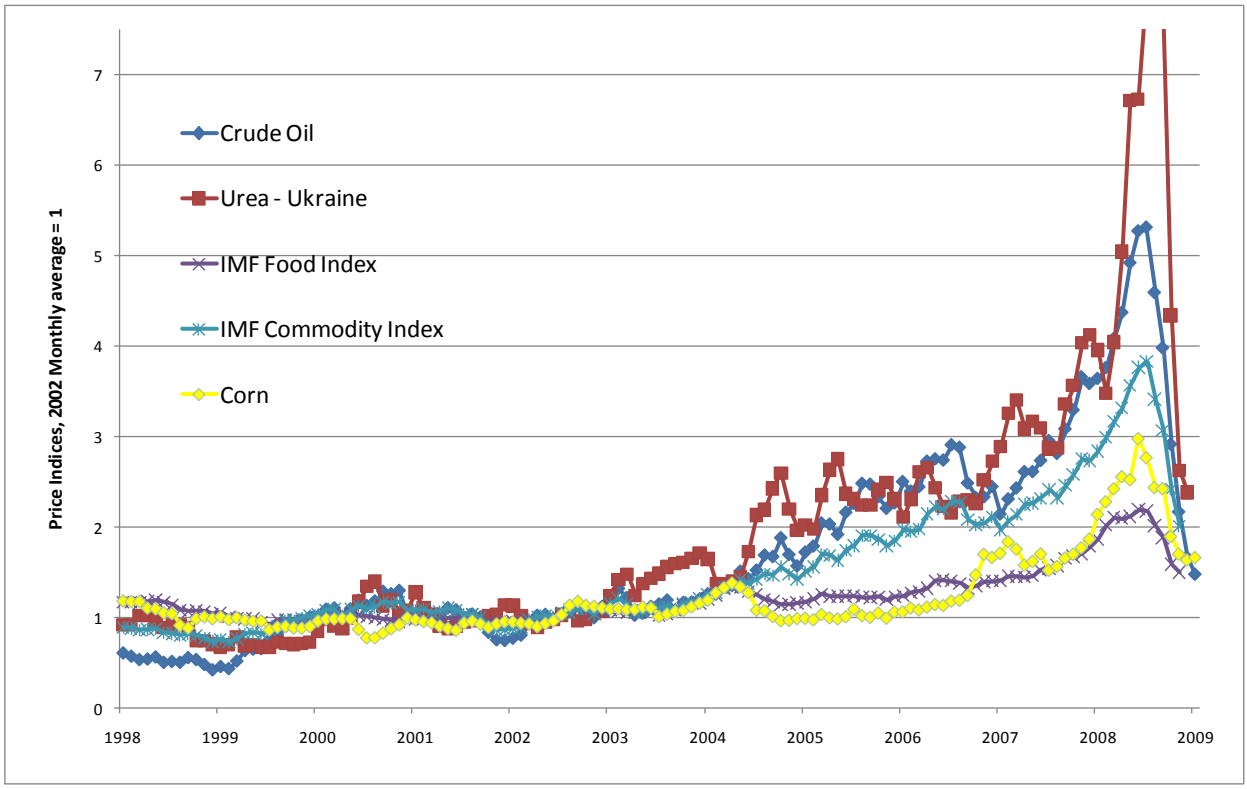
Figure 1. International agricultural commodity prices, 1998-2009



Source: IMF, *International Financial* Statistics, 2009.

The rise of fertilizer prices is significant and important, as well. Strategies to foster more rapid agricultural development often require increased fertilization rates. From 2003 through early 2008 world fertilizer prices followed crude oil prices reasonably closely, rising to four times 2002 values by early 2008. But in mid-summer of 2008 fertilizer prices continued to climb as other commodity prices, and in particular prices of the agricultural commodities that fertilizer would benefit, began to fall rapidly. Fertilizer prices peaked in September 2008 at more than seven times their 2002 value, a much steeper increase than for grains and oilseeds, and even energy. They subsequently fell to varying degrees by type of fertilizer, depending on market structure, and in many retail markets remain well above historical levels. In early 2009 the price of urea in the Ukraine remained at about 2.5 times the 2002 price level. Farm gate fertilizer prices in the US are hard to establish due to the oligopolistic nature of the retail market and due to limited transactions, but fertilizer could be had from dealers at a price roughly three times the world price, and yet was available at wholesale locations for much lower prices. Problems of pricing fertilizer surely impacted developing countries as severely, causing governments to intervene to attempt to control these prices. The effect on the coming year's agricultural production is yet to be known.

Figure 2. International commodity prices and indices, 1998-2009

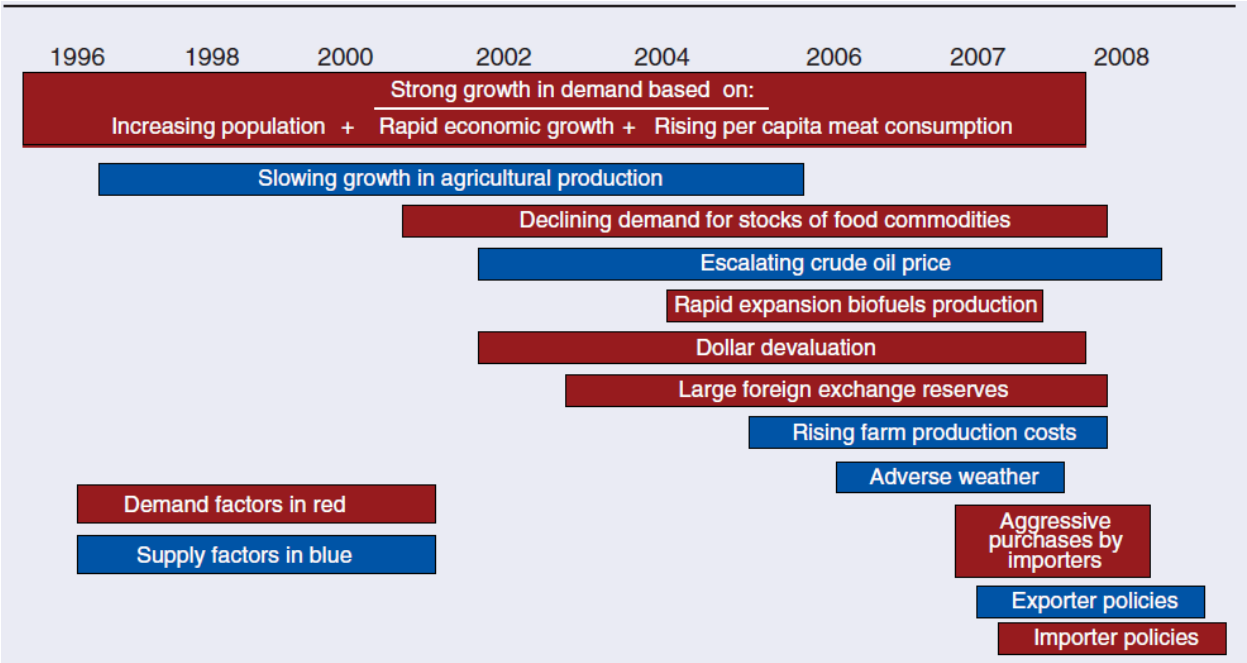


Source: IMF, *International Financial* Statistics, 2009.

Causes

Many have argued that the causes of high commodity prices are the result of a complex set of interrelated factors involving both the longer term evolution of markets and short term shocks leading to the price spikes of 2008 (von Braun and Torero, 2009). Trostle (2008) of the Economic Research Service at USDA laid out in Figure 3 the various alleged causes of high food prices and when they were relevant. Longer term factors caused demand to race ahead of supply and worldwide stocks to be drawn down to very low levels. These included population and economic growth in developing countries, bringing increased feed demand with dietary transition, and declining investment in agriculture, coupled with low prices, which led to slowing production growth. Shorter term factors included the escalating price of crude oil, now linked to agricultural prices via biofuels demand, which also led to high input costs; dollar devaluation and increased reserves of importers influencing the prices of commodities as denominated in dollars; adverse weather giving rise to supply shocks; and policy responses of exporters and importers that destabilized international markets.

Figure 3. Factors contributing to higher food commodity prices



Source: Trostle, 2008.

Others have argued that specific causes have been paramount. Mitchell (2008) at the World Bank attributed most of the increases to biofuels demand and the link between agricultural commodities and crude oil prices. A Texas A&M study (Agricultural Food and Policy Center, 2008) highlighted the impact of crude oil prices on input costs – both higher fertilizer costs and higher transportation costs. This has spurred considerable debate on policies in OECD countries that have fostered this increased demand for agricultural commodities as biofuels (OECD, 2008b). This has also been a primary factor behind forecasts that suggest the longer term outlook is for higher food prices than were realized from 2000 through 2005 (OECD-FAO, 2008; WAOB, 2009).

While some myths may persist, and some controversy remains, some agreement may be found in the various writings on the causes of high food prices (World Bank, 2008d; Diouf, 2008; Timmer, 2008a; Abbott, Hurt and Tyner, 2009). They also agree that it may not be possible to assign clear measures of contribution from each factor, as the relevant factors interact and the parameters describing behavior change with market conditions of shortage. Most would agree that the expectations of low stocks in 2007 and 2008 both contributed to the higher prices and led to more inelastic markets in which any shock would have a larger effect than in earlier years. Moreover, stocks expectations have changed dramatically since the peaks of agricultural commodity prices in mid-2008 (WAOB, 2009; Abbott, Hurt and Tyner, 2009). High prices brought about both global supply responses and record harvests in the 2008 and 2009 crop years, and also caused demand adjustments (ERS, 2009). For example, US carry-out stocks for corn in October 2009 had been forecast at an extraordinarily low 6% of use (including exports) in May 2008, while USDA's January 2009 forecast puts that stocks-to-use ratio at a much higher 15% (WAOB, 2008 and 2009).

The role of policy responses by both importers and exporters have also been highlighted by numerous authors. Timmer (2008a) explains the case of the very thin world rice market, where export bans by major exporters were critically important in causing the especially high run-up of rice prices. The FAO (Diouf, 2008) and USDA (Trostle, 2009) argues that similar actions were taken by some key wheat exporters. The

FAO review of policy responses by developing countries (Demeke, Pangrazio and Maetz, 2008) clearly demonstrates that both exporters and importers took actions to isolate domestic markets from world price increases, including reducing import tariffs, banning or taxing exports, and even subsidizing consumption. Thus, in the face of high world prices import demand did not fall, but export supply did. Such actions make for more unstable international markets (Bale and Lutz, 1979), and surely contributed to the price increases and especially the spikes of 2008.

The role of biofuels demand and higher crude oil prices is also acknowledged by many analysts as an important factor behind the agricultural commodity price increases of 2008. The OECD indicated that by 2007 the use of ethanol accounted for about 14% of worldwide corn demand (OECD, 2008b). In the US ethanol demand amounted to nearly one third of corn production in 2009 (WAOB, 2009). The majority of worldwide demand growth for corn, and the surge in demand from earlier trends can be attributed to this industrial use of corn (Abbott, Hurt and Tyner, 2009). The effects of increased corn demand spills over onto other commodities as land is taken out of other crops (*e.g.* soybeans) or as feed use of other crops increases (*e.g.* wheat), or due to other substitution effects. The longer term issue is whether the higher prices will spur sufficient growth in output to meet these demands, or whether sustained high prices will be required to ration available supplies across demands for food versus fuel. Advocates of biofuels assert that supply response will eventually catch up (*e.g.* National Corn Growers Association, 2008). Both the incentives to build ethanol capacity, which created the link between corn and oil, and the extent of future capacity, which will determine whether that link persists, depend on the biofuels policy environment in OECD countries (OECD, 2008b). The link between food and fuel prices could be broken in the future if binding constraints hold the price of ethanol above that determined by crude oil and gasoline, as may now be dictated by the US Renewable Fuels Standard (RFS), or ethanol may fall below the gasoline price if technical constraints limit its use – such as the "blending wall" (Abbott, Hurt and Tyner, 2009).

The role of weather related shocks has probably been exaggerated somewhat in discussions of causes of high food prices. While some reports highlight this effect, the FAO (Diouf, 2008) argues that only in the case of wheat were there any events that were large by historical standards. While the Australian drought probably had some impact on wheat prices, and occurred at a time when stocks were low, for other commodities weather related effects were in no way unusual, with some cases of shortfalls but other cases of good crops. Abbott, Hurt and Tyner (2008) had earlier noted that production trends for most of the crops in question did not exhibit significant weather related effects. The stocks draw down was more the result of longer term trends than poor harvests in 2006 and 2007.

The role of increasing feed demand in developing countries, and notably of population and income growth in China and India, has probably been exaggerated as well. This story was quickly accepted by many as plausible, in part because it was surely behind the trends in energy demand as well as for some non-agricultural commodities. China in particular was increasing its demand for oil imports and for construction related inputs, but remains relatively self-sufficient in agriculture. At the same time that many were arguing that Chinese demand was driving international food markets the USDA published an article highlighting the extraordinary increases in agricultural exports by China (Lohmar and Gale, 2008). Both China and India had emerged at the time of this crisis as net exporters, so trade data simply does not support the notion that import or demand growth in those countries contributed significantly to price increases of 2007 and 2008 (Diouf, 2008; Abbott, Hurt and Tyner, 2008). In the one case where China is a significant importer, soybeans, demand has been growing steadily since 1996 and did not surge in recent years. Nevertheless, some still believe that the potential food demand in developing countries is substantial, and that it will be difficult for production to keep up and self–sufficiency to be maintained. This belief also lies behind some of the forecasts that agricultural commodity prices will remain at historically high levels.

Early on in this debate the role of exchange rates, and in particular dollar devaluation, was underemphasized (*e.g.* Collins, 2008). But movements in international agricultural commodity prices are closely related to various measures of the US dollar exchange rates, both as they increased and as they decreased (Abbott, Hurt and Tyner, 2009). The peak in food prices in mid-2008 corresponds with the moment when the dollar was at its weakest, and the rapid decline of commodity prices has been accompanied by substantial appreciation of the dollar. As the dollar depreciated, the increases in commodity prices were not nearly as severe as the changes stated above when denominated in other currencies that had appreciated. For example, in mid-2008 the corn price had tripled in dollars but was only 81% higher in Euros (from its 2002 value). Thus, incentives to import less as a result of high world prices (or export more) were diminished in some countries whose currencies appreciated relative to the dollar. The exchange rate and subsequent price adjustments help to explain why the volume of grain exports from the US had not decreased in July 2008. The substantial appreciation of the dollar since July 2008 reversed these effects, so that prices have not declined as much in currencies that have recently been depreciating against the dollar.

This exchange rate factor matters in different ways to different developing countries, depending in part on how they manage their currencies. Countries that pegged their currencies to the dollar have seen world price changes of the order of magnitude described above, and shown in Figure 1. Countries that peg their currencies to the Euro, such as in the CFA zone of West Africa, saw much more muted, if still large, price changes in domestic currency. Since July 2008 currencies of many developing countries have depreciated substantially, and in many cases more so than the Euro, keeping prices higher than a dollar denominated index would suggest.

Currency effects and the relationship of food prices to crude oil are not unrelated. Prices of crude oil and other commodities affect balance of payments positions, which in turn affect exchange rates. But exchange rates affect domestic prices given world prices, and factors beyond oil import bills clearly have influenced the recent changes in exchange rates. The dollars most recent decline beginning in August 2007 coincided with the beginning of interest rate cuts by the US Federal Reserve Bank that were not matched by European central banks. The dollar appreciation starting in July 2008 came at a time when there was a realization that Europe and Asia would not avoid the recession the US had been fighting since August 2007.

Global macroeconomic performance surely has affected not only exchange rates but also demand for commodities. There is a great deal of uncertainty now as to how long global recession and related financial crisis may last, and what any recovery may look like (World Bank, 2008d). That translates to considerable uncertainty as to outlook for commodity prices, including food and crude oil. The evolution of macro economies globally will be important in determining whether forecasts of continued high agricultural commodity prices are realized.

The most controversial remaining controversy concerns the role of speculators and of futures markets in contributing to the price spikes of 2008. Von Braun and Torero (2009) of IFPRI argue that speculative capital inflows from financial investors were a significant factor contributing particularly to the price spike of 2008. Trostle (2009) also highlights this mechanism. Sanders, Irwin and Merrin (2008) and Irwin *et al.* (2009) argue that the volumes of speculative activity and open interest were not out of line with past behavior, given the high prices in commodity markets. Moreover, they argue that ultimately the prices of agricultural commodities must lie on demand curves, as users must pay the prices realized in spot markets for final uses. Problems of convergence of nearby futures prices to spot market prices, they argue (Irwin *et al.*, 2008) were a convergence of technical issues in the delivery mechanism to close contracts, and not due to flows of investor capital into the futures markets. Gilbert's (2008) econometric evidence leads to less strong conclusions even about the correlation of speculative capital and agricultural prices than does von Braun and Torero (2009). Abbott, Hurt and Tyner (2009) argue that the price spikes of 2008 for corn can

be explained by supply-utilization and macroeconomic information, including the price of crude oil, without resorting to speculation as a factor. Timmer (2008a) attributes the spike in rice mostly to the export bans in a very thin market, and to inelastic behavior when stocks are low, so he also explains events in that market based on fundamentals and policy responses rather than speculation.

There is some confusion in the debate as to what is meant by speculation. The capital referred to by von Braun and Torero (2009) some think of as a hedging by financial investors in the face of high inflationary expectations and low returns on alternative investments, rather than simply speculators providing the "insurance" at a fee desired by farmers and intermediaries who prefer not to bear as much risk as is exhibited in commodity markets. Timmer (2008a) and the World Bank (2008d) also refer to another type of "physical" speculation, or hoarding by agents particularly in developing economies. It was not uncommon for countries imposing export bans to see farmers, traders and others hoard grain in anticipation that the bans would eventually be lifted. Moreover, those actions led to price increases, encouraging the hoarding and causing in some cases attempts to isolate domestic markets from world market to fail (Timmer, 2008a). Increased imports by some countries to assure supplies in the face of rising world prices is similar to this hoarding, though this behavior was more evident in the 1973-74 food crisis, when importers feared they could not buy grain at any price on world markets.

The one area of agreement regarding speculation is that price volatility is higher at the higher food prices since 2006 relative to volatility before these prices began to soar. Variances have increased, but coefficients of variation are not necessarily higher, indicating that some of this increased volatility is simply due to the higher price means now realized in markets. There also remains a great deal of uncertainty as to where mean prices may go in the future. Expected means of price distributions are now exceedingly hard to estimate.

Forecasts of longer term prices depend on the extent to which the longer term factors contributed to the prices increases of 2007 and 2008. That is, will supply eventually catch up with demand growth, and what contributed to the slowing of supply growth that led to the circumstances of the last two years? As noted above, low prices had diminished incentives to agricultural supply growth and agricultural research and investment have lagged in much of the world at a time when the perception was of surplus rather than shortage (Pardey, Alston and Piggott, 2006). This raises the question: Will the future after recent events look different or will a period of surplus eventually reemerge?

Outlook

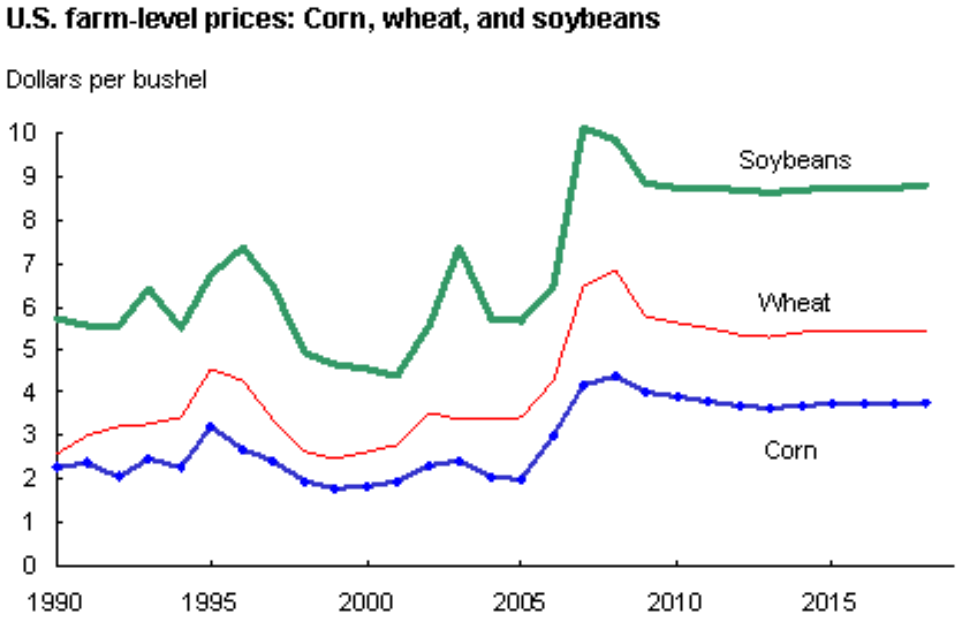
Most forecasts at the time of soaring food prices expected that this episode would last longer than earlier episodes of high agricultural commodity prices (UNHLTF, 2008). The OECD-FAO (2008) Outlook cited two fundamental reasons for that prediction, and for its expectation that there was greater uncertainty in this forecasts that in prior forecasts. First, it argued that population and income growth worldwide had been running ahead of production growth for several years, and those trends were unlikely to reverse soon. Second, the new demand for grains and oilseeds as feedstocks for biofuels was a persistent increase in demand, not a onetime shock, necessitating further increases in production growth to bring down high prices. USDA's (WAOB, 2009) outlook similarly foresaw continued high prices for grains and oilseeds.

Virtually no one predicted the precipitous decline of commodity prices starting in July 2008. Abbott, Hurt and Tyner (2008) had argued then that either inflation could bring down real prices, or recession would lower nominal prices, based on past events. But in July inflation seemed to be increasing, and was the more likely candidate to lower real food prices. Since then global recession and fears of deflation have dominated, and lie behind the fall in crude oil prices, slowing of income growth, and appreciation of the dollar – all factors that had led to the commodity price increases and contribute to their decline (World Bank, 2008d).

Predications of future agricultural prices require prediction of both supply and demand. Projecting income and population growth, and using that to project demand, is more straightforward than projecting supply growth. The global recession and financial crisis complicate demand projections now, but low income elasticities of demand should mean that stagnation of income has a smaller effect on food demand than on other goods. In the cases of China and India, past projections of huge imports based on dietary transition (*e.g.* Brown, 1995) have proven false because supply has grown faster than projected (FAS, USDA, 2009). Past periods of high world prices have also brought supply responses that help to bring down those high prices. Supply response to the high prices of 2007 and 2008 is already evident in the record global grain and oilseed crops realized this last year (FAS, USDA, 2009; WAOB, 2009).

In spite of recent trends in agricultural commodity prices, the predictions of more long lasting high prices have not yet been disproven. According to Figure 1, agricultural commodity prices remain at levels substantially higher than were realized in the first half of this decade. The price of corn was 67% higher than its 2002 average, and the price of rice was 225% higher in January 2009. The February 2009 USDA baseline projections outlook suggests grain and oilseed prices will remain at current levels for some time. According to that report, "Long-term growth in global demand for agricultural products, in combination with the continued presence of US ethanol demand in the corn sector and EU biodiesel demand for vegetable oils, holds prices for corn, oilseeds, and many other crops well above their historical levels, although season-average annual prices are not projected to reach the record highs seen in the first half of 2008" (ERS, USDA, 2009). Figure 4 shows the most recent USDA price forecasts.

Figure 4. US farm level prices for corn, wheat and soybeans



Source: *USDA Agricultural Projections to 2018*, February 2009.
USDA, Economic Research Service.

For many developing countries, the combination of higher than historical prices of grains and oilseeds coupled with depreciation of their currencies against the dollar means that high prices at their borders persist. In the case of West African countries who use the CFA that is pegged to the Euro, border prices had increased for corn by 81% and for rice by 147% in July 2008 relative to the 2002 average. In January 2009, CFA border prices were 17% higher than in 2002 for corn, and 128% higher for rice. Some developing country currencies that float relative to the dollar and Euro had appreciated more than the Euro

by July, and have depreciated more than the Euro since July. The Brazilian Real had appreciated 75% against the dollar from 2002 to July 2008, and has depreciated 30% from July to January 2009 (IMF, 2009). Depreciation keeps local currency prices of agricultural commodity higher by the extent of the depreciation. Thus, relative to 2002, US soybean prices had tripled to July 2008, but in Brazilian Real had increased by only 75%, and in January 2009 were still 66% above 2002 prices.

In addition to the prediction that higher prices would last, many also believe that prices will be more volatile in the future (*e.g.* OECD-FAO, 2008). The belief that prices will remain more volatile has persisted as prices have fallen (von Braun and Torero, 2009; Delgado, 2009). As means of prices increased so did variances even for daily prices on futures markets. Some of the increased volatility was attributed to speculation, but with declines in investor capital into futures markets variances of grain and oilseed prices remain high. Moreover, there is greater uncertainty now not only due to higher price variance, but also due to significant uncertainty as to future mean price expectations. If agricultural prices are linked to crude oil prices and exchange rates, changes in those variables – which are now very hard to predict – will impact future grain and oilseed prices. It is this uncertainty over future mean prices, more so than increased variance in prices, which makes planning by farmers more difficult.

The uncertainty over input costs also makes farmer planning and the expected future of incentives to agricultural development difficult to predict. Fertilizer and transportation costs have been closely linked to crude oil prices. The fall in fertilizer prices was also delayed relative to grain and oilseed prices, and even crude oil prices. Higher expected grain and oilseed prices for the future likely mean higher input costs, as in the long run the derived demand for inputs will set prices, subject to cost factors like oil prices. In the spring of 2008 the high food and input prices led to increasing margins where farmers saw the full extent of price increases, but this spring margins are tight as input costs have remained high relative to crop prices.

It is the balance of costs and revenues that will determine incentives to increase production in the future. This in turn depends on the extent to which international prices are passed through to farmers. In the case of the US forecast, where these prices are seen by farmers, area planted is expected to remain flat, and while corn production is projected to increase, soybean and wheat production are projected to fall somewhat (ERS, USDA, 2009). In many developing countries, policy and weak market integration limit pass through of incentives to farmers, but in some cases input costs (particularly fertilizer costs) may be passed through more fully, influencing incentives to grow production. Thus, incentives to developing country farmers may not be strong even if border prices for agricultural commodities remain high.

Implications of diagnosis and outlook

Three predictions characterize the outlook for future agricultural markets: higher than normal grain and oilseed prices, higher input costs, and greater volatility and uncertainty in those price forecasts. It is useful to consider some implications of these forecasts, and of the diagnosis of causes of high prices, for agricultural development and so policy in developing countries.

Higher agricultural prices mean better incentives for farmers. To the extent that farmers in developing countries see these higher prices, prospects for agricultural development are improved. One of the arguments as to why earlier agricultural development projects failed was that incentives to farmers were poor and the macroeconomic environment was not conducive to success (World Bank, 2007). Current conditions may bring a better environment to foster agricultural development, but may require policy adjustments in developing countries to insure farmers see those incentives. That is the critical condition for these opportunities to be taken up by countries. Observed policy responses to cope with the crisis may have muted those incentives.

Causes of higher prices, and the basis for forecasts of continued high prices, were that income and population growth would drive demand faster than production could grow; biofuels demands had placed a new persistent demand on use of grains and oilseeds; and biofuels had also linked the prices of agricultural commodities, particularly corn, to the price of crude oil. Global recession has reduced both expected demand growth and international trade in grains, at least for the medium term (WAOB, 2009). It has not driven prices to the lows realized earlier this decade, however. Biofuels demands, at least in the US, are also somewhat lower, and the price of crude oil fell with other commodities. Thus, each of the reasons for continued high prices, and from our diagnosis of the causes of high prices, is subject to question for the medium term. This means there is great uncertainty at the moment as to how the future will unfold.

Near term projections are complicated by disequilibrium in input markets. While it is likely that in the medium to long term fertilizer prices will follow energy and crop prices, input costs are relatively high and margins are tight now. Incentives to agricultural production are not as great as the high prices suggest. More importantly, strategies to foster more rapid agricultural development in developing countries are often dependent on more intensive use of inputs, and current costs could inhibit their use. In this situation the case for input subsidies, a controversial policy issue to be considered below, may be stronger. Recent events have shown imperfections in the functioning of input markets, a problem known previously to be important to developing agriculture. It may be that addressing the fertilizer issue requires addressing missing markets (improving institutions) and not simply subsidization, however.

Both the link to crude oil prices and the link to exchange rates and macroeconomic performance identified in the diagnosis of causes of high prices suggest great future price uncertainty. Prices even in the short term have been more volatile, another consistent prediction from the identified causes. That uncertainty and volatility will dampen incentives to production, as risk to farmers is greater. It will also continue pressure on countries to pursue policies to stabilize domestic markets. The perceived need for stabilization by national governments is greater in the current environment than before. Many countries have reverted to policy regimes and objectives held prior to recent trade reforms in the face of recent market events, and continuing uncertainty will reinforce those changes. Understanding the role of trade in stabilization policy, and recognizing stabilization concerns in WTO debates will be critical in future agricultural policy discussions.

Developing country impacts

In assessing the impacts on individual developing countries of the recent increases in international agricultural commodity prices, several questions must be addressed:

- To what extent were prices at countries' borders transmitted to domestic prices in both urban and rural areas?
- If prices were not fully transmitted across borders, what mechanisms were used to prevent that transmission of price signals, and what costs did those measures entail?
- To the extent that prices were transmitted, what was affected and how did different income groups in urban and rural areas fare?
- Will the responses taken by individual countries make them better or less able to cope with future events?

Diverse impacts were observed across developing countries which depended on policy measures taken. Those impacts depend on the extent of dependence on imports; on the extent of substitution possibilities in consumption of food; on availability of food internally, and on the state of the agricultural sector at the time of the crisis; and on economic conditions generally. These factors influenced impacts on the macro economy, on consumers, on farmers and on the poor.

Price transmission

Price transmission is a technical term describing the relationship between domestic and international prices. It is also used to describe pricing relationships within internal markets, between farm gate and retail prices for example. In a small open economy, theoretically the extent of transmission would be one-for-one from international to domestic prices. Imperfect price transmission would imply world price changes are not fully reflected in domestic prices. Price changes in domestic markets can lag border price changes, and depend on market institutions and policy.

Imperfect transmission of international prices to domestic prices was highlighted early on by Timmer (2008) in his assessment of the impacts of the food crisis in Asia, based on his own empirical assessment of the current situation and earlier work by Dawe (2008) on price transmission in Asia. Several researchers have explored the transmission of border prices to domestic prices in Africa to assess the impacts of this crisis (Blein and Longo, 2008; Daviron *et al.*, 2009). The World Food Program estimated price transmission to determine in which countries poor consumers were most vulnerable and to help target their relief efforts (WFP, 2008a, b & c). The evidence suggests prices were seldom fully and immediately transmitted from international markets to domestic markets, but that domestic price increases did occur, and were relatively large in many cases.

Table 4 below presents evidence from the WFP assessment (2008a) on the extent of price transmission in some of the world's most vulnerable countries. World price changes, drawn from the IMF (2009) data for the same period, are shown at the bottom of the table for comparison. They show considerable variation across countries in the extent of price transmission, from cases where there seems to be no effect to cases where the full change in international prices seems to have been passed through to domestic prices. WFP staff and consultants who conducted these studies have not yet systematically analyzed these differences, but have concluded that prices were transmitted more where countries were less self-sufficient, more dependent on imports, and where domestic alternatives were found. Davrion *et al.* (2009) attempted a more systematic assessment and concluded that the variations in domestic prices in African countries studied were less than variations in international prices, and that prices of local products were more unstable than imported products, as domestic supply, use and stabilization efforts mattered. Timmer (2008a) found considerable variability in price transmission across Asian countries, finding that some countries effectively isolated domestic markets from world price fluctuations, while others were less successful.

Table 1. Monthly price changes to August 2008 (in %) from 12 months earlier, selected countries

	Rice	Maize	Sorghum	Wheat
West Africa				
Benin	45	79	255	
Burkin Faso	80	17	29	
Côte d'Ivoire	30	20		
Mali	24	16	-2	
Nigeria	26	91	72	
Senegal	22	39	37	
East and Southern Africa				
Ethiopia		241	262	120
Kenya		71		
Rwanda		32		
Sudan			75	
Somalia	209	242	199	287
Uganda		12		
Asia				
Afghanistan	66			126
Bangladesh	46			
Cambodia	92			
Pakistan	68			
Sri Lanka	58			69
Latin America				
El Salvador	85	-4	25	
World Market	156	75	--	56

Source: World Food Program, 2008a.

There are two distinct reasons why border prices may not be fully and immediately transmitted to international prices. Countries that are largely self-sufficient and not well integrated into international markets, possibly because of high transportation and transactions costs, would see domestic prices moving somewhat (or largely) independently of world prices. Policy can also break the link between world and domestic prices. If policy is endogenously determined in response to world market conditions with the goal to stabilize domestic markets, that link is broken. The best example is the European Union's former variable levy, a tariff that varied inversely with world price. In the face of last year's high prices many developing country importers reduced tariffs in a manner similar to that policy regime with the intent to stabilize domestic market prices (Demeke, Pangrazio and Maetz, 2008; World Bank, 2008a). In a similar vein, exporters would either raise export taxes, and in many cases actually banned exports to keep world market events from spilling over onto domestic markets. The intent of both policy adjustments is the same – to mitigate the effect of events in world markets and isolate domestic markets from those events to the extent possible.

Policy adjustments to stabilize domestic markets come at a cost. Lowering tariffs reduces tariff revenue, which can be a significant source of government revenue in some countries. Reduced export taxes

and export bans reduce revenue[4] There are limits to these policies, as tariffs that need to go below zero become import subsidies, and in practice some countries who cut tariffs also subsidized consumption and imports to reduce the effects of high world prices. Demeke, Pangrazio and Maetz (2008) found numerous instances of domestic tax cuts and some subsidies introduced with the intent of stabilizing domestic markets. These subsidies can also be costly, especially if they are poorly targeted, seeking to reduce consumer costs generally (Wodon and Zaman, 2008).

Targeting and import dependence both influence how costly it is to use policy to isolate domestic markets, and whether that isolation can be sustained. Partial and delayed price transmission occurs because of these costs. It is not uncommon for prices in the longer run to eventually follow world market trends, but short run variations to be muted. Analysis of price transmission must explore these lags (Daviron *et al.*, 2009), which would mean that countries who initially kept out high world prices over time would see domestic prices continuing to rise, even as world prices start to fall.

Price transmission may also differ between urban and rural areas. Urban areas are much more likely to be integrated with world markets than are rural markets where infrastructure is poor, market information is not well transmitted, and transactions are costly. It has also been alleged that traders or food processors may have market power. In that case margins may vary with market conditions, so that prices either at the border or in urban areas are not fully transmitted to rural areas. A consequence is that farmers only see incentives to expand production to the extent that they see increases in the domestic prices they face. Policy adjustments to isolate domestic markets mute incentives to farmers and so could reduce supply response by farmers. Evidence on market integration, particularly between urban and rural areas, is mixed and varies across developing countries. Daviron *et al.* (2009) find a significant relationship between producer and consumer prices in the African countries they studied, but found smaller impacts on rural prices than on urban prices of the recent increases in world prices.

The extent of price transmission and market integration also influence the utility of stockholding by an individual country as a device to stabilize domestic markets. This is another type of intervention pursued by many developing countries (Demeke, Pangrazio and Maetz, 2008). If a country is well integrated in world markets and has open borders, prices are likely to be fully transmitted to domestic prices, unless trade policy intervenes. Then stocks adjustments would simply alter the level of imports (or exports). In less well integrated markets stocks can influence domestic prices. Stocks adjustments might also reduce import costs. But stockholding can be a costly and ineffective way to combat the border price changes many countries faced. Some of the problematic policies in developing countries noted by authors involved use of stocks to try to combat price changes at the border. Timmer (2008a) also highlights that stockholding, in the form of hoarding, can occur outside government control, and in some cases frustrated efforts to isolate domestic markets.

Price transmission also matters to input costs. As noted above, higher agricultural commodity prices and higher oil prices led to much higher world fertilizer prices. Many countries also attempted to isolate their markets from these cost increases. Energy subsidies or price interventions were not uncommon, and much effort has gone into mitigating the effects of fertilizer price increases, such as the FAO Soaring Price Initiative (FAO, 2008b). In some instances countries are more dependent on imports for fertilizer or energy than they are for food. Fertilizer markets may also be organized differently, so that farmer purchases may be as in retail rather than wholesale or traditional markets that are likely to be better integrated. Under such

4. The impacts of reduced tariffs or increased export taxes on both prices and foreign exchange costs or earnings are clear, but impacts on tax revenue are theoretically ambiguous. In the case of import tariff reductions following the 2008 food crisis, import tariff revenue almost certainly falls, as import demand is inelastic and tariffs often fell to zero. Increasing export taxes will reduce revenue when quantity changes are greater than tax changes, and especially if taxes are prohibitive.

conditions input prices could be transmitted more fully to countries and to their farmers than are crop prices. Oligopolistic firms, parastatals, policy responses and fertilizer subsidy initiatives would limit that transmission, so evidence on transmission is mixed (Dawe, 2008; Diouf, 2008) To the extent that higher fertilizer and energy prices were passed to farmers while grain and oilseed prices were not, incentives to increase supply would be reduced. In the poorest countries notably Africa, fertilizer use is quite low (Bertini and Glickman, 2009), but strategies to expand agriculture rely on greater use of modern inputs.

Conditions and policy adjustments varied widely across developing countries, but most countries seemed to revert to some policy measure intended to keep high international prices outside their borders. (Details on policy responses will be examined later.) The success in doing so determined impacts on the country, including consumption, production and cost.

Food inflation

One way to measure the extent of price transmission is to look at food inflation, the extent to which overall food costs went up in response to the increase in world prices. Food inflation rates depend on the share of staples (grains and oilseeds) in diets and the extent to which animal product producers, processors and distributors absorb high costs or pass them on to producers/consumers. The impact this has on general inflation depends on the share of food in consumption. In developing countries food is a much larger share of consumption, diets are more basic and involve a greater share of staples, and processing and distribution margins are typically lower than in developed countries, so can shrink less as costs increase. One consequence is that this episode of high world prices brought much greater food inflation, and spurred greater general inflation in developing countries than in developed countries.

The OECD-FAO Agricultural Outlook (OECD-FAO, 2008) looked at the extent of food inflation and general inflation in selected countries at about the time that world prices were peaking. Table 2 provides their findings along with information on food budget shares. In the case of the US, wholesale and farm gate prices for grains and oilseeds saw the full effect of the international price increases, as borders are open and policy did not intervene. Margins of processors, animal product producers, and distributors absorbed much of the cost increases, and staples are a very small share of consumer food budgets, so that food price inflation was only 5.1% as of mid-2008. In the European Union policy muted somewhat the pass through of international price increases, and conditions similar to those in the US kept food inflation largely under control, with the highest food inflation rate noted for Germany at 7.1%. In the developing countries food price inflation was generally much higher, and was highest in countries where food was the largest share of the diet, with some exceptions. Considerable variability was observed in this measure, due both to policy responses and to country specific conditions. At the extremes, in Sri Lanka, Kenya and China food price inflation exceeded 20%. In only three of fifteen cases was food price inflation less than 10%. India is an example of a country that managed to isolate its domestic markets, so food price inflation was only 5.8% and general inflation only 4.6%. China probably also isolated domestic markets, but internal disease problems with pork meant higher food inflation rates during this period (Yang *et al.*, 2008).

In the developed countries food inflation had only a small impact on overall inflation rates, with energy prices being more important and core inflation rates remaining quite low. In spite of its higher food price inflation, total CPI changes in Germany, France and the UK remained below 3%. In the US policy to fight recession allowed a somewhat higher general inflation rate at 4%. Almost all of the developing countries in Table 1 experienced higher general inflation rates, and several experienced double digit rates. This rise in inflation came after the time when most countries had managed to slow their inflation rates to modest levels. In developing countries food price increases were an important cause behind rising inflation.

The evidence from food inflation corroborates the results from price transmission studies. Increases in international prices were only partially transmitted to consumer food costs, with great variability in the extent of that price pass-through. While food price inflation increased, food cost increases between 4% and 25% are much lower than the doubling or more of international grain and oilseed prices over the same period. Nevertheless, higher food prices and more rapid food inflations bring hardship to consumers, and especially to the poor.

Table 2. Food price contribution to consumer inflation from February 2007 to February 2008, selected countries

	Total CPI % change[1]	Food price inflation[1]	Expenditure share of food	Food contribution to total change in CPI[3]
			%	
Developing				
Guatemala	8.04	11.6	38.9	4.5
Sri Lanka[2]	19.37	25.6	62.0	15.9
Botswana	7.7	18.3	21.8	4.0
India[2]	4.6	5.8	33.4	1.9
Indonesia	6.8	11.4	26.7	3.0
Pakistan[2]	10.6	18.2	41.5	7.6
South Africa	8.6	13.6	21.0	2.9
Jordan	5.4	9.1	39.7	3.6
Peru	4.0	6.4	29.6	1.9
Senegal	5.8	10.9	40.3	4.4
Egypt	9.5	13.5	41.5	5.6
Haiti	9.9	11.8	50.3	5.9
Kenya	15.4	24.6	50.5	12.4
Bangladesh	10.3	14.2	64.5	9.2
China	8.7	23.3	27.8	6.5
Developed				
USA	4.0	5.1	9.8	0.5
France	2.8	5.0	16.3	0.8
Germany	2.8	7.4	10.4	0.8
UK	2.5	5.6	11.8	0.7
Japan	1.0	1.4	19.0	0.3
Greece	4.4	6.6	17.8	1.2
Spain	4.4	7.1	21.9	1.6
Switzerland	2.4	2.2	11.0	0.2
Poland	4.3	7.1	30.4	2.2
Sweden	3.1	5.9	13.4	0.8

1. Percentage change February 2007 to February 2008.
2. Includes beverages and tobacco.
3. Contribution is column 2 x 3/100.
Source: OECD Secretariat. For OECD member countries, April 2008. FAO Secretariat for non-OECD countries.

Consumption/hunger

Higher grain and oilseed prices and food inflation make food more expensive to consumers in developing countries. This crisis did not spur income or wage growth commensurate with inflation, so consumers can be significantly worse off even if governments have reduced the effect of soaring international prices on domestic markets. The larger is the share of food in the budget, and the larger the share of stables in the food consumption bundle, the greater this effect will be. Since food makes up a larger portion of their expenditures, the poor are more vulnerable to the effects of high prices.

There is some controversy over the effect of high international grain and oilseed prices on poverty in developing countries. Some have argued that poverty is mostly a rural phenomenon (World Bank, 2007), so to the extent that higher food prices raise the incomes of farmers, poverty may be reduced – at least for some economic agents (Askoy and Isik-Dikmelik, 2008). Two points on the poverty incidence of high food prices are relevant here. One is that this episode likely increased the share and depth of urban poverty (World Bank, 2009; Shapouri and Christansen, 2008; FAO, 2008c). The second is that not all farmers, and certainly not all rural residents are net food sellers. Past work to determine poverty incidence has grappled with this concern -- that it is the net position in that market that determines if high prices drive real income and welfare up or down (Ivanic and Martin, 2008). Moreover, nearly self-sufficient farmers are impacted less than landless labor or those who produce only a small fraction of their consumption. The extent to which domestic, non-tradable substitutes exist also conditions the nutritional impact and limitations on coping strategies of poor consumers.

The consensus, with some dissention, seems to be now that in most countries the high food prices of 2007 and 2008 have led to a significant increase in poverty and hunger. The FAO (2008c) has estimated that an additional 75 million people are hungry – eating a diet that is inadequate to meet nutritional standards, and argues that their estimate is a minimum. They note that USDA's food security assessment sets this increase in the hungry at 133 million people (Rosen *et al.*, 2008). The World Bank (2008a) estimates that this corresponds with an additional 105 million people falling below their threshold for extreme poverty. Numerous other studies (*e.g.* Ivanic and Martin, 2008; Haq, Nazli and Mielke, 2008; Wodon and Zaman, 2008) have looked carefully at individual countries and applied different modeling strategies to gauge aggregate impacts. While quite diverse impacts are found the few exceptions of countries where poverty lessened were cases of countries where most small farmers were net food sellers (*e.g.* Vietnam - Ivanic and Martin, 2008). Many studies have found worsening poverty as a consequence of this crisis. While countries have responded in many instances to protect the poor, Wodon and Zaman (2008) argue than many strategies to cope with the crisis were poorly targeted and help consumers broadly rather than mostly the poor.

It is too soon to use household surveys during or after the crisis to gauge poverty or hunger impacts during this crisis. Most assessments cited above are based on surveys done prior to this crisis, with extrapolations of effects due to the high prices. Most approaches employ relatively simple models and some strong assumptions, particularly to arrive at global impacts. The controversies are often based on differing assumptions and different models of consumption. The numbers estimated here are not precise. There is nevertheless a consensus that the impacts on poverty and hunger have been substantial in a world where poverty and hunger were already an issue. While on the ground assessments revealed significant impacts on livelihoods and dietary diversity in the most vulnerable countries, and employment of coping mechanisms that included on rationing food, conclusive impacts on levels of malnutrition have not yet been established (Action Against Hunger, 2009). Those impacts may take time to show in indicators of malnutrition.

This concern that high food prices have significantly increased poverty and hunger in the developing world has been a driving force behind both the renewed interest in agricultural development and the design of international responses, in particular to direct that effort toward bettering the lives of the poor.

Supply response

Some have argued that high food prices present an opportunity for poor countries, and especially their farmers. If these are agriculture based economies, and if prices improve, greater agricultural production and higher income could be the result. It has been argued that poor incentives and a weak macroeconomic environment to farmers has been one factor contributing to the poor performance of agricultural development efforts in the past (World Bank, 2007). In any case, higher prices should provide better incentives to expand agricultural production and improve the lot of farmers who generate a marketed surplus.

A concern expressed in this debate has been that the policy responses of developing countries, and poor market integration, which work to diminish the transmission of high international prices to domestic prices, also diminish the incentives to agricultural development and to production (Manssouri, 2009).

The recent high world food prices have elicited a huge global production response. Record worldwide harvests were realized this last fall for grains and oilseeds. Table 1uses recent USDA data to show that world grain production increased 5.8% in the 2007/08 crop year and is estimated to increase another 4.9% in 2008/09 (FAS, USDA, 2009). Major exporters in particular, who in many cases saw much of these price increases at their farm gates, increased production 11.3% in 2007/08 and a projected 4.6% in 2008/09. The US response in 2007/08 was especially strong at 22.8%, while policies delayed the European Union response, but their output is expected to grow 21.2% in 2008/09. All these data must be interpreted with caution, as production outcomes depend on vagaries of weather. But these data do show the extent to which high prices have brought greater effort and output by farmers in many parts of the world.

The concern that high prices were not transmitted to developing country farmers raises the further concern that supply response has been, and will be, mostly in the major exporting countries and not in developing countries. While production changes arise from many factors, including weather events and unrelated policy adjustments, observed supply responses are indicative of the responses by exporters versus developing countries to the high prices recently. Just as the price transmission findings vary across developing countries, so does supply response. China, for example, isolated its market and in the first year of the crisis and saw only 1.1% grain production growth, but better growth the next year at 5.6%. India grew grain production earlier – 8.4% in 2007/08, but is expected to stagnate in 2008/09. In an aggregate of developing countries (that excludes China, India, Brazil and Argentina), production growth in 2007/08 was only 2.5%, and is projected to be only 0.3% in 2008/09. Expectations vary widely across countries and regions, and these data do reflect weather effects, but there is some evidence here to support the notion that supply response in developing countries is lower than in the major exporting countries. In the cases of Sub-Saharan Africa and South Asia these estimates show slowing growth and poor expectations this coming crop year.

Table 3. Grain production and growth, 2006-09 crop years

	2005/06	2006/07	2007/08	2008/09	2006/07	2007/08	2008/09	2006 to 2009
	Production in million mt				% growth from previous year			
World	2019	2005	2122	2226	-0.7%	5.8%	4.9%	10.3%
Major exporters	826	773	860	900	-6.4%	11.3%	4.6%	9.0%
United States	363	335	412	401	-7.6%	22.8%	-2.8%	10.3%
European Union	280	264	258	312	-5.8%	-2.4%	21.2%	11.4%
Argentina	34	43	43	29	25.9%	-1.2%	-31.8%	-15.1%
Brazil	57	63	73	66	10.9%	16.2%	-9.6%	16.5%
Canada	51	48	48	59	-4.5%	-1.1%	24.2%	17.3%
Oceania	40	18	26	32	-54.2%	42.4%	22.3%	-20.2%
Key Countries								
Former Soviet Union	147	145	148	195	-1.6%	2.0%	32.1%	32.5%
India	194	197	213	213	1.0%	8.4%	0.1%	9.7%
China	372	395	399	421	6.2%	1.1%	5.6%	13.4%
Other Developing Countries	383	403	413	414	5.1%	2.5%	0.3%	8.1%
North Africa	29	34	28	30	19.1%	-18.5%	7.9%	4.7%
East Asia	10	10	9	10	0.0%	-7.7%	9.6%	1.1%
Mexico	29	33	34	36	12.1%	3.0%	8.2%	25.0%
South America	19	20	21	21	5.3%	4.7%	-1.5%	8.5%
South Asia	73	73	75	72	-1.1%	4.0%	-4.0%	-1.3%
Southeast Asia	125	127	133	133	1.5%	5.2%	-0.3%	6.4%
Sub-Saharan Africa	98	107	113	112	8.7%	5.6%	-0.8%	13.9%

Source: FAS, USDA, Production, Supply and Distribution Online. Accessed March, 2009; http://www.fas.usda.gov/psdonline/psdQuery.aspx.

Macroeconomic effects

Policy responses to high border prices and the changes in those border prices bring a number of macroeconomic effects. The most obvious has already been discussed – higher food prices bring food inflation and in turn increases in general inflation. The extent of inflation varies, depending on the policy responses, on market integration and on import dependence and openness. Table 2 showed some of these inflation outcomes for selected developing countries, highlighting the variability in outcomes, but also the resurgence of inflation in developing countries. Higher border prices increase import bills and so impact balance of payments, as well. The FAO (Diouf, 2008) estimates that food import bills of developing countries surged by USD 820 billion in 2007 and another USD 1 035 billion in 2008. Measures to mitigate the border price changes also bring costs that impact macroeconomic outcomes, and most directly the balance of payments.

In assessing macroeconomic impacts it needs to be remembered that high food prices were part of a commodity boom and of increasing oil prices as well (World Bank, 2008d). Commodity exporters would benefit to the extent that the prices of their exports increased. Once again, this leads to a great deal of variability across countries on the extent of macroeconomic impacts. The IMF (IMF Africa Department, 2008) has assessed balance of payments impacts from food, crude oil and commodity price changes in

2008 for a set of African countries. They determined that oil price increases may have had larger negative balance of payments impacts than food prices, but food price increases mattered more to poverty increases.

Table 4 summarizes findings from the IMF study, looking at balance of payments impacts of from oil and food shocks as well as other commodity price changes. These data suggest the balance of trade worsened in most African countries. Exceptions included energy exporters and Cote d'Ivoire – an agricultural exporter. In those cases oil revenue or other commodity export revenue offset the costs of increased food imports. For food and oil importers, the oil import cost increases were in most cases larger, and substantial combined declines in foreign exchange reserves were realized. Many of these countries had come into the crisis in reasonable macroeconomic condition, with an accumulation of reserves. Large reductions in reserves were realized for food and oil importers. This is now combined with global recession that is contracting trade (World Bank, 2008d) and depreciation of currencies is common.

A depreciating currency will keep food prices high in local currency even as international prices in dollars decline. We noted above that this has impacted many countries, and kept high food prices in place in many instances. The extent of this phenomenon depends on the exchange rate regime in place. Countries who pegged their currency to the dollar saw the full rise in prices to July 2008 and then the decline that has occurred since then. Countries who peg to the Euro would have seen a smaller price increase and subsequently a smaller decline, with prices still relatively high in both cases. Countries that floated their exchange rate would experience outcomes dependent on their balance of payments position, and many appreciated prior to July 2008 and have depreciated afterwards.

Changes in border prices also impact a country's terms of trade. Once again, this depends on a countries mix of import and exports. Food and oil exporters would see an improved terms of trade while importers would see their terms of trade worsen. The export bans put in place by some countries would reduce export revenue, hurting the balance of payments. In these cases terms of trade benefits from higher food prices would not be realized, and would not be reflected in domestic prices. While many developing countries are food exporters, many of the tropical products, such as cocoa, coffee, tea and cotton, saw smaller price increases than were found for grains and oilseeds. A country that imports grain and exports cotton and cocoa, for example, could see its terms of trade worsen.

Since many countries reduced tariffs and cut taxes on food to stabilize consumer costs of food, fiscal costs of policy responses could be substantial. An important component of the World Bank response to this crisis (World Bank, 2008c) included improving "fiscal space", hence making up lost revenue from taxes and tariffs that were reduced. Reductions in government revenue would also make responding with long run initiatives, such as agricultural investment, more difficult. Many developing countries saw fiscal impacts as a serious problem from this crisis, stemming from the response measures they emphasized.

Macroeconomic conditions have worsened as the global recession has expanded and now impacts seriously most developing countries. Each time a new forecast is issued growth prospects are lowered. In November the World Bank (2008d) was already forecasting GDP growth for 2009 at only 4.5%, down from 7.9% in 2007, and in its most recent forecast the World Bank (2009) now sees world income declining. Difficult economic conditions and worsening trade balance will likely worsen food availability in countries that had become increasingly import dependent, and will increase costs to combat high border prices for food.

Table 4. Sub-Saharan Africa (LICs): impact of 2008 food and fuel price Increases

	Per cent of 2007 GDP					
	BOP Impact [1]					Memo
	Food	Oil	Food and Oil Shocks	Other commodities	Total Shock	Food and Oil BOP Impact / Reserves (%)
Selected countries	-4.5	-11.1	-15.5	3.0	-15.3	-96.0
Liberia	-1.1	-7.6	-8.8	0.0	-8.8	-31.5
Guinea-Bissau	-2.4	-6.1	-8.5	-0.1	-8.6	-407.7
Eritra	-0.4	-5.6	-6.0	0.6	-5.5	-33.6
Togo	-2.7	-2.9	-5.6	-0.9	-6.5	-24.7
Comoros	-0.8	-2.9	-3.7	-1.0	-4.7	-58.2
Malawi	-1.6	-3.6	-5.2	1.0	-4.2	-148.1
Guinea-Bissau	-2.7	-2.3	-5.1	0.0	-5.1	-27.1
Gambia, The	-0.9	-3.7	-4.6	0.1	-4.4	-36.7
Sierra Leone	-0.7	-3.1	-3.8	0.0	-3.7	-34.4
Madagascar	-0.4	-3.9	-4.3	0.9	-3.4	-31.4
Burundi	-0.8	-2.6	-3.4	0.4	-3.0	-71.7
Ethiopia	-0.3	-2.7	-3.0	0.5	-2.5	-22.1
Burkina Faso	-0.8	-1.8	-2.5	0.1	-2.4	-61.3
Central African Rep.	-0.6	-2.0	-2.5	0.3	-2.2	-11.8
Benin	-0.6	-2.9	-3.5	5.4	1.9	-22.4
Mali	-0.4	-1.7	-2.0	0.8	-1.3	-116.6
Zimbabwe	-1.5	0.0	-1.5	0.0	-1.5	-79.4
Congo, Dem. Rep.						
Oil-exporting countries						
Cameroon	-0.7	5.3	4.7	0.5	5.1	35.4
Nigeria	-0.7	16.1	15.5	0.0	15.5	49.0
Chad	-0.3	22.8	22.5	0.5	23.0	179.9
Gabon	-0.3	26.1	25.8	0.1	26.0	258.8
Congo, Rep.	-0.6	33.1	32.5	0.1	32.6	126.5
Angola	-0.5	37.7	37.2	0.0	37.2	188.6
Equatorial Guinea	-0.3	51.8	51.5	0.1	51.5	157.2
Other low-income countries						
Ghana	-2.3	-8.1	-10.4	5.5	-4.9	-49.6
Kenya	-0.8	-3.6	-4.4	0.3	-4.2	-38.8
Tanzania	-0.9	-4.6	-5.5	1.7	-3.8	-35.1
Mozambique	-1.1	-3.1	-4.2	0.5	-3.8	-24.3
Zambia	-0.1	-2.7	-2.8	-0.1	-2.9	-28.8
Rwanda	-0.4	-2.0	-2.4	0.3	-2.2	-14.4
São Tomé & Principe	-0.4	-2.0	-2.4	0.3	-2.2	-8.9
Senegal	-1.5	-4.0	-5.5	0.0	-5.5	-39.4
Uganda	-0.7	-2.1	-2.7	0.8	-2.0	-12.3
Niger	-0.7	-0.8	-1.5	3.6	2.1	-12.1
Côte d'Ivoire	-1.1	2.0	0.9	2.1	3.0	9.3

Source: IMF Africa Department, 2008 (Data from UN Comtrade; IMF, World Economic Outlook; and staff calculations).

Prior conditions

In his presentation to an OECD/GDPRD Policy dialogue on high food prices in February 2009, Delgado (2009) noted that a number of "inconvenient facts" predated the recent food crisis and ongoing global recession. His point was that before these events there was substantial poverty and hunger in the world, and agriculture had been neglected by both national governments of developing countries and

international donors. There was already recognition by many that investment in agricultural development needed to be renewed both to improve per capita food availability and to spur pro-poor economic growth.

Hunger and poverty

According to the World Bank's (2007) *World Development Report* 22% of the population in developing countries fell below the threshold for extreme poverty, earning less that USD 1 per capita per day. 37% of the rural population was poor by this standard, and 13% of the urban population was poor. Rural poverty had declined from 28% in the early 1990s, largely due to improvements in rural conditions in East Asia and the Pacific. This amounted to 883 million poor people before the additions due to the most recent food crisis. Poverty is greatest in South Asia, equaling nearly 500 million in 2002. While poverty fell in East Asia from over 500 million to about 200 million between 1993 and 2002, it increased somewhat to over 300 million people in less populated Sub-Saharan Africa. As noted earlier, World Bank (2008a) estimates put the increase in extreme poverty at 105 million people due to the food crisis, with a shift to higher poverty rates in urban areas.

The FAO's (2008c) food security assessment put the number of hungry people in developing countries at 923 million in 2007, adding 75 million to the already 858 million undernourished before food prices began to soar. They observe that many countries were on track to meet the World Food Summit and Millennium Development Goals (UN, 2009) to reduce hunger and malnutrition before the crisis began. Nevertheless, malnutrition was considerable prior to the recent food crisis, which reversed progress underway to improve the situation. USDA's estimates of food insecure people rose from 849 million in 2006 to 982 million in 2007, once again arguing that food price increases exacerbated an already serious problem (Rosen *et al.*, 2008). They note the growing dependence in developing countries on commercial imports rather than on own production. They also note the importance of Africa, where they found 457 million food insecure people in 2007.

Problems with agricultural production and productivity are most severe in Africa, as well. For many years it was the case that Africa was the only region of the world in which agricultural production was growing more slowly than population. According to USDA (Rosen *et al.* 2008), the situation has improved over the last ten years, as agricultural production has been growing at about 3% per year, while population grew at 2.7% per year, allowing only modest increases in per capita consumption, from levels that on average were only barely above minimum nutritional requirements. Yields in Africa are well below those in the rest of the developing world, and input use is also much lower (Bertini and Glickman, 2009). According to that study, fertilizer use in Africa per hectare is only 10% of levels used in the industrial world, again before the crisis which saw world fertilizer prices increase much more than grain and oilseed prices.

The other area of the world at risk, South Asia, has also not fully developed its agricultural potential. Bertini and Glickman (2009) argue that the green revolution and past development strategies have focused on more favored areas where the potential to produce a surplus is greater. Many small-scale farmers in less favored areas have been left behind.

Investment in agriculture

Investment in agricultural research and development is understood to have raised productivity worldwide during the last several decades. Estimates suggest very high rates of return to both agricultural research and extension, averaging over 70% per annum in the studies surveyed by Pardey, Alston and Piggott (2006a). Much of this research has been financed by public spending that had increased to USD 23 billion by 2000 as the public good aspect of these investments is important (Pardey, Alston and Piggott, 2006b). But that public spending has been conducted mostly by a few developed countries – the

US, Japan, France and Germany accounted for two-thirds of that spending. An increasing share of investment in agriculture in developed countries is now financed by private spending, accounting for over one-third of this investment in 2000. That private investment addresses numerous objectives beyond productivity on the farm. Developing countries have to a large extent depended on spillovers from developed country research, which has become increasingly less relevant to their needs (Pardey, Alston and Piggott, 2006b).

Public spending on agriculture has fared well in India and China, and grew over 5% per year during the 1990s. Elsewhere in the developing world spending on agriculture has fared less well. Investment in agricultural research in Africa grew at 0.82% per year in the 1990s, having grown at 1.25% in the 1980s. National budget allocations to agriculture in Sub-Saharan agriculture had dropped by 2004 to only 5.1% of overall expenditure (GDPRD, 2009). Spending growth slowed in Asia overall and the Middle East, as well. Private investment in agricultural research and extension is also much smaller in the developing world, and provides only 8.3percent of support (Pardey, Alston and Piggott, 2006b).

Trends away from investment in agriculture have been at least as dramatic in official development assistance (ODA). According to the OECD, ODA fell from over USD 8 billion in 1979, or about 17% of donations, to less than 2 billion in 2004, only 3.5% of overall assistance (GDPRD, 2009). This trend reflected greater emphasis on health and education by donors, privatization initiatives in agriculture that diminished the role of the state, and a perception that many agricultural projects had failed.

There was an increase in ODA to agriculture in 2007 (OECD, 2008c), as a number of efforts had before the food crisis already begun to renew interest in agricultural development. The OECD in 2006 had emphasized the role of agricultural development not only for increased production, but also as a vehicle for pro-poor growth. The 2007 *World Development Report's* (World Bank, 2007) theme was agriculture, and it emphasized prospects for increased investment in agriculture as one strategy to improve the lives of rural poor.

Earlier efforts to focus development assistance on poverty had recognized the role of agriculture and of poverty reduction, even if they did not all launch new initiatives toward increased contributions to agriculture. The World Bank and IMF had refocused on poverty after the Asian financial crisis of the late 1990s, and countries developed poverty reduction strategy papers (PRSPs) to guide development strategy and international interventions. At the time it was recognized that agriculture would be part of a pro-poor growth strategy, but this effort did not directly lead to greater spending on agriculture either by national governments or donors. Since the inception of these programs at about 2000, a number of international efforts have been attempting to focus development efforts more on agriculture. Reducing poverty and alleviating hunger were the focus of the first Millennium Development Goal established by the UN in September 2000. Several international efforts since have sought to address achieving that goal including the Millennium project in 2002 (UN, 2009). The Alliance for a Green Revolution in Africa began implementing projects to foster more rapid agricultural development through partnerships in Africa in 2006 (AGRA, 2009). The African Union's New Partnership for Africa's Development (NEPAD) emphasized agriculture in establishing its Comprehensive Africa Agriculture Development Programme (CAADP) in 2002. Much earlier in 1984 the Food Crisis prevention network had been established by the Sahel and West Africa Club (SWAC) and CILSS to address these issues. The recent food crisis has brought attention and priority to these ongoing efforts with the promise of increased funding in the future.

WTO – URAA and Doha Development Agenda

Another international effort with heavy emphasis on agriculture and now development is the World Trade Organization (WTO) negotiations launched in 2002, the Doha Development Agenda. The WTO had first seriously addressed distortions in agricultural trade in its 1995 Uruguay Round Agreement on

Agriculture (URAA). That agreement had addressed disputes largely between developed countries, so goals of the Doha round were to help trade foster more rapid economic development and address unresolved concerns of developing countries. Some have argued that the Doha round has lost its focus on development, however (Stiglitz, 2005). Agricultural distortions remain a key stumbling block to completing the Doha round, and some larger developing countries including Brazil and India, have played larger roles. Coalitions such as the G20 and G90 have attempted to bring together the diverse interest of developing countries into these negotiations.

Trade policy has been an important part of developing country responses to the food crisis and to high international agricultural prices. Many have called for completion of the Doha round in order not to lose an opportunity to foster development, and many have noted the distortions in world markets, which have in many instances been exacerbated by country responses to the food crisis. But it is unlikely that many of those country responses violate either existing WTO commitments or what might become a new WTO agreement based on modalities drafted by the chair of the agriculture negotiating committee in July 2008. Tariff reductions and export taxes or bans are not disciplined beyond reporting requirements in existing or proposed WTO agreements. Those negotiations did stumble on safeguards in July, one of the few mechanisms in the agreement that addresses the stabilization objectives so evident in actions taken by countries to isolate domestic markets from international price increases. While trade policy reform is critical to how countries might adjust to new conditions in international agricultural markets, the WTO has not been actively involved in the international responses to high food prices.

It has been alleged that some countries did violate commitments under regional trade agreements by closing borders in response to the high international food prices, particularly in Africa. Borders were closed in cases where domestic food prices were rising Those institutions were also relatively ineffective in disciplining trade policy so that open borders might help stabilize domestic markets.

National and international policy responses

Both national governments of developing countries and the international community have responded strongly to the food crisis of 2007 and 2008. It is instructive to contrast the nature of the responses by national governments versus donors to gain insight into prospects for actions to foster agricultural development or reduce poverty. The international community has emphasized the two prongs of the CFA (UN, 2008) while national governments have focused on policy measures that in many instances more broadly protect consumers from high international prices. Details of those two sets of efforts are explored below.

National governments

The World Bank (2008a) examined policy responses by developing countries at about the time prices peaked, in July 2008. The FAO (Demeke, Pangrazio and Maetz, 2008) comprehensively surveyed policy responses to this crisis to date in December 2008. The FAO study classified country policy responses as trade and domestic policy measures (fostering stabilization), safety nets, and producer support. Table 5 from that study indicates where tariff and tax reductions were pursued, as well as where export bans were enacted and stockpiles withdrawn. Table 6 indicates where safety nets programs were enhanced, and Table 7 indicates where producer support measures were put in place.

Table 5 shows the extent to which trade and domestic policy measures were taken by developing countries in response to rising food prices.[5] Trade measures include reduction or elimination of tariffs and

5. This survey was the most current and comprehensive among those available. Nevertheless, it represents a survey not a census of selected countries. There are additional policy changes worldwide that come to mind that are not captured in Tables 5, 6 and 7.

customs fees, by 43 countries, and export restrictions or bans, enacted by 25 countries. These were the measures most often used, and most directly impacting the transmission of international prices inside national borders. There is a limit, however to what tariff reductions can accomplish, as small tariffs can only counteract small portions of international price changes. Many developing countries had reduced agricultural tariffs as a result of both their URAA commitments and structural adjustment programs before the crisis, leaving less maneuverability to use these instruments to stabilize domestic markets. Export restrictions have a similar intent as tariff reductions, to limit the increase in domestic prices and isolate domestic markets from world price changes. It was not only traditional exporters who restricted exports, but also importers who wished to prevent trade flows from reversing, and high prices from pulling supplies out of markets that are normally not fully supplied by domestic production.

This literature on the food crisis wants to draw a distinction between tariff reductions and export restrictions, pleased by the former and condemning the latter. But both have the same intent – to stabilize and isolate – and both cause a country not to participate in the adjustment in international trade that high prices were calling for, and so they further contribute to the instability of international markets (Bale and Lutz, 1979). One of the hopes has been that free and open trade would lead to more stable international markets (Tyers and Anderson, 1992). The actions taken by developing countries represent reversion to past policies that have contributed to the instability of the past. The liberalization of trade accomplished in the URAA did not bring to this episode policy responses that could or did count on international markets to exhibit adequate stability.

One of the lessons of the URAA was that countries can impact trade and price transmission via domestic agricultural polices as well as trade policies. That is also evident in Table 5. Reduction of taxes, by 23 countries, also limited price transmission and so price increases inside developing country borders. Many of the same countries who limited tariffs also reduced taxes, in part because reducing already low tariff could have only a small effect. 21 countries also instituted price controls or other administrative pricing schemes to control domestic prices. These domestic measures were likely inconsistent with trade and supply-demand forces, creating imbalances in markets and inciting market agents to try to avoid such restrictions. Administered prices are seldom effective means to control markets, especially when quantity cannot also be adjusted to accommodate those officially set prices.

35 countries also released stocks, often at subsidized prices, to limit domestic price increases. If countries are not well integrated into world markets, or borders are not fully open, these measures can result in the quantity changes needed to keep prices lower. But open borders would mean stocks changes would mostly be felt as changes in import (or export levels) and not in prices. Small open economies would see domestic prices at border price levels, as altered by policy measures such as taxes and tariffs, and trade levels determined by supply and demand quantities, including stocks adjustments. Only large trading countries or countries poorly integrated into world markets could effectively use stocks to combat high prices. Those less well integrated markets would have seen smaller impacts of high world prices in any case.

There is a temptation to suggest that if domestic stabilization methods, and in particular domestic stockholding, are ineffective, then coordinated international stockholding might be called for. But past research has shown that holding physical stockpiles to stabilize international agricultural markets can be quite costly. Commodity agreements that attempted to intervene in international markets, often holding stocks, typically failed in their missions and were abandoned by the early 1990s. This is likely to be a very costly solution to future crises.

Price transmission and food inflation evidence tells us that these measures were somewhat effective in shielding domestic markets from international price changes. But that extent of effectiveness varied considerably. Both market integration and these policy changes would matter to that extent of

effectiveness. This is what has determined the outcome observed by those who explored price transmission – that import dependent economies and countries with few domestic substitutes for imported foods saw the largest domestic price increases. This evidence also suggests stabilization is an overriding objective of national governments in developing countries. Only limited work related to WTO negotiations has addressed this concern. There remains much work to be done to sort out how effective various policy measure were and to develop better policy advice on how to cope with any future crisis. Past advice was often ignored in this crisis, as least in regard to application of these measures to stabilize domestic markets.

Table 6 indicates the extent to which countries initiated or supplemented safety net programs to protect poor and vulnerable consumers from the food price shock. Advice to countries emphasizes that targeted safety nets are important measures to protect the poor and vulnerable. Targeting means directing resources to those with the lowest incomes and at greatest risk of malnutrition while allowing the economy more generally to adjust to the new economic signals, that food is now more expensive. Most international initiatives emphasized the efficiency of targeting assistance to the poor (*e.g.* World Bank, 2008c; UNHLTF, 2008). Moreover, cash transfers are seen as more effective than in-kind transfers such as food assistance programs, allowing consumers to make their own choices as to how to best allocate now more scarce resources. There has been success in recent years in establishing cash transfer programs and moving safety nets in developing countries toward the more desirable policy configurations, especially in Latin America. Table 6 shows frequent use of cash transfer programs – 23 countries overall with 9 in Latin America and 8 in Asia. But these are less frequently adopted than broader trade based measures, especially in Africa. Less well targeted programs to increase disposable income targeted employment and typically salaries of public servants. 16 countries, eight of which who were in Asia, instituted programs to raise disposable incomes.

In kind food assistance programs introduced or expanded to address the food crisis were more prevalent in Asia, where 9 of 19 instances of these programs were found. Some of these were done jointly with the World Food Program, who carried out food assistance programs in 76 countries worldwide in 2008 (WFP, 2009c). In kind food assistance was a significant part of the international response to this crisis, as food aid donations were maintained or increased. Progress has been made on addressing efficiencies of food assistance programs as well, to better target resources to the needy (Barrett and Maxwell, 2005). While food assistance and other safety net measures were necessary to cope with short run problems, these programs can inhibit long run incentives. The better targeted they are, the less likely are incentives to be distorted.

Countries did adopt measures to help agricultural producers and maintain or increase production. Table 7 indicates where various producer support measures were adopted in response to the recent food crisis. 35 countries pursued non-market production support measures such as untargeted output, input, and credit subsidies, with and other 9 countries pursuing fertilizer and seed programs. 9 countries adopted various farmer safety nets, and 15 countries pursued market based measures that raised market prices, improved market information and supported value chain management.

Demeke, Pangrazio, and Maetz (2008, p. 19) note that "The policy challenge of protecting consumers while allowing small producers to benefit from the high prices has not been easy in many countries, especially in the poor and insecure." Best practices policy advice is followed in some instances, and not others. The types of programs adopted by developing countries, as described here, are at times in line with policy advice laid out by the international community, but have often included measures benefiting or protecting consumers more broadly, and at times sacrificing incentives to future production to minimize short run impacts of the crisis. These choices reflect somewhat different priorities and tradeoffs in expenditure than are implicit in the strategies recommended by the international community, where targeting poverty takes highest priority.

Table 5. Trade based policy measures commonly adopted (as of 1 December 2008)

	Domestic market based measures			Trade policy measures	
	Release stock (public or imported) at subsidized price	**Suspension/ reduction VAT and other taxes**	**Admin. price control or restrict private trade**	**Reduction of tariffs and customs fees on imports**	**Restricted or banned export**
Asia **(26 countries)**	Bangladesh Cambodia China India* Iraq Jordan Lebanon Malaysia Nepal Pakistan Philippines Republic of Korea Thailand Viet Nam Yemen	Azerbaijan China Indonesia Jordan Mongolia	Bangladesh Jordan Malaysia Pakistan Republic of Korea Sri Lanka	Azerbaijan Cambodia China Indonesia Iran Jordan Lebanon Pakistan Philippines Republic of Korea Saudi Arabia Turkey Yemen	Bangladesh Cambodia China India Iran Jordan Kazakhstan Lebanon Myanmar Nepal Pakistan Syria Vietnam
	15	5	6	13	13
Africa **(33 countries)**	Algeria Benin Cameroon Egypt Eritrea Ethiopia Kenya Malawi Mauritania Nigeria Senegal Sierra Leone Togo	Burkina Faso Congo Djibouti Ethiopia Ivory Coast Kenya Lesotho Madagascar Morocco Mozambique Republic of Senegal Sudan Uganda	Benin Cape Verde Djibouti Ethiopia Ivory Coast Malawi Morocco Senegal Sudan Togo	Benin Burkina Faso Cameroon Cape Verde Gambia Ghana Guinea Ivory Coast Kenya Liberia Libya Madagascar Mauritania Morocco Niger Nigeria Rwanda Senegal	Cameroon Egypt Ethiopia Guinea Kenya Malawi Tanzania Zambia
	13	14	10	18	8
Latin America & Caribbean **(22 countries)**	Bolivia Brazil Costa Rica Dominican Republic Guatemala Guyana Honduras	Brazil Dominican Rep Guyana Suriname	Belize Costa Rica El Salvador Mexico Saint Lucia	Argentina Bahamas Belize Bolivia Brazil Ecuador El Salvador Guatemala Mexico Nicaragua Peru Trinidad & Tobago	Argentina Bolivia Brazil Ecuador
	7	4	5	12	4
Total	35	23	21	43	25

Source: Demeke, Pangrazio and Maetz, 2008.

Table 6. Countries that introduced safety net programs in response to the high food prices

	Safety net (increased or introduced)		Increase disposable income
	Cash transfer	**Food assistance**	
Asia **(26 countries**	Bangladesh China India Indonesia Jordan Pakistan Saudi Arabia Yemen	Afghanistan Bangladesh Cambodia India Indonesia Iraq Jordan Republic of Korea Saudi Arabia	Bangladesh Cambodia Jordan Iraq Lebanon Saudi Arabia Syria Yemen
	8	9	8
Africa **(33 countries)**	Burkina Faso Egypt Ethiopia Liberia Mozambique South Africa	Angola Ethiopia Liberia Madagascar Nigeria	Cameroon Egypt Ethiopia Libya
	6	5	4
Latin America & Caribbean **(22 countries)**	Brazil Chile Costa Rica Ecuador El Salvador Guyana Haiti Mexico Suriname	Bahamas Guatemala Haiti Peru Suriname	El Salvador* Guyana* Honduras Panama* * Reduced income tax for low income group
	9	5	4
Total	23	19	16

Source: Demeke, Pangrazio and Maetz, 2008.

Table 7. Short-term measures aimed at supporting producers and production

Region	Non-market based production support measures			Market-based intervention
	Production Support Programs	Productive Safety Nets	Fertilizers and Seeds Programs	
Asia (26 countries	Azerbaijan Bangladesh China Indonesia Malaysia Mongolia Myanmar Pakistan Republic of Korea Syria Tajikistan	Bangladesh Indonesia Iraq Philippines	Pakistan Philippines	Afghanistan Bangladesh China India Lebanon Nepal Pakistan Turkey Yemen
	11	4	2	9
Africa (33 countries)	Algeria Benin Burkina Faso Central African Republic Ghana Liberia Libya Madagascar Nigeria Senegal Seychelles Tunisia	Guinea Kenya Liberia Madagascar Tanzania Tunisia	Burkina Faso Nigeria Tunisia Zambia	Algeria Egypt Ethiopia Tunisia
	12	6	4	4
Latin America & Caribbean (22 countries)	Antigua and Barbuda Belize Brazil Costa Rica Dominican Republic Guyana Haiti Jamaica Nicaragua Peru Suriname Trinidad and Tobago	Dominican Republic El Salvador Jamaica Nicaragua Trinidad and Tobago	El Salvador Jamaica Trinidad and Tobago	Brazil Honduras
	12	5	3	2
Total	35	15	9	15

Source: Demeke, Pangrazio and Maetz, 2008.

International initiatives

While the international community recognized the need to support the full set of national government responses to the food crisis, their programs and especially ongoing international dialogue have emphasized the two prongs of the CFA (UNHLTF, 2008) – emergency relief and agricultural development. International efforts encompassed humanitarian relief and safety nets, renewed investment in agriculture, and creating "fiscal space" to help defray costs of national measures. International organizations, development banks and bilateral donors have been seeking partnerships with developing countries to enhance effectiveness of this effort. While these efforts are reflected in economic commitments and proposals, much of the debate is on political arrangements to ensure aid effectiveness.

Safety nets, humanitarian relief, and food aid are the focus of the World Food Program (WFP, 2009c). The WFP realized early on during this crisis that high food prices could jeopardize ongoing activities. It appealed for an additional USD 755 million to finance its activities, and the appeal yielded nearly

USD 1.0 billion in contributions. A contribution of USD 500 million from Saudi Arabia greatly helped in meeting this appeal. This allowed the WFP to expand the number of needy served to nearly 100 million people, although they note that this is only 10% of the hungry in the world now. The US has been a substantial donor to the WFP and runs its own direct food aid programs. The US increased food aid assistance by USD 200 million from the Bill Emerson Humanitarian Trust and with an additional USD 1.2 billion in PL480 Title II donations (OECD, 2009).

The WFP seeks to address development issues as well as humanitarian relief in its programs. The P4P program is run in partnership with other institutions to use WFPs buying power to insure a market for any surpluses farmers generate. The WFP has sought to buy more of its food locally, rather than sourcing from distant donors, to benefit agricultural development in poor countries. Another issue in WFP operations is how long food assistance needs to continue. Does food aid simply get people through famine or crisis, or should it help to rebuild wealth and foster development? This suggests designing safety nets with medium to long run consequences under consideration, and is already part of WFP's strategy.

Other United Nations agencies also responded to the food crisis, with a longer term focus. The CFA addresses coordination of all UN agency activities and seeks to offer leadership to international efforts to respond to this crisis. "The CFA is a framework for setting out the joint position of HLTF members on proposed actions to: 1) address the current threats and opportunities resulting from food price rises; 2) create policy changes to avoid future food crises; and 3) contribute to country, regional and global food and nutritional security" (UNHLTF, 2008, p.vii). Earlier, the FAO had proposed a USD 1.7 billion Soaring Food Prices Initiative (FAO, 2008b). Elements of that initiative included policy reforms, productive safety nets, intensification of agricultural production systems, improving markets, reducing crop losses and coordinating technical assistance. A substantial part of actual expenditures have financed inputs for agricultural production (Diouf, 2008). The IFAD refocused USD 200 million of its resources to address the food crisis (GDPRD, 2009).

The World Bank's Global Food Crisis Response Program committed USD 1.2 billion to one of the more complete efforts to address the crisis and meet national government concerns. The World Bank (2008c) saw its comparative advantage in "(i) rapidly provide significant funds to countries at risk, (ii) undertake policy analysis drawing upon country, regional and global experience, (iii) provide access to a mix of innovative financial instruments to mitigate a portion of the increased food price risk, partially alleviating the need for costly physical remedies such as strategic grain reserves, (iv) design and deliver well-targeted social protection interventions to mitigate the effect of the price rise on the poor and vulnerable; and (v) support policy and programmatic responses over the medium and longer term including measures critical to improving the domestic agricultural supply response. The World Bank's program, more so than others, committed significant resources to adding "fiscal space" to developing country national governments.

Other development banks reallocated resources and increased efforts on agricultural development, as well, and followed the World Bank's lead in addressing fiscal issues in developing countries. The Asian development bank allocated USD 0.5 billion to immediate budgetary support and increased lending to agriculture by USD 1.0 billion. The African Development Bank increased its agriculture portfolio by USD 1.0 billion. The Inter-American development Bank allocated USD 1.5 billion to support of least developed member countries and made an additional USD 0.5 billion credit line available (GDPRD, 2009).

Bilateral donors also significantly increased pledges to agriculture as they addressed the food crisis (OECD, 2009). The European Union in late 2008 launched a USD 1.2 billion initiative, and Spain committed an additional USD 200 million in January 2009. EU member countries had pledged over USD 2 billion at an FAO conference in June 2008. As noted above, the US substantially increased its food aid donations, by over USD 1.4 billion, and added another 200 million to increased development

assistance. Japan provided a USD 1.5 billion total response to this crisis, and Korea committed USD 100 million, mostly for emergency assistance. (OECD, 2009). These and other bilateral donations emphasized either emergency relief or longer term agricultural development.

Concern with how to spend well these additional resources has resulted in numerous international meetings to address the food crisis and coordinate the response of the international community. Meetings highlighted by the GDPRD (2009) include:

- World Bank/IMF spring meeting in Washington, DC, April 2008
- FAO High level Conference on Food Security, Rome, June 2008
- G8 Summit in Tokyo, July 2008
- UN MDG High level Summit in New York, September 2008
- FAO Committee on Food Security, Rome, October 2008
- High Level Meeting on Food Security for All, Madrid, January 2009

These meetings led to the UNs Comprehensive Framework for Action (CFA – UNHLTF, 2008) and the Global Partnership for Agriculture, Food Security and Nutrition, donor strategies for the necessary partnering discussed at the G8 meeting and at the policy dialogue on high food prices convened by the OECD and GDPRD in February 2009 (OECD, 2009a). These frameworks broadly endorse international dialogue to better coordinate increased aid to agricultural development. Some more specific proposals, such as the Financial Coordination Mechanism (FCM) came out of the meeting in Madrid and link to two ongoing efforts to develop African agriculture – the Alliance for a Green Revolution in Agriculture (AGRA, 2009) and the UN's Millennium project (UN, 2009).

Much of the focus of the donor community has been on Africa, where agricultural development has lagged and poverty has increased. In the Maputo Declaration African countries committed to allocate 10% of public expenditures to agriculture and that commitment was reaffirmed in the Accra Agenda for Action. According to the Africa Partnership Forum, progress on this goal is slow as only a few countries have reached this goal. The African Union's New Partnership for Development (NEPAD) has also emphasized the importance of agricultural development in its Comprehensive Africa Agriculture Development Program (CAADP – Bissi, 2009). CAADP efforts to foster more rapid agricultural development were also endorsed at the OECD/GDPRD donor meeting in Paris.

Heavy emphasis in international dialogue is placed on restarting investment in agriculture in developing countries, and especially in Africa. Delivering emergency relief is also emphasized. Underlying the discussion is a concern that this new aid be effectively used, and that past agricultural development efforts have not been sufficiently successful. The Paris declaration also lays out a new model for aid delivery emphasizing country ownership of development programs and harmonization across donor contributions. The Paris declaration would have donors contribute to an overall development plan by a recipient country government, with the priorities set by national governments. This may prove challenging when launching new agriculture initiatives, in light of the priorities revealed by differing responses of national governments versus the international community. There is also some controversy in the debate on strategies to foster agricultural development, with key controversies related to the role of the state. Thus, it is useful to consider where we stand in our understanding of how to implement agricultural development initiatives and emergency relief efforts in the context of this new model of aid delivery and recent thinking on the role of national governments in agriculture.

Policy advice

For purposes of evaluation and critique it is useful to separate four categories of responses by both national governments and the international community to the food crisis. While three of those – safety nets, investment in agriculture, and consumer protection/trade policy – have been explored somewhat already, how these fit into a broader development strategy is also relevant to any recommendations for policy advice and donor commitments. Safety nets and investment in agricultural development are almost always the priorities of both international organizations and external analysts examining causes of the food crisis and its effects on developing countries. These are the two prongs emphasized in the UN's CFA adopted in July 2008. Short run measures to broadly protect consumers and weather a short run crisis were key components to national government strategies. Those measures do not address well transition to a future of higher world food prices. All these options, especially when one of the goals is to reduce poverty and hunger, must be examined in terms of broad development strategy, recognizing that hunger and poverty are a consequence of low income more than inadequate food availability (Sen, 1982)[6]

Three interrelated key controversies emerge in the debate on policy advice in responding to high food prices. A vaguely stated concern with the role of the state in this debate reflects evolution of thinking about broad development strategy. Privatization has been a critical component of development advice since the mid-1980s with a recent realization that development strategies may have gone too far in relying on the private sector. This concern is seen more directly in assertions by some that an agricultural development model based on the green revolution is flawed. One concern expressed there is that the state played an excessive role in managing markets. Another is that past approaches to the green revolution paid insufficient attention to environmental externalities. Many of the concrete proposals to foster more rapid agricultural development follow much of what is the green revolution approach, broadly reinterpreted, however. The concerns highlight the need for effective, not intrusive government. The most explicit concerns with the role of the state revolve around the use of subsidies as a component of agricultural development strategy. A knee–jerk reaction of many policy advisors rejects any subsidies, but the alleged success in Malawi may have depended what the Ad Hoc Advisory Group (2009) has labeled "smart" subsidies. Sustainability of that strategy is questioned. The broader concern is that there are missing markets and poorly developed institutions that hinder agricultural development, and the state must play a role in assisting development of better institutions and properly functioning markets.

How good is our advice on each? Are we applying what we have learned?

In light of these controversies, each of the four categories of policy response to the recent food crisis are explored briefly below, emphasizing the large agreement on the role of agriculture in pro-poor growth and the elements necessary to successfully reinvest in agriculture. In each area we ask how far along we are in determining appropriate policy advice based on past experience. We then identify what we believe are the limiting factors hindering successful agricultural development and crisis response.

Emergency relief/safety nets

Food aid programs have evolved to become more cost efficient and nutritious over their long history in response to past critiques (Barrett and Maxwell, 2005). WFP operations reflect this evolution, and so

6. While it is fashionable to invoke Sen to make the point that hunger may be more so a problem of demand than of supply, this notion has been recognized for long time. In his examination of the British response to the Irish potato famine, Woodham-Smith (1962) made these concerns clear in the early 1960s. Lessons can be learned from the British failures focused on increasing food supply rather than addressing income problems of poor Irish farmers.

were able to meet this crisis in an effective manner. This is an area that has been heavily researched, and much has been learned (Barrett, 2002). A few issues persist.

It was predictable that the WFP would face budgetary and availability limits when food prices rose. A past criticism of food aid has been that it is dependent on surplus disposal for supply, so is available to a greater extent when the need is less. When need increases in times of scarcity, food aid availability shrinks. A proposed solution that some donors have resisted is to require donations be provided as cash rather than in kind. This was part of the European Union proposal in the WTO Doha round export subsidies debate, where food aid is addressed. The risk to that solution is that in kind contributions bring political support for food aid programs, so that the level of donations could shrink significantly if countries were required to provide cash and not food (Abbott, 2007). Even if donations were all cash, the WFP would have faced a budget constraint as higher food and energy prices drove up both the costs of food to be donated and costs of logistics to deliver that food. That problem was addressed last year by generous responses to WFP's appeal for additional funding. A longer term solution to maintaining the activities of the WFP in time of crisis is needed, however. The WFP also noted that while they increased the number of hungry people reached last year, they nevertheless reach only a fraction of those in need. But the longer run solution to that problem is to reduce poverty rather than to ramp up relief efforts.

Much has also been learned on how to deliver food aid. A number of issues have been raised, and some practices criticized. For example, monetization - selling of food by an NGO to finance other development efforts - was a common practice. The WFP monetized a portion of in kind donations to pay delivery and logistics costs, and others used resources for projects totally unrelated to food or hunger. This problem in part stems from donations being given in kind rather than as cash, and the need to turn food into cash to cover some costs. Monetization is less prevalent in food aid now. In addition to the cash versus in kind issue and related budget concerns, targeting of aid and local purchases are two key issues relevant to humanitarian response to the food crisis.

A key point made by several international organizations in their response plans is that targeting of food aid to the needy is critical (World Bank, 2008c; UNHLTF, 2008). These proposals note that cash transfer programs are more cost effective than are in kind programs. In programs that are to be in kind, however, it still is more efficient to target the poor and let the economy adjust to the scarcity that higher world prices are signaling, with vulnerable groups protected. In the WTO debate it is also recognized that the better targeted is a food aid program, the less disruptive it is on markets, as food aid consumption is additional to existing demand. As noted above, country responses included a mix of cash transfer, targeted and general consumer protection programs. While particularly in Latin America best practices were followed in several cases, broad consumer protection and poor targeting were more common. The World Bank has criticized a number of country responses, particularly in Africa (Wodon and Zaman, 2008) because even safety net programs are not well targeted and fail to effectively reach the poor. A limitation in responding to the crisis is that cash transfer programs, and even effective safety net programs, are difficult to launch in the very short run. Where cash transfer programs were used, they were already in existence. Identifying the right populations to target takes time for any safety net effort, and corruption or ineffective government can lead to poor targeting.

High cost of delivery arises in part from constraints placed by donors on the WFP. The best example is the requirement that donations be sourced in the donor country. A somewhat recent innovation has been to purchase food to be donated locally, that is nearby the destination for that aid. This has proven to be a cost effective strategy, and is used as a complementary component to agricultural development efforts. The WFPs P4P program arranges to buy food in conjunction with ongoing agricultural development projects to insure there is a market for the surplus generated by successful farmers (WFP, 2009d). Insuring market outlets has become an important component of agricultural development strategies, as some failures in the past resulted when surpluses drove down the price of food and caused farmers to abandon a project and its

innovations. Local purchasing is resisted by some donors for the same political reasons that in kind rather than cash donations are preferred. Local purchases must also be done cognizant of local market conditions so that prices are not driven up excessively where food is bought. Both the costs and complementarities with agricultural development efforts argue for increasing local purchase of donations.

Agricultural development

The medium to long run response to the food crisis emphasized by the international community is a renewed effort to develop agriculture. A consensus has emerged that growing the agriculture sector will bring pro-poor growth (OECD, 2006b). While agriculture is only one component of a strategy to grow an economy, develop rural areas, and reduce poverty, agriculture must be part of that solution. There is ample evidence from the World Bank's (2007) *World Development Report* that poverty is largely a rural phenomenon, and countries that have grown their agricultural sector have reduced poverty. There is also evidence that focusing on smallholder farmers can both target poverty reduction and allow for increased agricultural productivity. Targeting small holders is especially important to the poverty reduction goal of an agricultural development strategy. But targeting (only) small holders may lead to reduced agricultural productivity improvement, and may leave parts of a country's poverty problem unaddressed.

There is also considerable evidence that investment in agricultural research, development and extension has a high social payoff (Pardey, Alston and Piggott, 2006a). That work shows very substantial rates of return to investment in agriculture, and in each of the separate components of that investment. Thus, a development strategy focused on agriculture should address these missed past opportunities for developing countries.

It is necessary to reconcile the high social payoffs found in the literature surveyed by Pardey, Alston and Piggot (2006b) and the perceptions that past agricultural development projects have been failures. After all, perceived poor performance in these investments has led donors to diminish efforts over the last three decades. One fact noted by Pardey, Alston and Piggot (2006a) is that the largest share of investments is in developed countries, and these are the cases where the high payoffs are found. Relatively little investment has been in developing countries. Nevertheless, their evidence shows that social payoffs can be high in developing country settings, as well. A second feature of these results is that high payoffs are often social, and not necessarily private. The poor incentives to agriculture, and policy distortions often introduced by governments, can drive a wedge between public and private returns.

Another key feature of successful agricultural development strategies is that public goods are provided (World Bank, 2007). Agricultural research, especially at early stages of development, is very largely a public good. Extension services, market information, infrastructure provision and institution building are all public goods that are critical components of a successful development strategy. One of the mistakes of past agricultural development strategies may have been over emphasis on privatization. Those initiatives often eliminated these public goods, and replacement institutions did not emerge from the private sector. While farming may be a private sector activity, and government involvement in the past in this sector was excessive, a proper balance between public and private involvement has yet to be struck in many countries. The solution is good government, not elimination of government. There remain many activities supporting farming that are essentially public goods.

The World Bank (2007) and several others (*e.g.* Bertini and Glickman, 2009; GDPRD, 2007; Bissi, 2009; AGRA, 2009; UN, 2009) have advocated for increased investment in agriculture in developing countries, and have laid out strategies to accomplish that. There is considerable similarity in the components of those proposed approaches. They all follow a broadly interpreted adaptation of the green revolution model that emphasizes research, extension, market and infrastructure development, development of input and credit markets, and institution building. They recognize that the success of the

green revolution came from addressing all these components together and not focusing on a subset of problems. Failure of any component could seriously limit the success of the overall strategy.

Agricultural research is always a part of recommended agricultural development strategies. The potential for agricultural science to transform a country's agricultural sector is recognized. The challenge is to do the right science and to integrate that science into an overall strategy. The international agricultural research centers have effective, successful scientific programs, but too often are not well connected to national agricultural research institutions. One of the lessons of the green revolution was that discoveries at international centers, or science from other countries, need to be adapted to local conditions. Improving national agricultural research systems needs to be a priority for this strategy.

Another green revolution lesson is that new varieties succeed because they effectively use inputs, like fertilizer. Where agriculture has grown, input use has expanded dramatically. One of the most significant problems of African agriculture is its low level of input use. But input markets are often highly imperfect, even missing, in poor countries. Use of inputs is also dependent on credit, and those markets are also distorted or missing in developing countries. Solving institutional issues related to input and credit market development is often a key challenge in successful agricultural development.

Using input subsidies has become a controversial component of agricultural development strategies following the seeming success of these subsidies in Malawi (Ad hoc Advisory Group, 2009). The program in Malawi has substantially increased fertilizer use and agricultural production at significant cost to the government. Past agricultural policy regimes of developing countries often lower crop prices to protect consumers but compensated farmers by providing input subsidies. Public provision of inputs was also common for parastatals managing export crop markets, such as cotton and cocoa in West Africa. These programs could be costly, and losses by those parastatals often prompted action by the IMF in structural adjustment programs, the driving force behind privatization. So conventional wisdom is that input subsidies are seldom good policy, while the Madrid group (Ad hoc Advisory Group, 2009) tries to counter this by labeling subsidies as "smart" without telling us why they are smart. One fear with the Malawi subsidy program is that it is not sustainable, because of its high cost and because it depends on the presence of Western partners to subsidize costs and to insure that inputs are delivered to farmers. If input market problems are not simply the high cost of inputs, but rather distorted or missing markets, then this approach is not sustainable until the missing market problem is solved. Addressing input market institutions is an important component of the two large efforts to develop African agriculture – AGRA (2009) and the UN (2009) Millennium project. It is important that institutional problems of input markets are solved in these efforts and that they do not simply provide inputs on a temporary basis.

Market development is another constraining factor inhibiting agricultural development. Simply building roads helps link farmers to markets, often resulting in better prices and increased production in remote areas. Market development efforts must go beyond roads and infrastructure, however, to insure that prices do not collapse when surpluses are realized by farmers and to ensure that incentives to expand production and adopt better practices reach farmers. Markets require supporting institutions as well. When parastatals managed agricultural markets, the public sector set quality standards, provided market information, and organized market institutions. Legal frameworks, institutions to regulate quality, information systems and other institutions need to be provided and don't arise automatically when a parastatal is privatized.

The unifying feature of most of these components to effective agricultural development is the need for good governance. Agricultural scientists can come up with new methods to improve agricultural production. Economists understand many of the problems that must be solved to make markets work in a more private sector oriented approach to agricultural policy. But effective government remains a necessity. Public goods provision is essential. Institutional problems must be solved, and distortions in imperfect

input and credit markets addressed. A positive macroeconomic environment reflecting appropriate incentives must be maintained. If success requires that each of the components of an overall agricultural development strategy is addressed, national governments must plan and coordinate that activity. National governments must place a high priority on agricultural development for this success to be realized.

The role of international organizations and donors has changed in response to past failures and reductions in aid to agriculture. The debate seems to be captured by continuing concern over aid effectiveness – that past aid dollars have been are poor investments in development. The Paris Declaration is a response to the coercive nature of some past aid strategies, recognizing that country ownership is critical to effective agricultural development projects and programs. This highlights the concern raised above that good governance is key, as the Paris declaration cannot be effectively implemented if national governments do not plan well sector wide strategies and if they do not share donor priorities. Effective partnerships between donors and national governments are important to effective aid delivery, but both parties must buy into the objectives that aid addresses.

Transition/stabilization

Numerous studies on the recent events in international markets have called for maintaining open borders and for completing the WTO's Doha Development Round to reduce distortions in international agricultural trade (*e.g.* von Braun, 2009; OECD, 2009b). Studies that evaluate the efficiency of trade and domestic policies to both stabilize and transfer income to farmers often find that these policy regimes are ineffective at achieving their stated goals (*e.g.* OECD, 2003). Developing countries have followed a very different path from recommendations, with many isolating their markets and changing border policies to minimize their own domestic adjustments to this international event. The longstanding advice on trade policy was largely ignored as countries reverted to past policy regimes.

One of the elements of the rationale for free and open borders is that worldwide free trade would lead to more stable international markets. It is well known that if a country alters tariffs or export taxes in a manner similar to a variable levy, it exports its own instability rather than participating in the adjustments world market conditions demand (Bale and Lutz, 1979). The thinner the market, and the more countries intervene to stabilize, the more unstable is the international markets. The actions taken by governments in the rice market to stabilize, and the inherent thinness of that market (most countries trade only a small fraction of domestic production and use), contributed importantly to the extraordinary rise in rice prices over a very short time (Timmer, 2008a).

If this were a test of the liberalization of agricultural markets that was achieved under the WTOs Uruguay round, the world failed that test. While that was the first time agricultural policies were seriously addressed in the WTO, actual trade liberalization was limited. Actions taken by countries may have violated the spirit of the WTO URAA agreement, but did not violate the letter of the law.

Policy discussion of both past and potential future WTO reforms has taken a rather static view of agricultural distortions. Some of the workhorse modeling approaches (*e.g.* CGE models) are much better suited to addressing long run issues than short run dynamics. Considerable research on both international market stabilization and domestic market stabilization that was inspired by the 1973-74 food crisis has nearly stopped since the early 1990s. Focus since then was placed on WTO related issues. Important lessons were learned from those earlier works which bear on the current crisis. International reserves stocking schemes and commodity agreements based on stockpiling were quite costly and largely failed. One problem was typically that distributions were not symmetrically random, so that stocks would be held for quite a long time before being released. Virtual reserve schemes to avoid storage costs were proposed then by IFPRI and have been resurrected in this debate (von Braun and Torero, 2009), but many doubted they could work if there were not physical quantity transactions in the spot market to affect outcomes

(Irwin, 2009; Wright, 2009). Given the current circumstances, reviewing lessons from all that experience to see how it applies today would be a useful research activity. Most importantly, it would be worth revisiting whether actual open markets could have provided an adequate degree of stability.

Questions concerning domestic stabilization policy are probably even more critical, given the extent to which countries reverted to these measures. As noted in the developing country responses, many countries continue to publicly manage stocks and used stocks releases to stabilize their domestic markets. They changed border measures with the intent to stabilize. While many criticized export restrictions for their obvious impact on international market instability, tariff cuts should not be applauded as completely different, especially since those tariff will likely return to earlier levels should world prices fall further. They were cut not to open markets, but to stabilize domestic markets. Parastatals in the past provided domestic market stability and other institutions (*e.g.* quality control, marketing and credit) lost to structural adjustment privatization reforms. Efforts to identify private alternatives have stalled due to the high transactions costs and scale requirements for farmers to participate in futures markets. Much work needs to be done to explore the interaction of these alternative measures on both domestic and international markets, cognizant of the stabilization concerns of developing country governments.

One of the costs of the policies pursued was that high prices were not fully transmitted to farmers, so incentives for developing country farmers to adjust by supply more were muted. The role of poor market integration, a factor limiting agricultural development, and policy needs to be better understood. These policies, and their impacts in a distorted developing country context, also need to be better understood if appropriate advice is to be given in these cases. Past policy mistakes have limited agricultural sector growth.

Broad development strategy

Most studies recognize that rural development strategies must go beyond agriculture, and that agricultural development initiatives must be set in broader economic context (World Bank, 2007; Bertini and Glickman, 2009). National governments need to see investment in agriculture as effective as other alternatives. Several issues arise when considering responses to the food crisis in this broader context.

It was already pointed out that hunger and malnutrition are problems of low income, and simply increasing food availability does not solve those problems (Sen, 1982; Woodham-Smith, 1962). The focus on smallholders in the current policy response discussions is motivated more so by the desire to address poverty and hunger than by the goal to increase agricultural productivity. While it may be the case that investing in small holders can also raise agricultural productivity, there may be tradeoffs here (World Bank, 2007). It is important to explicitly recognize the objectives and priorities behind this focus, as national governments may not buy into proposed solutions if they do not share these same priorities. Their actions in response to the food crisis already reflect somewhat different priorities, on consumers broadly more so than either poverty or agricultural productivity. There has been a clear emphasis on poverty in recent years by bilateral donors and international organizations. One of the future challenges will be to persuade national governments to pursue that same emphasis, and to place priority on and commit resources to the initiatives proposed as an international response to this crisis. In this context, it is probably easier to implement foreign funded emergency relief projects than to pursue a broad development strategy whose priority is poverty reduction before productivity.

An agricultural development strategy cannot be run apart from a broader economic plan. Governments are rightly concerned with broader development strategy, encompassing employment and income growth within and outside agriculture. Difficult tradeoffs to increase economic growth, agricultural output, and employment while reducing poverty must be faced. The differing objectives revealed by policy actions taken highlight the broader concerns of national governments, as does the focus of international

donors on farmers holding less than two hectares. Focusing solely on small holders emphasizes poverty reduction over agricultural development. National governments hoping to foster more rapid economic development may want to also target larger farms. Poverty reduction strategies are likely to need to address broader economic development to reach a wider segment of the poor, as well.

Agricultural development efforts interact with numerous other concerns broadly influencing economic development. The best example is the environment. Environmental conditions can seriously constrain agricultural production, and agricultural practices can bring environmental problems. It is important in developing initiatives to bear these interactions in mind. But in the end individual projects and programs must be focused. Past aid efforts have required specific proposals to address a long list of ancillary issues. While it is important to bear in mind wide ranging consequences, if projects get redesigned to address too many objectives, they may be less effective. Once again, it is the role of the national government in its sector wide strategy to take these effects into consideration, but specific, specialized projects and programs must ultimately be implemented. An open question in the debate is where the donors enter. Are they part of the overall design process, or do they pick specific activities to fund from the set of choices made by a national government?

Agricultural development remains a likely component of a broad economic development strategy where poverty reduction is an important concern. Emergency relief is only a temporary solution. Both agricultural sector policy and broad economic policy must be supportive of those initiatives. In the past, a poor macroeconomic environment, exchange rate distortions, and industrial protection have been as important or more important than agricultural policy in setting incentives to agriculture (Schiff and Valdes, 1992). While the nature of distortions may have changed under structural adjustment incentives, reducing some of the macroeconomic effects, many aspects of past distortions to agricultural policy, especially in Africa, persist (*e.g.* Anderson and Masters, 2009). But the World Bank (2007) has argued that investment in agriculture, and providing the various public goods noted above, offer more sustainable and more equitable means for securing domestic food supplies than artificially propping up prices.

What are the roadblocks?

In the above discussion of policy advice on responses to the food crisis several roadblocks to success were identified that largely depend on an effectively functioning national government in developing countries. Some key potential roadblocks are highlighted here:

- Well targeted safety net programs require that implementing institutions are established well ahead of a crisis.
- Agricultural research, extension, market information, infrastructure and institutional building are public goods. Underfunded public goods to agriculture retard development.
- Missing markets for inputs and credit limit adoption of new technologies and pursuit of strategies to raise agricultural productivity.
- Institutions must be developed to replace those lost to privatization programs, including legal frameworks, quality standards, and marketing institutions.
- Risk management capabilities were also given up during structural adjustment, and private replacements have found difficulty in achieving scale and overcoming high transactions costs for small-scale farmers. But stabilization is a key priority reflected in responses taken by national governments.
- National governments and global partners may not share the same priorities and objectives. National governments may be less focused on poverty, hunger and agriculture than is the international community currently.

- If national governments are committed to these initiatives, they may lack capacity to conduct the broad planning and coordination the current aid strategy requires. Capacity needs to be substantially increased not only in resources but also in human capital.
- Regional activities, such as CAADP, can help relieve capacity constraints and provide scale economies to implementing a new agricultural development agenda only if they have adequate capacity and truly represent the desires of national governments.
- Past donor efforts have been fragmented and uncoordinated. National governments need stable long lasting commitments from donors to shared priorities.

An effective international response to the food crisis and renewed investment in agriculture will need to overcome these roadblocks that have slowed development in the past.

OECD's role

The OECD has a long and significant involvement in providing agricultural policy advice to both member countries and international markets, emphasizing support for WTO negotiations, international integration, and measuring the extent of distortions in agricultural markets. It also has a significant involvement in broader development strategy through its contributions to the Development Advisory Committee (DAC), backstopped by the Development Cooperation Directorate (DCD) and the Development Center. Allied entities such as the Sahel and West Africa Club (SWAC) and the African Partnership Forum (APF) bring OECD's attention to Africa. Each of these development efforts has emphasized the importance of agriculture in recent work, and provides contributions to the ongoing debate on policy response to high food prices.

The Trade and Agriculture Directorate (TAD) created Producer Subsidy Equivalents (PSEs) as a straightforward means of measuring policy distortions in agriculture in a way that was relevant to trade negotiations. The AGLINK model was also created during the Uruguay Round debate to help negotiators understand the consequences of alternative positions and the benefits to be realized from a successful outcome (OECD, 2006a). This expertise led to collaboration with the FAO in providing an agricultural outlook, a vehicle through which the OECD has examined causes and consequences of high food prices (Dewbre *et al.*, 2008) and expectations for future prices (OECD-FAO, 2008). PSEs data are collected, maintained and distributed by TAD, and provide a basis for policy advice with analytical support. Using the policy information it collects, the OECD also examines the effectiveness of alternative agricultural policy options and develops policy advice from that analysis (*e.g.* OECD, 2003). That advice and those tools were used when the OECD assisted in examining the entry of Eastern European countries into the European Union, and that expertise is now being extended to examining policy in developing countries (Brooks and Dewbre, 2006; Dewbre and Borot de Battisti, 2007; Brooks, Dyer and Taylor, 2008; Cervantes-Godoy and Brooks, 2008). The work on emerging economies has already considered the extent to which international price increases fostered food inflation, and the policy measures taken by those emerging economies to isolate their domestic markets, similar to the strategies emphasized here earlier for developing economies more generally (OECD, 2009b). Given the problems exhibited in international markets during the food crisis, and the lack of commitment to the spirit of WTO outcomes, the OECD should have a clear interest in improving policy debate where trade policy of developing countries is concerned. Trade policy in developing countries affects not only their welfare, but also market outcomes in OECD member countries.

The DCD and the DAC have been instrumental in identifying the role of agriculture in a pro-poor development strategy (OECD, 2006b) while taking a much broader look at pro-poor growth. DCDs support for the Development Advisory Committee (DAC) extends policy advice on food security to the donor community (OECD, 2008e) and brings broader dimensions of economic development to the debate on

agricultural development (OECD, 2006c). The DCD also helps foster international dialogue on these critical issues. The DCD monitors progress and commitment by maintaining databases on overseas development assistance (OECD, 2008c).[7] The DCD is directly confronting the challenge of fragmented and uncoordinated donor responses to agricultural development. It also focuses attention on the bigger development picture and the context within which greater attention to agricultural development must play out, relating that to relevant issues such as the environment and climate change to the debate on agricultural development strategy. One example of this is its work on the Aid for Trade initiative (OECD, 2009d). The OECD and the WTO have collaborated closely to develop a framework for monitoring aid for trade.

This report is an output from a horizontal project involving TAD and DAC to examine consequences for developing countries of high food prices. As part of that effort DAC has sponsored two events aimed at more effectively utilizing the aid pledged by donors following this crisis. The first meeting was co-sponsored by GDPRD . It "… focused on how donors should best respond in the medium and long-term to foster pro-poor agricultural production to sustain access to affordable food in developing countries." (OECD, 2009a). That meeting examined donor strategies to assist agriculture, asking if the right things were being done, and if they were being done correctly. A second meeting, "Growing Prosperity: Agriculture, Economic Renewal and Development" (OECD, 2009f) brought together in Paris in April 2009 experts to look at innovating out of poverty. That meeting emphasized the importance of science and innovation in fostering more rapid pro-poor agricultural growth. New initiatives were identified that require bold leadership by national governments to address communications, knowledge generation, infrastructure, and entrepreneurship.

The SWAC, formerly Club du Sahel, has existed within the OECD since the 1970s to help link development assistance to problems of food security in agriculture. It has managed the Food Crisis Prevention Network together with CILSS since 1984 (RPCA, 2008). It has played a role since in assessment of food security through the RPCA network and aids decision making in Africa for food crisis prevention and management. SWAC also played a key role in the adoption of the 1990 Food Aid charter and is currently co-leading with CILSS revisions of that charter to make food aid more effective in West Africa.

In 2002 the African Partnership Forum (APF) became affiliated with the OECD as a way of broadening the existing G8/NEPAD dialogue to encompass Africa's major bilateral and multilateral development partners in order to strengthen partnership efforts in favor of Africa's development. Agriculture has been a focus issue in recent meetings hosted by the APF (APF, 2006 and 2008). These efforts contribute both forums for international dialogue and outlets for relevant research.

The Development Center also has a long tradition of examining development policies, paying attention to agriculture in its work. Recent efforts have focused on improving commercial agriculture in Africa (OECD Development Center, 2008; Dayton-Johnson and Fukasaku, 2008; Wolter, 2009) and on the potential supply response incentives from the recent higher prices. Their work on general economic outlook with the African Development Bank is now looking in detail at the policy responses taken in Africa in response to the food crisis.

Work of the OECD emphasizes policy options of member countries. Nevertheless, its methods and expertise have addressed issues of direct and immediate relevance to last year's food crisis, and to developing country impacts and responses.

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7. OECDs commitment to maintaining databases for worldwide use is evident in TAD's work on agricultural and trade policy as well (OECD, 2008a&d).

OECD contributions on high food prices

The OECD has provided numerous direct contributions to the ongoing policy debate concerning appropriate policy responses to the food crisis and continuing high food prices.[8] Topics include causes of the high prices, outlook for future prices, impacts and developing country policy responses, price transmission, fostering pro-poor agricultural development, enhancing dialogue on aid effectiveness, and implications for Africa. Particular emphasis is placed on policy monitoring and evaluation, and on the international dialogue on medium to long term responses.

The OECD conveyed a meeting of donors in February 2009 to consider medium to long run responses by bilateral donors to the food crisis (OECD, 2009c). That meeting examined the renewed interest in agricultural development and ways to effectively utilize aid to accelerate agricultural sector growth and poverty reduction, with emphasis on Africa. One useful product was a survey of responses already taken by bilateral donors (OECD, 2009c). An earlier meeting jointly sponsored by the OECD, the IMF and the World Bank looked at the interrelated efforts of these international organizations and how each could contribute based on its comparative advantage (IMF, OECD, World Bank, 2008).

The international dialogue fostered by DCD takes advantage of contributions by POVNET, where pro-poor growth strategies are explored and agriculture's role in them is examined (Bieler, 2009). Policy messages are developed for the donor community on this issue emphasizing causes, consequences and responses (OECD, 2008e). Broader issues, including the environment, climate change, and aid for trade are brought into the discussion via the DCD.

The OECD biofuels assessment (OECD, 2008b) is an example of the research in TAD that addresses directly causes of high food prices, and the relevance of member country policy. Biofuels support policies have been identified by many as a significant contributor to the food price run-ups of the last two years and subsequent decline. In the food versus fuel debate there have been calls for rethinking of biofuels policy. The OECD assessment brings a rigorous and objective analytical perspective to this issue, looking in particular at the longer run implications of these policies and their potential to keep agricultural prices above historic norms.

This analytical approach has also permitted a broader look at outlook for future international agricultural prices, explored jointly with the FAO (OECD-FAO, 2008). That outlook projected sustained higher prices due both to demands for grains and oilseeds to produce biofuels and based on underlying supply and demand trends, that also contributed to the situation allowing higher food prices to emerge so rapidly via reduced global stocks. Another feature of the part of that outlook devoted to high food prices was a comparison of impacts on food inflation in developed versus developing countries. That chapter highlighted the muted effect of dramatic international price changes on consumers in developed countries and on the greater if still muted but highly variable impacts on food inflation in developing countries. This brought attention to the role of food and differing markets structures in each type of economy, and on the role of policy to protect consumers, highlighting differing degrees of effectiveness in different contexts. Ongoing work continues to monitor food inflation impacts worldwide.

The analytical framework was pushed further in exploring causes and consequences of high food prices, especially in developing countries in Dewbre, Giner, Thompson and von Lampe (2008). This contribution highlighted the importance of price transmission, a feature allowed in AGLINK and absent in some other trade modeling structures, and emphasized in our discussion of developing country policy response. Another more recent contribution explores risk management strategies for agriculture (OECD,

8. Individual publications relevant to this exercise are included in the annotated bibliography contained in Annex 2.

2009e), emphasizing issues of price versus revenue stability and multiple sources of risk faced by farmers. The TAD has found several publication outlets in international journals for its contributions on agricultural policy in developing countries, and high food prices were a natural extension.

The recent effort on monitoring and evaluation of agricultural policies in emerging countries (OECD, 2009b) demonstrates the power of this data based approached to policy advice in identifying relevant responses to international price changes and to the ultimate consequences of those responses. The report looks at both policy adjustments in the face of international market events and to consequences for food inflation in a set of countries that followed approaches similar to those found in many of the poorer developing countries. Past OECD efforts and a potential new project explore extending this methodology to developing countries, most likely in collaboration with the FAO (TAD, 2009). Both for assessing what happened and to improve capacity to evaluate policy in developing countries, this is a promising avenue of future work.

Last year's assessment of agricultural support policies also examined the food crisis, noting that current policies have limited the ability of farmers to respond to market signals and thus contribute to the global food situation (OECD, 2008a). While this report emphasized OECD member country policies in need of reform, the arguments made there apply well to problems highlighted in the discussions of price transmission and supply response in developing countries made here. They point to policy issues in both developed and developing countries which need to be addressed for better functioning world markets in the face of crisis.

Work in the Development Center, APF and SWAC (noted above) have emphasized policy and prospects for agricultural development in Africa. This remains the central concern in the international dialogue on medium to long run responses to this food crisis. Recent and proposed work in TAD examines policy in developing countries (TAD, 2009), asking if the same advice that applies to developed countries holds in a developing country context. New related directions including addressing the important risk management concerns that this crisis spotlights are on the agenda for future research.

This report is the result of collaboration between TAD and DCD in OECD, recognizing through a horizontal project across directorates the potential for collaboration on the food price issue. The 2009 Global Forum will include results from this joint effort.

What is OECD's comparative advantage?

The OECD can play two critically important roles in future debates on policy responses to high food prices, drawing on its past experience. All OECD entities have contributed policy advice, and have expertise to offer, particularly for short to medium run trade/stabilization policy of developing countries and how that interacts with longer run agricultural development strategy. It also has a key role to play in facilitating dialogue between donors, not only in agriculture as it broadly relates to development strategy, but also in the specific African context.

Analytically based and data supported policy advice have been a hallmark of OECD contributions both to the high food price debate and to broader agricultural policy debates. Databases on agricultural policy and on ODA as well as on other dimensions of economic policy inform OECD analysis and are available to a broader research and policy analysis community (OECD, 2008c & d). The models developed at OECD have provided a rigorous framework for policy evaluation and outlook. These tools enable a more consistent and informed policy debate grounded in empirical reality. The various directorates and allied entities of the OECD allow a broader perspective to bear on the agricultural policy debate, both on development strategy and on the functioning of international markets.

This report has identified a need for greater attention to the stabilization policies adopted by developing countries as a response to high international prices, resurrecting research that has received little attention since the early 1990s. The OECD analytical framework should be better able to adapt to the short and intermediate run for issues raised by this crisis than are the longer run approaches that have dominated trade policy debates recently. There is much work to be done to improve capabilities both globally and in developing countries to evaluate the short and long run consequences of uncertain international agricultural markets. These policy evaluations will be relevant to both incentives for agricultural development and to intermediate consequences of short run actions, impacting both developing countries and OECD members through international market outcomes.

The OECD's role in support of DAC also puts it in a strong position to help the major bilateral donors find their niche in the ongoing international dialogue on responses to high food prices. The OECD has provided several forums directly related to agricultural development, emphasizing critical needs for Africa. That dialogue is also backstopped by background research on agriculture and poverty and on related issues impacting agricultural development in Africa. The DCD plays a central role in supporting the DAC and facilitating dialogue, but can rely on the Development Center, SWAC, APF and even TAD for expertise and more focused forums examining the key longer term responses by developing countries to the food crisis. An additional advantage is the broad economic perspective brought to this discussion relating agriculture to economic growth, trade for aid, and the environment while keeping a focus on poverty.

Different directorates and centers of the OECD have separately made valuable contributions to the ongoing debate on responses to high food prices, and on agricultural development strategy. Collaboration among the different yet complementary expertise across entities should facilitate extremely useful research and policy advice.

Conclusions

International agricultural commodity prices rose dramatically from the summer of 2006 through mid-2008 and then fell faster than they rose, but to levels higher than historic norms. The consensus outlook is for world agricultural prices to remain high and volatile, and global economic conditions add considerable uncertainty to that prediction. Commodity prices are now linked more strongly via biofuels demand and depend strongly on exchange rate adjustments and macroeconomic outcomes. These high food prices will continue to pose difficult economic tradeoffs for developing countries.

In response to high food prices many developing countries pursued policies to limit impacts on their domestic consumers, including tariff reductions, export taxes and restrictions, and domestic policy adjustments to keep more stable domestic prices and lower food inflation. The extent to which these were successful, and the macroeconomic costs of such adjustments, depended on the extent of import dependence and availability of domestic alternatives to imported food. Policy regimes reverted to pre trade liberalization modes of operation and ignored much of the advice of the last two decades on open markets. Countries were hesitant to rely on international markets to maintain an adequate degree of stability, and their consequent policy actions contributed to greater international price instability. Moreover, their policy responses and lack of market integration limited pass through of incentives to farmers, so supply responses to these high food prices was greater by exporters than by importing developing countries.

The policies pursued by developing countries contrast markedly from the recommendations highlighted in the responses of the international community. International organizations have emphasized short term emergency relief targeted to the poor and longer term agricultural development, whose neglect in the past had exacerbated this crisis. Developing countries focused on short term policy measures with broader impact on consumers, and less emphasis on farmers and poverty. Nevertheless, this food crisis has brought renewed interest in investment in agriculture, furthering a number of initiatives which have

recently been launched to stem the decline of agriculture that has been unfolding for some time and the more recent increases in poverty and hunger attributable to high food prices.

Trade and domestic policies taken by developing countries that contradict current international advice and the need to align those policy responses with incentives to foster more rapid agricultural development raise several key issues highlighted in this report. Several of these emanate from the choice developing countries made in response to the food crisis, and the priorities they reflect. Foremost among them is the need to consider market stabilization and the role of trade and development policy on that. Domestic and international stabilization issues need to be revisited. Other issues stem from debates on how we should go about fostering more rapid agricultural development, particularly in Africa where the problem is most severe. These issues highlight the need to engage national governments in the proposed global partnerships and the need for coordinated mechanisms to align donor objectives with national government plans.

The WTO has been largely absent in the debate on policy response to the food crisis. Past commitments and even potential future commitments being discussed in the Doha round do not preclude choices governments have made. But those choices worked counter to the expectation that a freer trading system could deliver adequate stability in international markets. Any institutions interested in the future success of the WTO and more open trade policy have a new agenda of issues to address that follows from the policy choices made by developing country governments. This neglected area needs more attention in the debates of the international community, both based on the preferences it reveals and on the policy issues raised.

Efforts to renew investment in agriculture in developing countries predate the 2007-08 food crisis. The OECD (2006) and the World Bank (2007) had already refocused attention on development of smallholder agriculture as a vehicle for increasing agricultural productivity while reducing poverty. Poverty reduction was emphasized in the Millennium Development goals and in the strategies of the World Bank and IMF since the beginning of this century. The Alliance of a Green Revolution (AGRA, 2009) and the UN Millennium project (UN, 2009) are ongoing initiatives to foster more rapid growth in agricultural productivity in Africa, based on a broad interpretation of the green revolution model. That approach emphasizes a number of issues that must be simultaneously addressed for those new initiatives to succeed.

The similar approaches now underway to accelerate agricultural development face constraints that can be identified from past experience. Agricultural research, extension, market information, infrastructure and institution building all involve significant public goods elements. Missing or distorted markets for inputs and credit and the need for outlets when surpluses arise mean imperfections in markets must be addressed. Agricultural science and economics are ahead of politics in addressing these constraints. Lack of good governance is often the binding constraint, and solutions to slow agricultural development require effective national governments. Moreover, these various components need to be approached simultaneously in an overall strategy, as failure to address any component can hurt outcomes of the overall strategy.

The international community is struggling to find a new way to interact with national governments. The Paris Declaration puts national ownership foremost in seeking a more effective aid strategy. For new initiatives to succeed donors and national government must share a common priority to reduce poverty and base development at least in greater part on raising agricultural productivity. Requirements for coordination and for an overall vision of development put heavy demands on the limited capacity of many national governments, even when commitment to shared objectives is there. Regional initiatives such as the African Union's CAADP may offer a partial solution, but are not a substitute for effective national government. Strategies to increase capacity of developing country governments are key components of any new emphasis on poverty and on agriculture.

The international community seemed better prepared to launch humanitarian relief efforts in response to the food crisis than to renew agricultural development. While much has been learned on how to deliver food aid, best practices were not always food in safety net programs of developing countries. The key to effective relief efforts result from well targeted programs that focus on the poor. National governments assisted a broader set of beneficiaries. Generous response to an emergency appeal was needed to maintain these activities, exposing the weakness that food aid diminishes when need is greatest absent such appeals. In the long run, economic development and poverty reduction are preferred to emergency relief.

What should happen next?

Policy recommendations that follow from this diagnosis can be grouped into the three policy response domains that were followed by national governments and international donors: emergency relief and safety nets, trade and domestic stabilization policies, and policies to foster more rapid agricultural development. Best practices were followed to a greater extent, and need for reforms least evident, in efforts to establish safety nets and provide emergency relief. Understanding the consequences of stabilization policies, and of tradeoffs in international versus domestic markets, requires further research before definitive policy recommendations are formulated.

While the high international food prices revealed the longstanding problem that safety net programs might be in jeopardy under those circumstances due to inadequate budgets, response to WFPs appeal and increased food aid contributions by donors alleviated those concerns in this instance. Nevertheless, a more stable funding mechanism that automatically responds to shortfalls, high prices and consequent budget pressure is needed. Better targeting of safety nets to the poor would also more effectively utilize available resources and minimize fiscal impacts. While much progress has been made in moving to best practices, including local procurement and cash rather than in-kind transfers in addition to targeting, in many countries policies to provide safety nets could be improved. Institutions need to be in place before a crisis begins.

Short term policy responses in the form of market interventions conformed much less well to conventional policy advice. Closing of borders and domestic stabilization measures contributed to international market instability at a high fiscal cost. Ideally, freer trade would have resulted in smaller world price increases. Effective, well targeted safety nets could have protected the poor while consumers absorbed some of the adjustment international market signals were calling for. Higher prices would have also signaled a stronger supply response from farmers, although input subsidies and other producer support measures helped to insure that response. A fundamental unanswered question is whether markets would have been sufficiently stable, and price increases acceptable to national governments, had exporters not restricted exports and had importers not maintained demand in the face of high prices. A related question is whether safety nets would have adequately protected poor consumers under the resulting larger price increases. Policy responses by developing countries exhibited a mistrust of international markets, but thin markets are inherently unstable. Research investigating international market stability under alternative policy regimes is now quite dated (Tyers and Anderson, 1992) and invoked simplistic assumptions. Surely more openness than was exhibited in 2008 is desirable, bolstered by better safety nets targeted to the poor. More work is required on both domestic and international impacts of policy alternatives, however, emphasizing stability outcomes, before more definitive policy recommendations are possible.

Research on both international and domestic stabilization schemes is also lagging, but considerable work had been done following the first food crisis. That works indicated that stockpiling, whether domestic or international, is costly and difficult to manage. Very old literature recommended variable levies to avoid the costs of holding stocks for long periods (McIntire, 1981). Literature was also suspicious of insurance schemes and virtual reserves that did not affect market quantities (Wright, 2009). While more research is

needed on these issues as well, it is unlikely that stockpiling will emerge as an important component of policy recommendations on market interventions.

In the actions of national governments, and in expenditures to date by donors, more attention has been paid to short term measures than to accelerating agricultural development. While debate on how best to expand efforts to foster agricultural development persists, a few keys lessons have been learned from considerable experience in this area. First, both national governments and donors should fund public goods. Agricultural research is the obvious area meriting greater funding, but extension, market information and infrastructure are also public goods in need of greater support. Moreover, national institutions in particular, such as national agricultural research programs, need better support. Second, it is also evident that market failures need to be addressed through replacement of missing input and output markets, and building of institutions such as quality control, legal frameworks, value chains, marketing systems and stabilization mechanisms. Many of the institutions that had been provided by parastatals were not replaced by the private sector following privatization initiatives. Effective agricultural development programs require that each of these areas is addressed, and failure may results if one component is missing. Key to success is overcoming political failures, so effective national governments are critical to success.

Several controversies persist, including the debates on fertilizer subsidies, on targeting smallholders (only), on the role of stabilization, and on how to deliver aid. Economic research is needed in three priority areas to further improve policy responses. Research priorities include developing a better understanding of the impacts on hunger and poverty as a result of actual experience and policy responses invoked, the extent to which those responses achieve domestic and international market stability or instability, and whether the focus of subsequent agricultural development initiatives is appropriate.

Much of the current literature has addressed hunger and poverty impacts utilizing models benchmarked to dated household surveys and based on strong assumptions on price impacts rather than on data. That work needs to be verified using recent household survey data that encompasses this episode and well as actual domestic price outcomes realized. Systematic comparisons could elicit how well alternative policy responses fared in mitigating impacts from this crisis, especially for alternative safety net strategies.

The contrast of international responses with those of national governments highlights the need to better understand consequences of policy measures at both national and international levels that address stabilization. Closely related to this is the need to better understand imperfect price transmission and its underlying causes. Research should evaluate lags in price adjustment or incomplete transmission to better anticipate in-country impacts of world commodity price variations. More importantly, a more robust approach would eventually divide imperfect price transmission into market integration and policy factors. That work should then be coupled with the household survey work, asking if safety nets adequately protect the poor should governments collectively rely more on free trade to achieve greater market stability. Both domestic market studies and studies of international markets under alternative policy regimes are needed to assess both domestic and international market stability outcomes. The medium to long run welfare impacts of policy measures also need to be considered in light of better information on price transmission and market integration, especially to rural areas.

There has been much recent work summarizing lessons learned from agricultural development experience (*e.g.* World Bank, 2007). The two controversies that stand out in the current debate are the effectiveness of input subsidies and of targeting only small holder farmers. New work must ask if proposed interventions not only increase input use cost effectively, but also if interventions solve the institutional and missing market problems that may exist. Work on effectiveness of targeting smallholders has to show whether ignoring a broader set of interest groups means this is as or less effective as an agricultural development strategy than as a poverty reduction strategy. The tradeoffs that must be faced by national governments in making these policy decisions need to be more openly and explicitly addressed.

The recent food crisis has renewed interest in existing problems with developing country agriculture, but presents opportunities to build upon, as well. Much is now known about how to implement safety nets, to foster more rapid agricultural development, and to bring pro-poor growth. A green revolution based approach that provides public goods to agricultural, fosters market development for inputs, outputs and credit, and builds better institutions can lower poverty and improve welfare. Needs for more rapid agricultural development include sustainable new market institutions, time consistent national policies, functioning and predictable international markets, and committed national governments. A more consistent policy environment must set appropriate incentives to agriculture, cognizant of effects on the vulnerable and consumers more broadly. Consistent, sustainable financial commitments of international donors based on long run visions and goals can accelerate that process.

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ANNEX 1. INTERVIEW SCHEDULE AND CONTACTS

Interview Schedule and Contacts for
Philip Abbott, Purdue University and Adeline Borot de Battisti, OECD
9-20 February, 2009

Monday, 2/9
OECD, Trade and Agriculture Directorate (TAD)
Joe Dewbre, Senior Agriculture Policy Analyst, Development Division
Frank van Tongeren, Acting Head of Division for Policy in Trade and Agriculture
Linda Fulponi, Senior Agriculture Policy Analyst, Agricultural Trade and Markets Division
Loek Bonnekamp, Senior Agriculture Counselor
Jonathan Brooks, Senior Agriculture Policy Analyst, Development Division
Wayne Jones, Head of Agricultural Trade and Markets Division
Douglas Lippoldt, Head of the Development Division
Jesús Anton, Senior Agriculture Policy Analyst, Division for Policy in Trade and Agriculture
Andrzej Kwiecinski, Senior Agriculture Policy Analyst, Development Division

Tuesday, 2/10
OECD, Development Co-operation Directorate (DCD)
Peter Bieler, Policy Analyst, PRG
William Nicol, Head of the PRG Division
Richard Carey, Director
Tamara Levine Policy Analyst, POL

TAD consultations
Joe Dewbre
Jonathan Brooks
Loek Bonnekamp
Frank van Tongeren

Wednesday, 2/11
TAD
Ken Ash, Director

African Partnership Forum (APF)
Karim Hussein, Technical Advisor
Doreen Kibuka-Musoke, Technical Advisor

Sahel and West Africa Club (SWAC)
Norman Lauzon, Director
Jean Sibiri Zoundi, Head of Rural Transformation and Sustainable Development Unit
Leonidas Hitimana, Agricultural Economist, Rural Transformation and Sustainable Development Unit

Development Center
Laura Recuerdo Virto, Economist, RD/AME
Jose Gijón (by phone on 2/27), Head of Unit, RD/AME

Thursday, 2/12
OECD/DCD – GDPRD Conference
Policy Dialogue on High Food Prices: Outlook and Donor Mid-term Responses
Causes and Consequences
Are Donors doing the right thing?

Friday, 2/13
OECD/DCD – GDPRD Conference
Policy Dialogue on High Food Prices: Outlook and Donor Mid-term Responses
Overall Objective?
How do donors support country plans and strategies?
Rapporteur's report and Closing statements

TAD consultations
Joe Dewbre
Wayne Jones – Global Forum

Monday, 2/16
FAO
Josef Schmidhuber
Kostas Stamoulis
David Hallam
Aziz Elbehiri

IFAD
Abdoul Barry
Mohamed Manssouri
Roberto Longo

Tuesday, 2/17
WFP
Paul Larsen
Lara Fossi
Issa Sanogo
Steven Were Omamo

FAO
George Rapsomanikis

Wednesday, 2/18
Travel to Washington, DC

Thursday, 2/19
World Bank
John Nash
Will Martin
Chris Delgado
Robert Townsend
Ludovic Subran

IFPRI
David Orden
Derek Heady
Seminar participants
(Abbott presented an informal seminar to about 25 IFPRI staff on this work to elicit input)

Friday, 2/20
Economic Research Service, USDA
Stacey Rosen
Ron Trostle
Sally Thompson
Fred Gale
Rip Landes
Shahla Shapouri (by phone)

ANNEX 2. ANNOTATED BIBLIOGRAPHY

OECD Contributions to Debate on Policy Responses to High Food Prices

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Bieler, P. (2009). Responding to Food Insecurity: Pro-Poor Growth and Agriculture. POVNET at Work. Paris, DCD-DAC, OECD.

Soaring food prices in early 2008 have drawn the international community's attention to the importance of a productive and dynamic agricultural sector. In this context, the 2008 World Development Report suddenly gained in importance and a number of conferences dealing with the new situation drew up short and long-term action plans, policy solutions, and ideas on how to deal with the issue of higher food prices and food insecurity. Numerous publications elucidated the demand side (demographics, income, poverty) and the supply side (production and productivity) of high food prices, and analyzed its impact on the economies of developing countries and poor people. While there is general agreement that investment in the agricultural sector is key to a mid to long-term response, the question of 'how' and 'what' differ substantially. Opportunities and bottlenecks to ensuring access to affordable and sufficient food - of nutritional value - for all have been known for decades: common issues ranging from technology and finance to institutions and governance. The present paper shows the pertinence of the DAC's policy messages on Pro-poor Growth in Agriculture, published in 2006, in shaping the medium and long-term response to higher and volatile food prices, and argues that innovative ways of working together are needed to shape a sustainable response.

Brooks, J. and J. Dewbre (2006). "Global trade reforms and income distribution in developing countries." Journal of Agricultural and Development Economics **3**(1): 86-111.

This paper examines the effects of trade and domestic agricultural policy reforms on the distribution of incomes in six developing countries: Brazil, China, India, Malawi, Mexico and South Africa. The aggregate results from a global trade model are fed into separate national models. The insights available from alternative model types are evaluated. The distributional impacts of reform are found to be complex and to vary between countries. Given that it is typically impossible to reform (or equally not reform) without hurting some households with lower incomes, the conclusion is that it makes sense to help these households with targeted policies.

Brooks, J., G. Dyer, *et al.* (2008). Modeling Agricultural Trade and Policy Impacts in Less Developed Countries. OECD Food, Agriculture and Fisheries Working Papers 11. Paris, OECD.

The role of agricultural policies in addressing the development needs of poorer countries is high on the political agenda, for both structural reasons and as a result of recent market developments. In the first place, there is a growing consensus that agriculture has been neglected in national development strategies, and that there is a need for greater investment in the sector, both to achieve immediate poverty reduction and to stimulate broader pro-poor economic development. This is a core message of the World Bank's latest World Development Report (World Bank, 2008). In the case of Africa, members of the African Union committed in 2003 to allocate at least 10% of their national budgets to agriculture and rural development, while more recently the G8 pledged to provide EUR 1 billion of support for investment in African agriculture. As agricultural

development receives greater priority, there is a need to clarify the supporting role that agricultural policies should play

Cervantes-Godoy, D. and J. Brooks (2008). Smallholder Adjustment in Middle-Income Countries: Issues and Policy Responses. OECD Food, Agriculture and Fisheries Working Papers 12. Paris, OECD.

This paper discusses the adjustment pressures that smallholders face, considers the types of policy responses that are warranted, and proposes an integrated framework for more inclusive agricultural development. That framework builds on a matrix that was developed for the recently published Review of Agricultural Policies: Chile (OECD, 2007). The focus of the paper is primarily on the challenges facing middle income countries, which are now going through a phase of adjustment that the majority of OECD countries have already experienced3. The problems addressed are thus of a different nature to the broader questions of how to promote development in low-income countries, that are still heavily dependent on agriculture.

Dayton-Johnson, J. and K. Fukasaku (2008). Making the Most of Aid: Challenges for Africa's Agribusiness. Policy Briefs 36. Paris, Development Centre, OECD.

Aid and trade policies – in OECD countries and in developing countries – might reinforce each other to promote development, or they might be substitutes: the sign of the correlation between trade and aid flows depends on the context. East Asia's rapid growth demonstrates the important development impact of the trade-aid link. While aid has played a strong complementary role for trade development in Viet Nam, for example, the current impasse of African cotton producers is emblematic of trade and aid policies working at cross purposes. The experience of six African countries reviewed in this brief highlights the case for development assistance that aims to eliminate bottlenecks preventing a greater and deeper African participation in the global trading system. The scaling-up of aid, macroeconomic stability and trade expansion are compatible and the ongoing international "aid for trade" initiative will remain critically relevant for African development in the coming decades.

Dewbre, J. and J. Brooks (2006). Agricultural Policy and Trade Reform: Potential Effects at Global, National and Household Levels. Paris, OECD.

This report attempts to quantify the likely distributional consequences of a widespread and simultaneous reduction in trade protection and agricultural domestic support. The first part of the analysis examines the implications for global commodity markets, for national economic welfare, and for sectoral terms of trade for an extensive list of individual countries and regions. The second part of the study tracks these aggregate impacts down to the household level for five case study countries: Brazil, Italy, Malawi, Mexico and the United States, considering the implications for net household incomes in each case.

Dewbre, J & A. Borot de Battisti (2007). Agricultural Progress in Cameroon, Ghana and Mali: why it happened and how to sustain it. Paris, OECD.

This report evaluates long-term trends in food production and rural poverty in Cameroon, Ghana and Mali highlighting dramatic improvements that began in the late 1980s and early 1990s and that have continued through to present days. The analysis considers the possible role of domestic and international agricultural policies in contributing to the turnaround, draws some tentative conclusions about cause and effect and suggests ways in which agricultural growth might be sustained.

Dewbre, J., C. Giner, *et al.* (2008). "High food commodity prices: will they stay? who will pay?" Agricultural Economics **39**(s1): 393-403.

Much of the public discussion of the food price crisis has focused on the sharply increased use of food commodities for biofuels production, framing debate in simple food versus fuel terms. Reality

is more complex. Multiple forces drove food prices to high levels and, according to findings we report in this article, these forces will sustain high prices over the medium term. We also find that the distinction between high world prices for food commodities and the consumer costs of food is an important one to make. Food consumers do not buy raw food commodities at international prices. The degree to which the price of traded food commodities and the price of food are related depends on a long list of factors, most of which operate to dampen price transmission. In the search for appropriate policy response, it is essential to measure consumer effects correctly and to apportion properly the causes of current high prices.

International Monetary Fund (IMF), Organisation for Economic Co-operation and Development (OECD), *et al.* (2008). Summary of the Workshop. Workshop on Food and Fuel Prices, Paris, OECD.

FAD hosted a joint IMF/OECD/World Bank workshop to discuss issues related to the recent surge in food and fuel prices. Mr. Lipsky (IMF) opened the workshop, and he was followed by remarks by Mr. Padoan (OECD) and Mr. Leipziger (World Bank). The discussion was organized in four separate sessions. Session I: Impact on Countries and Policy Response; Session II: Policies to Encourage Supply Responses and Alleviate Market Tightness; Session III: Ongoing and Future Work Programs; Session IV: Ensuring Consistency in Policy Advice and Way Forward.

OECD (2003). Farm Household Income: Issues and Policy Responses. Paris, OECD.

The first part of this report provides a synthesis of available information and analysis on farm household income issues and draws on a number of studies including the one presented in Part II. The synthesis report describes the income objectives attributed to agricultural policies, reviews the levels, sources and distribution of farm household incomes in recent years, examines the extent to which policies contributed to the observed situation, assesses the effectiveness and cost-efficiency of policies in achieving their income objectives, and suggests policy instruments that would transfer income to farm households more effectively and more equitably. The second part contains a study that investigates how efficient some of the most commonly used policy interventions are in transferring income to farmers. This notion is referred to as the transfer efficiency of support measures with respect to income.

OECD (2006a). Documentation of the AgLink-Cosmos Model. Paris, Organisation for Economic Co-operation and Development (OECD).

This report provides documentation of the AGLINK model and its FAO counterpart, COSIMO. It serves as a reference manual for equations, variables and model properties and provides validation of the model through review of its response to various shocks. It is the first such update that includes the collaborative work with the FAO which expands the model to many developing countries and regions. The joint model is referred to as the AGLINK-COSIMO model in this report. The documentation in this note does not include detailed equation specification; this can be found at the web site www.agri-outlook.org, which is available to collaborators in the AGLINK-COSIMO project. A cd-rom containing this will be made available at the time of the meeting and will be included in the final report.

OECD (2006b). Promoting Pro-Poor Growth: Agriculture. Paris, DAC, OECD.

This report takes a fresh look at the important contribution of agriculture to pro-poor growth and helps donors with identifying a new agricultural agenda for enabling pro-poor growth.

OECD (2006c). Promoting Pro-Poor Growth: Key Policy Messages. Paris, DAC, OECD.

This report takes a broader look at to pro-poor growth and helps donors with identifying agriculture's role for enabling pro-poor growth.

OECD (2008a). Agricultural Policies in OECD Countries: At a Glance 2008. Paris, OECD.

In 2007, support to farmers in OECD countries from agricultural policies accounted for 23% of the farmers' gross receipts, down from 26% in 2006 and 28% in 2005. With prices for major agricultural commodities rising steeply on international markets, partly owing to high oil prices and policy-induced expansion of crops for biofuels, the gap between supported domestic and world prices has narrowed considerably, contributing to the lowest level of producer support since the estimates began in the mid-1980s.Progress has been made in moving away from the most production- and trade-distorting policy measures, although these continue to dominate producer support in most OECD countries. The buoyant market offers opportunities to further reform policies, with potentially beneficial impacts on developing countries, consumers and the environment. This report is a unique source of up-to-date estimates of support to agriculture. It provides an overview of agricultural support in the OECD area, complemented by individual chapters on agricultural policy developments in all OECD countries.

OECD (2008b). Biofuel Support Policies: An Economic Assessment, Organization for Economic Cooperation and Development

Governments in many OECD countries, as well as in a number of countries outside the OECD area, actively promote the production and use of alternative transport fuels made from agricultural commodities. This report, jointly produced by the OECD and the IEA and drawing on information from a number of other organizations, analyses the implications of this support from various perspectives. The report shows that the high level of policy support contributes little to reduced greenhouse-gas emissions and other policy objectives, while it adds to a range of factors that raise international prices for food commodities. It concludes that there are alternatives to current support policies for biofuels that would more effectively allow governments to achieve their objectives.

OECD. (2008c). "International Development Statistics (IDS): online databases on aid and other resource flows." from www.oecd.org/dac/stats/idsonline.

The DAC databases cover bilateral and multilateral donors' aid and other resource flows to developing countries in two separate databases: The DAC annual aggregates database, which provides comprehensive data on the volume, origin and types of aid and other resource flows; and The Creditor Reporting System (CRS), which provides detailed information on individual aid activities, such as sectors, countries, project descriptions etc.

OECD. (2008d). "Producer and Consumer Support Estimates, OECD Database 1986-2007." Retrieved 2009, from www.oecd.org/tad/support/psecse.

The dataset contains: Files with detailed data on Producer Support Estimates (PSE) and related indicators of agricultural support by country and for the OECD area (in MS Excel format); Exchange rates used for calculation of the indicators (in MS Excel format); Summary of data availability (in MS Excel format);PSE Browser - a powerful utility to quickly access specific policy data by country (in MS Excel format - NEW);Definitions and Sources with complete description of data and sources by country (PDF); Short Explanatory Notes to the PSE/CSE database (PDF); PSE Manual with comprehensive explanation of concepts, calculation, interpretation and use of the Producer Support Estimates (PSE) and related indicators of agricultural support

OECD (2008e). Rising Agricultural Prices: Causes, Consequences and Responses. Policy Brief. DAC. Paris, Organisation for Economic Co-operation and Development (OECD).

World prices of wheat, coarse grains (in particular corn), rice and oilseed crops nearly doubled between 2005 and 2007 and continued to rise in early 2008. These prices, along with those of meat, sugar and dairy products, are likely to ease somewhat in the next 10 years, but are likely to stay well above the average of the past decade. This price spike in agricultural commodities is due

to a combination of factors, including droughts in key grain-producing regions, low stocks of cereals and oilseeds, increased use of feedstock to produce biofuels and rapidly rising oil prices. The fall in value of the US currency is also partly responsible, since the price for these commodities is typically quoted in US dollars. An unsettled global economy also appears to have contributed to a substantial increase in speculative interest in agricultural futures markets, helping to boost prices. These high prices drive up the cost of food and will hit poor and hungry people hardest, particularly the urban poor in low-income countries. Food importing developing countries overall will have to spend an even higher share of their limited income on food. And this is not only a short-term problem. The OECD expects prices to come down again in future, but not to their past levels. On average over the coming decade, prices in real terms of cereals, rice and oilseeds are projected to be 10% to 35% higher than in the past decade. Tight market conditions for essential agricultural commodities pose policy challenges for national governments as well as for international organizations. This Policy Brief looks at the causes of the current price spike, what it may mean for prices in the future, and how governments can craft policies to cope.

OECD (2009a). Agenda and Summary. Policy Dialogue on High Food Prices: Outlook and Donor Mid-term Responses, Paris, OECD.

International dialogue on aid effectiveness and agricultural development in Africa.

OECD (2009b). Agricultural Policies in Emerging Economies: monitoring and evaluation. Paris, OECD.

This monitoring exercise documents and evaluates the latest agricultural policy developments in seven emerging economies: Brazil, Chile, China, India, Russia, South Africa and Ukraine. Chile has been included for the first time, following the completion of a country review of agricultural policies in 2008. Bulgaria and Romania, which were included in the previous edition, have subsequently acceded to the European Union and therefore, by convention, are now covered in the annual monitoring and evaluation report of agricultural policies in OECD countries. The other important development since the previous report concerns changes made to the method used to calculate and present the Producer Support Estimate (PSE) and related indicators of support. Ongoing changes in agricultural policies require that the methodology be reviewed periodically. A new classification of policy measures within the PSE and a new method for calculating commodity-specific support have been adopted, and consequently implemented in this report. Definitions of support indicators and changes in the classification system are detailed in an annex, along with a description of improvements made to the estimates of support for each economy. Policy responses to higher food prices, along with other significant policy changes and new initiatives are described.

OECD (2009c). Donor Responses to High Food Prices. Policy Dialogue on High Food Prices: Outlook and Donor Mid-term Responses, Paris, OECD.

Room document. Donor reported responses to high food prices based on survey of donors. Qualitative overview of how countries reacted - existing and planned.

OECD. (2009d). "OECD work on Aid for Trade." 2009, from http://www.oecd.org/document/46/0,3343,en_2649_34665_39619566_1_1_1_1,00.html.

The OECD and the WTO have started preparations for the second round of the monitoring exercise whose outcomes will form the key input to the second Global Review on Aid for Trade which will take place in the WTO in spring 2009. The OECD and the WTO have collaborated closely to develop a framework for monitoring aid for trade. This framework has three levels: global monitoring of aid-for-trade flows, based on the OECD Creditor Reporting System; donor monitoring, in the form of self-assessments; and in-country monitoring, also in the form of self-assessments.

OECD (2009e). Risk Management in Agriculture - A Holistic Conceptual Framework. Paris, OECD.

This document develops a conceptual framework for the analysis of risk management policies in agriculture. It is argued that such analysis should focus on the interactions between the different sources of risk, farmers' risk management strategies and policy measures, including all agricultural support measures. It identifies the main relationships and proposes to analyze risk management as a system in which the role of government needs to respond to potential market failures or equity concerns.

OECD (2009f). Growing Prosperity: Agriculture, Economic Renewal and Development. Experts Meeting on "Innovating Out of Poverty", Paris, DAC, OECD.

Science and innovation have always been the key forces behind agricultural growth in particular and economic transformation in general. More specifically, the ability to add value to agricultural produce via the application of scientific knowledge to entrepreneurial activities stands out as one of the most important lessons of economic history. Reshaping agriculture as a dynamic, innovative and rewarding sector in developing countries will require world leaders to launch new initiatives that include the following strategic elements: 1. Bold leadership driven by heads of state; 2. Agriculture needs to be recognized as a knowledge-intensive productive sector; 3. Policies have to urgently address affordable access to communication services for people to use in their everyday lives, as well as broadband Internet connectivity for centres of learning such as Universities and technical colleges; 4. Improving rural productivity also requires significant investments in basic infrastructure including facilities such as transportation, rural energy, and irrigation. 5. Creating enterpreneurship and facilitating private sector development has to be highest on the agenda to promote the autonomy and support needed to translate opportunity into prosperity.

OECD and FAO (2008). OECD-FAO Agricultural Outlook 2008-2017. Paris, Organisation for Economic Co-operation and Development. **2008:** 1-233.

2008 edition of the OECD/FAO Agricultural Outlook covers the outlook for commodity markets during the 2008 to 2017 period, and brings together the commodity, policy and country expertise of both Organisations. The report analyses world market trends for the main agricultural products, as well as biofuels and provides an assessment of agricultural market prospects for production, consumption, trade, stocks and prices of the included commodities. This publication includes Statlinks, URLs linking to Excel® spreadsheet files containing background data, as well as a special chapter on high prices which analyses whether they are here to stay. The market projections cover OECD countries, as well as other key agricultural players including India, China, Brazil, the Russian Federation and Argentina, and many other non-OECD countries and regions. In total, the projections encompass 39 countries and 19 regions.

OECD Development Centre (2008). Business for Development 2008: Promoting Commercial Agriculture in Africa. Paris, OECD.

Business for Development 2008 offers a fresh look at African agriculture and seeks ways for it to become a profitable industry. The changing pattern of international trade in agriculture has profound implications for Africa. The book's authors discuss these trade flows, map the corporate landscape of agro-food (including the emergent indigenous sector) and assess trends in international development co-operation in agriculture. Particular focus is given to "aid for trade" programmes that aim to foster private-sector development and trade-capacity building. A final chapter, drawing lessons from five country case studies, provides evidence of the (in)effectiveness of government intervention and donor programmes in promoting market access for African agriculture. It also offers evidence-based advice on how to foster agricultural development. The book emphasizes how the domestic and international private sectors can become drivers of change. This book is a "must read" for government officials, private actors and the donor community and it may help lead to more balanced support programmes.

RPCA (2008). Food Security and Nutrition in the Sahel and West Africa. 24th annual meeting of the Food Crisis Prevention Network in the Sahel and West Africa (RPCA), Dakar, SWAC-OECD and CILSS.

The 24th RPCA annual meeting was held from 25 to 27 November 2008 in Dakar focusing on the "Role and Importance of the Market on Food Security." This note aims to inform decision-makers of States and intergovernmental organisations (CILSS, ECOWAS, UEMOA) as well as other food security actors of the important conclusions and recommendations. Without losing sight of the production revival methods, the debates focused essentially on market regulation instruments: i) the management of stocks (local, national and regional); (ii) the processing and marketing of local products; and (iii) the strengthening of the regional market as well as the improvement of trade flows in the region.

Sahel and West Africa Club (SWAC) (2007). Food Sovereignty in West Africa: From Principles to Reality. First Regional Forum on Food Sovereignty. Niamey, Niger, OECD.

The purpose of this contribution is to suggest a cross-analysis of trade, agriculture and cooperation policies in the area of food security. The idea is to understand how and to what extent these principles have been used, beyond the management of food aid, to design and implement the main public policies relating to the region's food security and food sovereignty. The three objectives of the consultation were that it should result in: A thorough analysis of the extent to which the Food Aid Charter principles have been followed to develop trade and agricultural policies at a regional level; An analysis of the extent to which the Charter principles have actually been taken into account within the countries' agricultural and food cooperation policies, including in terms of relations with Arab and Asian countries, etc.; o Make relevant and practical recommendations, for the benefit of countries and the region, to improve food security and the taking into account of the Food Aid Charter principles in the West African countries' national economic, agricultural and cooperation policies, and in regional trade policies.

Trade and Agriculture Directorate (TAD) (2009). Scoping Paper: Agricultural Policy design in developing Countries. Paris, Organisation for Economic Co-operation and Development (OECD).

The main question posed by this project is: what kinds of agricultural policy instruments are appropriate for developing countries at different stages of development in terms of enabling them to attain their development objectives?

Wolter, D. (2008). Higher Food Prices – A Blessing in Disguise For Africa? Policy Insights. Paris, Development Centre, OECD.

Higher food prices are likely to stay; emergency aid can only be a short-term solution. Making African agriculture a profitable business could turn a food-price curse into a blessing. African governments and donors should promote the commercialization of food crops.

Other References

Abbott, P. (2007). Food Aid & the Farm Bill. EC-750-W. West Lafayette, IN, Extension Service, Department of Agriculture, Purdue University.

Food aid programs are classified as emergency relief, project aid, or program aid. Emergency relief augments food supplies or rebuilds productive assets following natural disasters or political strife. Project food aid funds a wide range of development projects implemented by foreign governments or private voluntary organizations (NGOs). Program aid provides balance of payments support to recipient governments to cover food import costs as well as other foreign exchange needs. Program and project aid are often "monetized" as donated food is sold in recipient countries and receipts fund broad development programs. Emergency food aid is the most likely to effectively use food

rather than cash donations, while cash is clearly a more efficient means to fund broad development projects.

Abbott, P. C., C. Hurt, *et al.* (2008). What's Driving Food Prices? Oak Brook, IL, Farm Foundation.

In recent months, much has been written in the academic and popular press about commodity prices, biofuels and food prices — often with varying perspectives and conclusions. Farm Foundation asked Wallace Tyner, Philip Abbot and Christopher Hurt, all of Purdue University, to review the literature and provide a comprehensive assessment of the forces driving food prices today. The three economists reviewed more than two dozen reports and studies, summarizing them in light of their own examination of the facts. As is true of many issues in the food system, the full story behind rapid increases in food prices is not a simple one. Today's food price levels are the result of complex interactions among multiple factors — including crude oil prices, exchange rates, growing demand for food and slowing growth in agricultural productivity — as well as the agricultural, energy and trade policy choices made by nations of the world. But one simple fact stands out: economic growth and rising human aspirations are putting ever greater pressure on the global resource base. The difficult challenge for public and private leaders is to identify policy choices that help the world deal with the very real problems created by today's rising food prices without jeopardizing aspirations for the future.

Abbott, P. C., C. Hurt, *et al.* (2009). What's Driving Food Prices? March 2009 Update. Oak Brook, IL, Farm Foundation.

In the spring and early summer of 2008, the temperature of the rhetoric in the food versus fuel debate was skyrocketing right along with the prices of corn, soybeans and crude oil. Farm Foundation is not about heat or fueling fires. Our mission is to be a catalyst for sound public policy by providing objective information to foster deeper understanding of the complex issues before the food system today. We commissioned Purdue University economists Wallace Tyner, Philip Abbott and Christopher Hurt to provide a comprehensive, objective assessment of the forces driving food prices. Released in July 2008, What's Driving Food Prices? identified three major drivers of prices — depreciation of the US dollar, changes in production and consumption, and growth in biofuels production. The three economists also reviewed more than two dozen reports and studies in the academic and popular press about commodity prices, biofuels and food prices, summarizing them in light of their own examination of the facts. Today, just eight months later, the landscape is remarkably different. The 2008/09 crop production was higher than forecast, quieting talk of inadequate supplies. Significant declines have occurred in crude oil, grain and oilseed crop prices. Biofuels production has slowed. The value of the US dollar has appreciated. A global financial crisis and recession now dominate the news. Given this remarkable reversal of conditions, we asked Tyner, Abbott and Hurt to reexamine the drivers of food prices. Their analysis indicates that now, as eight months ago, the answers are not simple. While the level of food prices has dropped, the forces driving those prices remain the same today as in July 2008, as does the need to understand how those forces work and interact.

Action Against Hunger (2009). Feeding Hunger & Insecurity: The Global Food Price Crisis. Briefing Paper. New York, Action Against Hunger.

Even though global food prices are falling, local prices have continued to increase or have remained at their inflated level for most vulnerable countries. Despite no clear increase in severe malnutrition, high prices consistently forced families to adopt damaging coping strategies to maintain staple food consumption; 'seasonality' shows that this can have long-term implications for poverty, vulnerability and malnutrition. Context matters; urgent funding is needed to translate global policy into effective responses addressing the needs of those most affected and most vulnerable. Interventions must be inclusive, coordinated and comprehensive, addressing both

agricultural production and nutrition in tandem, both in the short and long-run at the global, national and local level

Ad Hoc Advisory Group (2009). Smallholder Food Production and Poverty Reduction: Principles for a Financial Coordination mechanism (FCM) to Support Smallholder Farmers. Madrid, Spain, Ideas Foundation, Madrid Conference on Food Security.

This report calls for a new world partnership towards achieving global food security by empowering smallholder farmers to improve productivity and incomes. In particular, I welcome the establishment of the proposed financial coordination mechanism (FCM), aimed at rapidly improving smallholder agricultural productivity through a number of pertinent interventions such as input subsidy, investment and reduction in post harvest losses. This signifies a major turning point in the fight against hunger and extreme poverty. Essentially, the report recognizes the need for specific actions to be undertaken at the national, continental and global levels to ensure food security. In summary these include: First, the need to build consensus at these levels and empower farmers to own and control agricultural and food production. Second the need for governments to increase substantially budgetary allocations to the agricultural sector. Third, the need to build up infrastructure to support smallholder farmers, including roads, bridges, storage, training and extension services, health and welfare facilities and marketing. Fourth, the need for significant increases in international financial support to agriculture. Fifth, increased private sector participation in agriculture, especially investment, research and the application of science and technology in agriculture.

AGRA. (2009). "Alliance for a Green Revolution in Africa." from http://www.agra-alliance.org/.

AGRA is a dynamic partnership working across the African continent to help millions of small-scale farmers and their families lift themselves out of poverty and hunger. AGRA programmes develop practical solutions to significantly boost farm productivity and incomes for the poor while safeguarding the environment. AGRA advocates for policies that support its work across all key aspects of the African agricultural value chain from seeds, soil health and water to markets and agricultural education.

Agricultural Food and Policy Center (2008). The Effects of Ethanol on Texas Food and Feed. College Station, TX, Texas A&M University.

Their major conclusion is that higher oil prices are the main driver of changes in the agricultural industry. Part of this conclusion is demand pull and part is cost push. That is, higher oil prices pull more ag products into the energy market, and higher petroleum product prices lead to increased cost of producing ag commodities. They conclude that higher corn prices have very little to do with higher food prices. There is only a small effect on some food items. Speculative activity in commodity markets has led to perhaps higher prices but certainly to higher volatility. The volatility has increased to the point that some operators can no longer use the futures markets. With the increased volatility and low stocks, any weather event this year likely will lead to huge increased in crop prices, especially corn. The livestock industry has born most of the burden of increased corn prices. It will take some time before they can pass on these costs to the consumer, and that will happen through contraction of the livestock industry. Relaxing the RFS will not significantly lower corn prices.

Aksoy, M. A. and A. Isik-Dikmelik (2008). Are Low Food Prices Pro-Poor? Net Food Buyers and Sellers in Low-Income Countries. Policy Research Working Paper WPS4642. Washington, DC, Development Research Group, The World Bank.

There is a general consensus that most of the poor in developing countries are net food buyers and food price increases are bad for the poor. This could be expected of urban poor, but it is also often attributed to the rural poor. Recent food price increases have increased the importance of this issue,

and the possible policy responses to these price increases. This paper examines the characteristics of net food sellers and buyers in nine low-income countries. Although the largest share of poor households are found to be net food buyers, almost 50% of net food buyers are marginal net food buyers who would not be significantly affected by food price increases. Only three of the nine countries examined exhibited a substantial proportion of vulnerable households. The average incomes (as measured by expenditure) of net food buyers were found to be higher than net food sellers in eight of the nine countries examined. Thus, food price increases, ceteris paribus, would transfer income from generally higher income net food buyers to poorer net food sellers. The analysis also finds that the occupations and income sources of net sellers and buyers in rural areas are significantly different. In rural areas where food production is the main activity and where there are limited non-food activities, the incomes of net buyers might depend on the incomes and farming activities of net food sellers. These results suggest the need for reevaluation of the consensus on the impact of food prices on food needs. Further work on the regional differences, and more important, on the second order effects, are necessary to answer these questions more precisely. Only on the basis of further analysis can we start generating better policy responses.

Anderson, K. and W. Masters, Eds. (2009). Distortions to Agricultural Incentives in Africa. Washington, DC, World Bank.

The World Bank launched a major research project in 2006 aimed at quantifying the changing extent of distortions to agricultural incentives since the 1950s. This volume is one of a series of four regional books that summarize the findings. By including most of the large African economies as case studies, the focus countries cover about 90% of the agricultural value added, farm households, total population, and total GDP of Sub-Saharan Africa.

Arndt, C., R. B. Nelson, *et al.* (2008). "Higher fuel and food prices: impacts and responses for Mozambique." Agricultural Economics **39**(s1): 497-511.

Rising world prices for fuel and food represent a negative terms-of-trade shock for Mozambique. The impacts of these price rises are analyzed using various approaches. Detailed price data show that the world price increases are being transmitted to domestic prices. Short-run net benefit ratio analysis indicates that urban households and households in the southern region are more vulnerable to food price increases. Rural households, particularly in the North and Center, often benefit from being in a net seller position. Longer-term analysis using a computable general equilibrium (CGE) model of Mozambique indicates that the fuel price shock dominates rising food prices from both macroeconomic and poverty perspectives. Again, negative impacts are larger in urban areas. The importance of agricultural production response in general and export response in particular is highlighted. Policy analysis reveals difficult trade-offs between short-run mitigation and long-run growth. Improved agricultural productivity has powerful positive impacts, but remains difficult to achieve and may not address the immediate impacts of higher prices.

Badiane, O. (2008). Sustaining and Accelerating Africa's Agricultural Growth Recovery in the Context of Changing Global Food Prices. Policy Brief 009. Washington, DC, International Food Policy Research Institute.

Starting in the mid-1990s, Africa embarked upon its longest period of sustained, positive per capita income growth since the 1960s. This growth recovery has made a dent in poverty and holds out hope that a number of African countries may reach the Millennium Development Goal targets for poverty and food security (MDG 1), if not by 2015, then within the following few years. Agricultural growth has been, and will remain, key to reducing poverty and hunger in Africa. To significantly reduce poverty, Africa needs to sustain, broaden, and accelerate its recent growth performance and boost its investments in agriculture. The recent spike in global food prices represents an opportunity that could support further agricultural sector growth in Africa. The

unfolding financial crisis, on the other hand, could have the reverse effect, especially if it leads to lower investments in the sector.

Bale, M. D. and E. Lutz (1979). "The effects of trade intervention on international price instability " American Journal of Agricultural Economics **61**(3): 512-516.

The purpose of this paper is to examine formally the effects of different trade intervention policies on international price instability. Our results show that some trade barriers have no impact on world price instability, while other types of restrictions transfer different degrees of instability from one country to the other. The paper uses a two-country, one-commodity, equilibrium model of trade to show that price instability generated by random supply fluctuations in the importing country can be amplified by various trade restrictions. The analysis is general, so that stochastic disturbances of supply and demand functions in both exporting and importing countries are considered simultaneously in order to demonstrate how and to what extent distortions affect price instability under constant exchange rates.

Barrett, C. B. (2002). Food Security and Food Assistance Programs. Handbook of Agricultural Economics, Vol. 2 B. L. Gardner and G. C. Rausser. Amsterdam, Elsevier.

Widespread hunger and malnutrition persist today despite considerable growth in per capita food availability. This has prompted an evolving conceptualization of food security and of mechanisms to attain and maintain food security. This chapter discusses both food security and food assistance programs designed to respond to threats to food security.

Barrett, C. B. and D. G. Maxwell (2005). Food Aid After Fifty Years: Recasting Its Role. London, Routledge.

Broadly explores issues in delivering emergency food assistance.

Benson, T., N. Minot, *et al.* (2008). Global Food Crises: Monitoring and Assessing Impact to Inform Policy Responses. Food Policy Report No. 19. Washington, DC, IFPRI.

This report seeks to support national decision makers, as well as their international development partners, in acquiring information and applying methods for understanding the likely effects of a global food crisis on their country and acting to alleviate the risks and exploit the opportunities brought about by such crises. It describes data and methods and suggests how to facilitate their collection and use. The report then outlines the design and implementation of an open Internet-based portal for sharing reliable, appropriate information and decision-support tools for national policymakers so they can respond quickly to changes in world food markets in an informed manner. The adequacy of the response to a global food crisis depends to a large degree on the policy - and program related reactions of national-level policymakers around the globe. This report provides insight on the information and analytical tools that national-level decision makers need to assess the risks and opportunities posed to their country and its citizens by a global food crisis, to determine how they might respond to those risks and opportunities, and to identify ways to monitor the impact of the food crisis and the effects of policy responses.

Benson, T., S. Mugarura, *et al.* (2008). "Impacts in Uganda of rising global food prices: the role of diversified staples and limited price transmission." Agricultural Economics **39**(s1): 513-524.

This study assesses the potential impact of rising world food prices on the welfare of Ugandan households. While Uganda experienced sharply higher food prices in 2008, as a landlocked, food-exporting country the causes of those price changes were mainly regional and indirect rather than directly transmitted from global markets. Using trade volumes, food prices, and household survey data we describe how Uganda, unlike some other countries, is partially shielded from direct impacts of global food price movements. Although the majority of Ugandans are net food buyers, the adverse impact at household-level of rising global prices is moderated by the relatively large

quantity and range of staples consumed that come from home production. Moreover, several of these are not widely traded. Some population groups in Uganda are vulnerable to rising food prices, however, primarily those for whom maize is an important staple, including those dependent upon humanitarian relief and the urban poor. Only a relatively small group of Ugandan households will benefit directly and immediately from rising food prices — the significant net sellers of food crops constituting between 12% and 27% of the population. In this assessment we do not estimate the level and extent of wider second round effects from these higher prices.

Bertini, C. and D. Glickman (2009). Renewing American Leadership in the Fight Against Global Hunger and Poverty: The Chicago Initiative on Global Agricultural Development. Chicago, IL, Chicago Council on Global Affairs.

The Global Agricultural Development Leaders Group was convened in October 2008 to examine the risks posed by rural poverty and food insecurity in Sub-Saharan Africa and South Asia, the role of women in farm families in bringing about change, and the opportunities for the United States to better address the challenge of global poverty through agricultural development. Co-chaired by Catherine Bertini, former executive director of the UN World Food Program, and Dan Glickman, former US Secretary of Agriculture, the bipartisan Leaders Group brought together eleven distinguished individuals with expertise in food and agriculture, foreign policy, development, US public policy, and international organizations. The 2008 global food crisis renewed global attention on the persistent problems of hunger and poverty in the developing world and aroused concern about global food security over the long term. Of greatest concern is the extreme plight of the approximately 600 million people who live on less than USD 1 per day in rural areas of Sub-Saharan Africa and South Asia and depend on agriculture for their livelihoods. The solution to their plight lies in a sustained, long-term effort to increase agricultural productivity on smallholder farms. Yet over the past two decades there has been a steady decline in the world's support for the research, education and extension, and rural infrastructure improvements that are needed to help smallholder farmers improve their crop yields and gain access to agricultural markets. Now is the time for the United States to provide the leadership so sorely needed to support a second Green Revolution benefiting smallholder farmers in Sub-Saharan Africa and South Asia. We have compelling moral, economic, diplomatic, and security reasons to do so. Lacking for too long has been firm and sustained leadership from the US president and Congress that commits America to strong partnerships with African and Asian institutions in a frontal attack on this critical cause of global poverty.

Bissi, K. (2009). The Comprehensive Africa Agriculture Development Program (CAADP). Policy Dialogue on High Food Prices: Outlook and Donor Mid-term Responses, Paris, OECD.

Presentation on CAADP

Blein, R. and R. Longo (2009). Food price volatility – how to help smallholder farmers manage risk and uncertainty. Round Table organized during the Thirty-second session of IFAD's Governing Council, Rome, IFAD.

Following a period of soaring prices for virtually all agricultural commodities, prices for many of them have fallen dramatically since August 2008, although they still remain relatively high compared with previous years. Rural producers are confronted with greater uncertainty, and food price volatility has become a major issue given its impact investment decisions of agricultural producers and thus on long term world food security. Price volatility may increase in the future, since the effects of climate change are likely to increase uncertainty and instability of food production, especially in lower-latitude, tropical regions. This paper, prepared as background to the Round Table discussions at IFAD's 32nd Governing Council in 2009, provides a framework for focusing the discussions around the challenges identified and the policy options available to address those challenges.

Brown, L. (1995). Who Will Feed China? New York, W.W. Norton & Company.

In "Who Will Feed China?", Lester Brown again urges us to respond to the warning signs of high population, shrinking cropland, and water scarcity in formulating global development policy for the 21st century. Reminding us that the Chinese account for 20% of the world's people, Brown states: "In an integrated world economy, China's rising food prices will become the world's rising food prices. China's land scarcity will become everyone's land scarcity. And water scarcity in China will affect the entire world." Brown remarks that "...China's emergence as a massive grain importer will be the wake-up call that will signal trouble in the relationship between ourselves...and the natural systems and resources on which we depend. It may well force a redefinition of security, a recognition that food scarcity and the associated economic instability are far greater threats to security than military aggression."

Collins, K. (2008). The Role of Biofuels and Other Factors in Increasing Farm and Food Prices. Chicago, Kraft Global Foods.

Many factors are contributing to higher farm-level and retail food prices. They include: (1) strong global economic growth, thereby increasing demand for US commodities; (2) the declining value of the dollar, although recent real trade-weighted exchange rates suggest that the weakened dollar has been less important to corn and other key crops; (3) reduced supplies of some crops, such as wheat and rice, due to adverse global weather; (4) higher energy prices that have increased farm production costs and food processing and distribution costs; (5) changing foreign agricultural policies that insulate countries from higher global prices; (6) increased investment by index funds and other managed investments that probably have increased price volatility but are not likely to have sustained effects; and (7) biofuels, particularly corn-based ethanol. Biofuels have been a major factor for feed grain and livestock markets, with corn used in ethanol rising from 2.1 billion bushels in 2006/07 to an expected 4.0 billion in 2008/09. This increase in corn for ethanol production exceeds the entire expected increase in total corn demand over this period. This paper reviews various studies that have examined the relationship between corn used in ethanol production and corn prices. They suggest increased corn demand for ethanol could account for 25% to 50% of the corn price increase expected from 2006/07 to 2008/09. Another analysis presented in the paper suggests that ethanol could account for 60% of the expected increase in corn prices between 2006/07 and 2008/09 when market demand and supply are inelastic with respect to price — *i.e.*, a period when stocks are very low, feed use is slow to respond, export demand is strong due to foreign agricultural policies, and acreage is very constrained. There are several global options for addressing extraordinarily low commodity stocks and higher farm and food prices. Governments could take actions to increase worldwide food production and increase investment in agricultural research and adoption of biotech seeds and other technologies. US Federal biofuels policy could also be reconsidered.

Cudjoe, G., C. Breisinger, *et al.* (2008). Food Price Transmission and Poverty Impacts in Ghana. Discussion Paper No. 842. Washington, DC, IFPRI.

This paper takes a local perspective on global food price shocks by analyzing food price transmission between regional markets in Ghana. It also assesses the impacts of differential local food price increases on various household groups. Taking the recent global food crisis as an example, we find that prices for domestic staples within all regional markets are highly correlated with prices for imported rice. However, price transmission between pairs of regional markets is limited; it is complete for local rice and maize only when more rigorous cointegration analysis is applied. Our findings also show the important role of seasonality in the determination of market integration and price transmission. The welfare effect for households as consumers appears relatively modest at the aggregate national level due to relatively diverse consumption patterns. However, the national average hides important regional differences, both between regions and

within different income groups. We find that the poorest of the poor — particularly the urban poor — are the hardest hit by high food prices. The negative effect of the food crisis is particularly strong in the north of Ghana. Different consumption patterns, in which grains account for a larger share of the consumption basket in the north compared to the rest of the country, together with much lower initial per capita income levels, are the main explanations for this regional variation in the price effect.

Daviron, B., M. Aubert, *et al.* (2008). Les mechanismes de Transmission de la Hausse des prix Internationaux des Produits Agricoles dans les Pays Africans. Paris, Fondation pour l'Agriculture et la Ruralité dans le Monde (FARM), CIRAD.

La transmission de la hausse des prix agricoles aux consommateurs risque de peser sur le pouvoir d'achat, mais sa transmission aux producteurs peut contribuer à réduire la pauvreté des populations rurales et à accroître la production. Dans ce contexte, le très fort renchérissement des matières premières agricoles entre 2006 et l'été 2008 invite à se poser plusieurs questions : Quelle part des fluctuations des prix internationaux se transmet aux marchés africains ? Cette transmission touche-t-elle de la même façon les producteurs et les consommateurs ? Au bout de combien de temps les variations sont-elles transmises ? Les hausses et les baisses sont-elles transmises de la même façon ? Ces mécanismes de transmission des prix ont été étudiés dans six pays (Cameroun, Guinée, Madagascar, Mali, Niger et Sénégal).

Dawe, D. (2008). Have Recent Increases in International Cereal Prices Been Transmitted to Domestic Economies? The experience in seven large Asian countries. ESA Working Paper No. 08-03. Rome, Agricultural Development Economics Division, Food and Agriculture Organization.

International cereal prices (in US dollar terms) have been increasing since 2003, but it is domestic prices that affect food consumption and production. This paper analyzes, for seven large Asian countries, the extent to which domestic prices have increased since 2003 and presents several conclusions. First, the data show that the increases in world cereal prices have been accompanied by a real depreciation of the US dollar. For many countries (but not all), this depreciation has neutralized a substantial proportion of the increase in world prices. Second, domestic commodity specific policies in several of these Asian countries have further stabilized domestic prices relative to the change in world prices. This has been especially true for rice, the main staple food in the region, but it is also true for wheat. On average, through the end of 2007, the increase in real domestic rice prices was about one-third of the increase in real US dollar world market rice prices. Third, for the specific cases analyzed here, producer or farm gate prices have changed by approximately the same percentage as consumer prices. Thus, in these Asian countries, domestic markets seem to be transmitting price changes between farmers and consumers rather efficiently. Fourth, the experience with urea fertilizer prices is more heterogeneous: some countries are following free trade, while others have stabilized prices in nominal terms.

Delgado, C. (2009). Setting the scene: Causes and consequences. Policy Dialogue on High Food Prices: Outlook and Donor Mid-term Responses, Paris, OECD.

Presentation on causes of high food prices and preexisting conditions.

Demeke, M., G. Pangrazio, *et al.* (2008). Country responses to the food security crisis: Nature and preliminary implications of the policies pursued. Rome, Agricultural Policy Support Service, FAO.

Policies in response to rising food prices have included a series of immediate short-term measures. These can be grouped into three main groups: Trade oriented policy responses that use policy instruments such as reducing tariffs and restricting exports to reduce prices and/or increase domestic supply; • Consumer oriented policy responses that provide direct support to consumers and vulnerable groups in the form of food subsidy, social safety nets, tax reductions and price

control, among others; and Producer oriented policy responses intended to support farmers to increase production using measures such as input subsidies and producer price support.

Denning, G. e. a. (2009). "Input Subsidies to Improve Smallholder Maize Productivity in Malawi: Toward an African Green Revolution." PLoS Biology **7**(1): 2-10.

Emerging from the worst harvest in a decade, the Government of Malawi implemented one of the most ambitious and successful assaults on hunger in the history of the African continent. Through a national input subsidy program, coinciding with better rainfall conditions, maize production doubled in 2006 and almost tripled in 2007. From a 43% national food deficit in 2005, Malawi achieved a 53% surplus in 2007, some of which was exported to neighboring countries. An associated decline in the price of maize conveys important benefits to low-income urban and rural households that are net food consumers. Malawi's recent experience may provide important lessons for achieving food security through smallholders in Africa.

Dessus, S., S. Herrera, *et al.* (2008). The Impact of Food Inflation on Urban Poverty and Its Monetary Cost: Some Back-of-the-Envelope Calculations. Policy Research Working Paper 4666. Washington, DC, World Bank.

This paper uses a sample of 73 developing countries to estimate the change in the cost of alleviating urban poverty brought about by the recent increase in food prices. This cost is approximated by the change in the poverty deficit, that is, the variation in financial resources required to eliminate poverty under perfect targeting. The results show that, for most countries, the cost represents less than 0.1% of gross domestic product. However, in the most severely affected, it may exceed 3%. In all countries, the change in the poverty deficit is mostly due to the negative real income effect of those households that were poor before the price shock, while the cost attributable to new households falling into poverty is negligible. Thus, in countries where transfer mechanisms with effective targeting already exist, the most effective strategy would be to scale up such programs rather than designing tools to identify the new poor.

Diouf, J. (2008). High Food Prices: Causes and Possible Actions. Rome, Food and Agriculture Organization of the United Nations (FAO).

The current crisis raises many important and urgent questions. Most importantly, how can we swiftly address the problems of the most needy in order to avert a deeper and more widespread crisis? Specifically, what can be done to allow subsistence farmers to weather high input prices and reap the benefits of higher food prices? How can the food security situation be improved and the adverse impacts of high prices on nutrition be limited? How can food price inflation be restrained and a lasting improvement in national food security be achieved while maintaining incentives for producers and creating a supportive market environment? We also need to understand fully what factors have caused the surge in prices and whether food prices will remain high for the years to come, for sustainable solutions can only work when the causes of the problems have been understood. These questions will be discussed in this paper which is organized as follows: The first section will take stock of main manifestations of the crisis and report on the magnitude of price surges and their impacts on hunger, poverty and inequality. It will then discuss the main causes of the price surges, distinguishing supply and demand-side factors and differentiating between factors that have driven long-term trends and those that have caused short-term swings. Finally the paper will present possible actions that would help to alleviate the most urgent and grave consequences and eventually put the world food situation back onto a more sustainable longer-term path.

Drummond, A. B. a. P. (2008). Commodity Price Spiral Taking Toll on African Economies IMF Survey Magazine. Washington, DC, International Monetary Fund.

This note discusses the implications of the price shocks for the balance of payments of low-income countries in sub-Saharan Africa. The response by bilateral donors and multilateral institutions will, in practice, need to be country-specific. To this end, the note identifies a list of 18 countries in the region that are especially hard-hit and that consequently face a pressing need for additional balance of payments and budget support. The list reflects country circumstances and underlying assumptions as of May, and is subject to change; it is not meant to be definitive.

Economic Research Service (ERS). (2009). "Agricultural Baseline Projections." Retrieved March 2009, from http://ers.usda.gov/briefing/baseline/.

USDA Agricultural Projections for 2009-18, released in February 2009, provides long run projections for the farm sector for the next 10 years. These annual projections cover agricultural commodities, agricultural trade, and aggregate indicators of the sector, such as farm income and food prices.

FAO. (2008a, 23 October 2008). "Basic food prices in selected countries." Regional Food Price Update, from http://www.fao.org/giews/english/ewi/cerealrprice/4.htm.

GIEWS global information and early warning system on food and agriculture-- graphs and data.

FAO (2008b). Soaring Food Prices: Facts, Perspectives, Impacts and Actions Required. High-level Conference on World Food Security: the Challenges of Climate Change and Bioenergy. Rome, FAO.

The general purpose of this technical background document is to discuss the causes and consequences of the recent increases in food prices. The paper starts from a broad, global perspective, proceeds to national level impacts, and then to household level effects. The concluding section discusses possible actions to deal with rising prices. The first part of the paper provides an assessment of recent global trends in food prices, a description of the factors underlying the current state of world markets, and finally, a brief look into the future of these markets. The second part of the paper discusses country level macroeconomic impacts in terms of effects on food import bills, current account deficits, the transmission of international prices to domestic prices, and effects on consumer price indices and per capita cereal consumption. The third part of the paper discusses household level impacts, with a special focus on the poorest members of society. The final section of the paper provides some short- and long-term policy options at both national and international levels to help mitigate the negative impacts and take advantage of the emerging opportunities through investment in agriculture with the hope of stimulating discussions at the High-Level Conference.

FAO (2008c). The State of Food Insecurity in the World 2008 Rome, Economic and Social Development Department, Food and Agriculture Organization of the UN.

The State of Food Insecurity in the World 2008 represents FAO's ninth progress report on world hunger since the 1996 World Food Summit (WFS). In previous editions, FAO has expressed deep concern over the lack of progress in reducing the number of hungry people in the world, which has remained persistently high. This year's report focuses on high food prices, which are having a serious impact on the poorest populations in the world, drastically reducing their already low purchasing power. High food prices have increased levels of food deprivation, while placing tremendous pressure on achieving internationally agreed goals on hunger by 2015. This report also examines how high food prices present an opportunity to relaunch smallholder agriculture in the developing world. As discussed in the report, FAO's undernourishment estimates for the period 1990–92 to 2003–05 have been revised on the basis of new standards for human energy requirements established by the United Nations (UN) and 2006 revisions of UN population data.

FAS USDA. (2009). "Production, Supply and Demand Online." Retrieved March 2009, from http://www.fas.usda.gov/psdonline/psdQuery.aspx.

Foreign Agricultural Service's Production, Supply and Distribution (PSD) online database. This database contains current and historical official USDA data on production, supply and distribution of agricultural commodities for the United States and key producing and consuming countries.

Gandure, S. (2008). High Food Prices in the Eastern, Central and Southern Africa: Assessing Impact and Tracking Progress Towards Meeting the CFA Objectives. Rome, World Food Program.

In response to the dramatic rise of global food prices since 2007, WFP has been providing funding and technical support to WFP staff and partners to assess the impact of higher prices and structural vulnerabilities and a growing and 'new face of hunger'. According to preliminary research the estimated new caseload is expected to be more visible and to have greater political influence as they are often concentrated in urban areas. Based on detailed literature review and discussions with selected key informants, this paper presents a summary of current evidence and understanding of the impact of HFP in the OMJ region1. It provides an analysis of how various stakeholders have responded within the context of the Comprehensive Framework for Action and finally recommendations on how to better understand and address the issue are outlined. In addition, several country level case studies have been prepared that summarize the array of issues and responses to high food prices in the OMJ region.

Gilbert, C. L. (2008). How to understand high food prices. FAO Experts Meeting on Policies for the Effective Management of Sustained Food Price Increases. Rome, Trade and Markets Division, FAO.

Global Donor Platform for Rural Development (2007). Formulating and Implementing Sector-Wide Approaches in Agriculture and Rural Development: A Synthesis Report. Bonn, Germany, Global Donor Platform for Rural Development.

Sector-wide approaches (SWAps) have been an important part of the global effort to deliver sustainable development results for more than a decade now. However, SWAps are relatively new in agriculture and rural development (A&RD). This study takes a first and comprehensive look at some of the ways in which SWAps and SWAp-type approaches have evolved in A&RD. It includes case studies from seven countries, with in-depth information available for three – Mozambique, Tanzania and Nicaragua – and assesses the extent to which SWAps are achieving their aims, their intended trajectories of change and provides key lessons for the future.

Global Donor Platform for Rural Development (2008). Agricultural sector experiences in implementing the Paris Declaration on Aid Effectiveness. Bonn, Germany, Global Donor Platform for Rural Development.

This document, prepared by the Global Donor Platform for Rural Development (Platform), has been requested by the co-chairs of RT 8, to summarize the experiences implementing the Paris Declaration in the agricultural sector. It draws on the experience of Platform members and partner country as well as relevant studies and provides an overview of the inputs that the agricultural work stream can provide to the outcome document and the further preparations of the RT for the HLF through the forthcoming regional meetings.

Global Donor Platform for Rural Development. (2009). "The food price crisis and the global food security challenge." from http://www.donorplatform.org/content/view/185/172.

Haq, Z. u., H. Nazli, *et al.* (2008). "Implications of high food prices for poverty in Pakistan." Agricultural Economics **39**(s1): 477-484.

The study estimates the impacts of rising world food prices on poverty in rural and urban areas of Pakistan. Household income and expenditure data for 2004/05 is used to estimate compensated and uncompensated price and expenditure elasticities using the linear approximation of the almost

ideal demand system. Taking the unexpected component of higher domestic food prices in 2007/08, own and cross price compensated elasticities are used to derive the changes in the quantity consumed, food expenditure and impacts on poverty assuming the food crisis happened in 2004/05. The results indicate that poverty increased by 34.8%, severely affecting the urban areas where poverty increased by 44.6% as compared to 32.5% in rural areas. The estimates show that 2.3 million people are unable to reach even one-half of poverty line expenditures while another 13.7 million are just below and 23.9 million are just above the poverty line. In the short run, it is important to ensure food availability to these people. In the long run, the policy environment of subsidizing urban food consumers by keeping wheat prices lower than the international price, needs to be reconsidered to provide the right incentives to increase food availability.

Headey, D. and S. Fan (2008). "Anatomy of a crisis: the causes and consequences of surging food prices." Agricultural Economics **39**(s1): 375-391.

Although the potential causes and consequences of recent rising international food prices have attracted widespread attention, many existing appraisals are superficial and/or piecemeal. This article attempts to provide a more comprehensive review of these issues based on the best and most recent research, as well as on fresh theoretical and empirical analysis. We first analyze the causes of the current crisis by considering how well standard explanations hold up against relevant economic theory and important stylized facts. Some explanations turn out to hold up much better than others, especially rising oil prices, the depreciation of the US dollar, biofuels demand, and some commodity-specific explanations. We then provide an appraisal of the likely macro- and microeconomic impacts of the crisis on developing countries. We observe a large gap between macro and micro factors, which, when identifying the most vulnerable countries, often point in different directions. We conclude with a brief discussion of what ought to be learned from this crisis.

Hussein, K. (2008). Dangerous Ideas in Development. UK Parliamentary Seminar – All Party Parliamentary Group for Debt, Aid and Development, London.

This seminar addresses a strategic issue – how best to maintain the international impetus to work in partnership to meet the Millennium Development Goals (MDGs) and move towards the identification of development frameworks that will be needed beyond 2015. This is a fundamental concern for both development policy and research. This contribution draws on relevant experiences of IFAD in promoting agricultural and rural development in view of achieving MDG1 in sub-Saharan Africa. It begins by outlining key trends and challenges in meeting MDG1 in Africa, particularly sub-Saharan Africa, in a rapidly changing world. We need to develop more flexible and inclusive strategies to work with poor people, their organizations and partner countries to develop their own goals and strategies in relation to their specific contexts and then support their implementation with technical advice and resources.

IFPRI. (2009). "IFPRI's Action Plan for the Food Price Crisis." from http://www.ifpri.org/themes/foodprices/foodprices.asp.

IMF Africa Department (2008). The Balance of Payments Impact of the Food and Fuel Price Shocks on Low-Income African Countries: A Country-by-Country Assessment. Washington, DC, International Monetary Fund.

This note discusses the implications of the price shocks for the balance of payments of low-income countries in sub-Saharan Africa. The response by bilateral donors and multilateral institutions will, in practice, need to be country-specific. To this end, the note identifies a list of 18 countries in the region that are especially hard-hit and that consequently face a pressing need for additional balance of payments and budget support. The list reflects country circumstances and underlying assumptions as of May, and is subject to change; it is not meant to be definitive.

International Fund for Agricultural Development (IFAD) (2008). The Farmers' Forum. Rome, International Fund for Agricultural Development.

International Monetary Fund (IMF) (2008a). Food and Fuel Prices—Recent Developments, Macroeconomic Impact, and Policy Responses: An Update. Washington, DC, International Monetary Fund.

This report updates the macroeconomic assessment of the impact of global food and fuel price increases provided in the IMF June 2008 Board paper: Food and Fuel Prices — Recent Developments, Macroeconomic Impact, and Policy Response. It reviews recent food and fuel price developments, provides an updated overview of the impact on the balance of payments, inflation, and budgets, and presents an updated summary of recent policy responses. Fund advice presented in the June paper remains substantially unchanged.

International Monetary Fund (IMF). (2008b). "World Economic Outlook Database." Retrieved March 2009, 2009, from http://www.imf.org/external/pubs/ft/weo/2008/02/weodata/index.aspx.

International Monetary Fund (IMF). (2009). "International Financial Statistics." Retrieved March 2009, 2009, from http://www.imfstatistics.org/imf/.

Irwin, S., D. Sanders, *et al.* (2009). Devil or Angel: The Role of Speculation in the Recent Commodity Price Boom (and Bust). Southern Agricultural Economics Association Meetings. Atlanta, Georgia.

It is commonly asserted that speculative buying by index funds in commodity futures and over the counter (OTC) derivatives markets created a “bubble” in commodity prices, with the result that prices, and crude oil prices, in particular, far exceeded fundamental values at the peak. The purpose of this paper is to show that the bubble argument simply does not withstand close scrutiny. Four main points are explored. First, the arguments of bubble proponents are conceptually flawed and reflect fundamental and basic misunderstandings of how commodity futures markets actually work. Second, a number of facts about the current situation in commodity markets are inconsistent with the existence of a substantial bubble in commodity prices. Third, available statistical evidence does not indicate that positions for any group in commodity futures markets consistently lead futures price changes. Fourth, there is a historical pattern of attacks upon speculation during periods of extreme market volatility.

Irwin, S. H., P. Garcia, *et al.* (2008). "Recent Convergence Performance of CBOT Corn, Soybean, and Wheat Futures Contracts." Choices **23**(2): 16-21.

Futures markets play a key role in price discovery and risk transfer in many agricultural markets. Concerns have been raised about the performance of Chicago Board of Trade (CBOT) grain futures contracts in a number of recent forums, most prominently at the Agricultural Forum hosted by the Commodities Futures Trading Commission (CFTC) on April 22nd, 2008. Market participants have expressed concern that futures prices have been artificially inflated since the Fall of 2006, contributing to weak and erratic basis levels and a lack of convergence of cash and futures prices during delivery. In this article, we focus on the nature and consequences of recent convergence problems in CBOT (now CME Group, Inc.) corn, soybean and wheat futures contracts. We also briefly comment on proposals for changing the contracts to address the problems that have surfaced recently.

Ivanic, M. and W. Martin (2008). "Implications of higher global food prices for poverty in low-income countries." Agricultural Economics **39**(s1): 405-416.

In many poor countries, the recent increases in prices of staple foods have raised the real incomes of those selling food, many of whom are relatively poor, while hurting net food consumers, many

of whom are also relatively poor. The impacts on poverty will certainly be very diverse, but the average impact on poverty depends upon the balance between these two effects, and can only be determined by looking at real-world data. Results using household data for 10 observations on nine low-income countries show that the short-run impacts of higher staple food prices on poverty differ considerably by commodity and by country, but that poverty increases are much more frequent, and larger, than poverty reductions. The recent large increases in food prices appear likely to raise overall poverty in low-income countries substantially.

Ivannic, M. and W. Martin (2009). Increasing Global Food Production, World Bank.

The recent food price crisis has highlighted a need for higher food production, especially if food continues to be used for fuel. How might this be achieved? Some advocate increasing protection or at least not reducing it in the industrial countries. Another approach is to focus on improving productivity. Increasing food production through protection requires very large increases in protection. The favorable impacts are much bigger if productivity rises in developing countries.

Just, D. R. and R. E. Just (2008). "Monopoly Power, Futures Market Manipulation, and the Oil Price Bubble." Journal of Agricultural & Food Industrial Organization **6**(2): Article 2.

The US Congress has become concerned with the possibility that much of the recent rise in oil prices is due to speculation or market manipulation. We propose a theory of futures market manipulation that can potentially explain such manipulation and an associated price bubble. Our model involves a price-setting off-shore exporter (*e.g.*, OPEC) of a commodity (*e.g.*, oil) with price-taking domestic production and consumption sectors. If domestic next-period price expectations are linked to futures prices, then OPEC may drive up current prices through manipulative buying in the futures market, achieving an increase in market power for their cash-market exports. An increase in future price expectations increases storage, artificially driving up current market prices. We explore the conditions necessary to make this an optimal strategy for OPEC.

Keats, S. (2009). Network to inform research, advocacy, policy and action related to high and volatile food commodity prices, DFID, Overseas Development Institute.

Network of researchers interested in the implications of high and volatile food prices for research, advocacy, and action related to: 1) Vulnerable groups in developing countries; 2) Policies in developing and developed countries.

Lence, S. H. (2009). "Do Futures Benefit Farmers?" American Journal of Agricultural Economics **91**(1): 154-167.

Simulations are used to analyze welfare and market- and farm-level effects of making futures available to producers of a storable commodity. Key features of the model are the explicit consideration of dynamic impacts due to inventories, and of aggregate market effects associated with futures adoption by some producers. Application to the natural rubber market shows that futures availability can lead to sizable market- and farm-level effects. Futures availability enhances consumer welfare, reduces nonadopter welfare, and yields important welfare gains for adopters when their market share is small and welfare losses when they account for a sufficiently large market share.

Lohmar, B. and F. Gale (2008) Who Will China Feed? Amber Waves Volume, 10-15 DOI:

China is a net food exporter, and its food exports, as well as its imports, are growing. China's capacity to continue food export growth is constrained by intense competition for limited resources by nonagricultural industry and other sectors of the economy. Intensive use of chemical inputs has led to deteriorating environmental quality, which may affect China's future production capacity and cause problems in export markets.

Manssouri, M. (2009). Smallholder farmer food production growth sustained. Rome, IFAD.

Many developing countries have demonstrated a strong interest in boosting smallholder food production. They implemented policies and programmes to directly support smallholder producers. In this respect, there have been a number of actions aimed at boosting food production in developing countries through direct support to producers through non-market and market mechanisms. On the other hand, there has been a renewed interest in agriculture on the international scene with tangible indications of increased public and private investments. Despite the strong evidence that actions taken to support to smallholder food production have resulted in significant increase in food production in some countries (*e.g.* for maize in Malawi, rice in Burkina Faso, etc.), it appears that, on aggregate, the net impact of the incentive package (higher input prices offset to some extent by input subsidies in a context of rising world prices of outputs negated by strong downward pressure on food prices from governments) has not resulted in a significant boost in smallholder food production in most developing countries.

Masters, W. A. and G. E. Shively (2008). "Introduction to the special issue on the world food crisis." Agricultural Economics **39**(s1): 373-374.

This issue of Agricultural Economics contains articles on the causes and effects of rising food prices. All papers were subject to full, double-blind peer review on an accelerated basis, in an effort to publish the best new research as quickly as possible. We received more than 60 submissions; referees were given three weeks to respond, and authors of candidate papers had an additional week to revise their work before final acceptance. Articles published use descriptive, econometric, and simulation methods for both global overviews and case studies.

McIntire, J. (1981). Food security in the Sahel : Variable import levy, grain reserves, and foreign exchange assistance. (Research Report 26. Washington, DC, International Food Policy Research Institute (IFPRI).

Examines stabilization strategies of importing developing countries. Recommends variable levies.

Meyers, W. H. and S. Meyer (2008). Causes and Implications of the Food Price Surge. FAPRI–MU Report. Columbia, MO, Food and Agricultural Policy Research Institute (FAPRI) at the University of Missouri–Columbia**:** 51.

This paper analyzes the food price surge of 2005 to 2008 in order to better understand the factors causing higher and more volatile food prices during this period, to ascertain the relative importance and possible persistence of the different factors, and to suggest possible implications for future market behavior and policy reactions. Given the highly uncertain outlook for petroleum price and its increasing impact on agricultural and food prices, the near-term outlook for major grains and oilseeds is generated from the latest USDA crop estimates and the FAPRI stochastic analysis of early 2008. Price projections to 2010/11 crop year are generated for major grains and oilseeds, given petroleum prices that average USD 48, USD 67, and USD 95 per barrel.

Mitchell, D. (2008). A note on rising food prices. Washington, DC, World Bank.

The rapid rise in food prices has been a burden on the poor in developing countries, who spend roughly half of their household incomes on food. This paper examines the factors behind the rapid increase in internationally traded food prices since 2002 and estimates the contribution of various factors such as the increased production of biofuels from food grains and oilseeds, the weak dollar, and the increase in food production costs due to higher energy prices. It concludes that the most important factor was the large increase in biofuels production in the US and the EU. Without these increases, global wheat and maize stocks would not have declined appreciably, oilseed prices would not have tripled, and price increases due to other factors, such as droughts, would have been more moderate. Recent export bans and speculative activities would probably not have occurred because they were largely responses to rising prices. While it is difficult to compare the results of

this study with those of other studies due to differences in methodologies, time periods and prices considered, many other studies have also recognized biofuels production as a major driver of food prices. The contribution of biofuels to the rise in food prices raises an important policy issue, since much of the increase was due to EU and US government policies that provided incentives to biofuels production, and biofuels policies which subsidize production need to be reconsidered in light of their impact on food prices.

Mold, A., D. Ölcer, *et al.* (2008). The Fallout from the Financial Crisis (3): Will Aid Budgets Fall Victim to the Credit Crisis? Policy Insights. Paris, Development Centre, OECD.

Aggregate aid figures might not decline after all, but much of the new resources might bypass the poorer, most vulnerable countries. Bilateral donors should therefore maintain their commitments to low-income countries, and especially shelter country programmable aid from cutbacks. The financial crisis should give a new impetus to governments' efforts to improve aid effectiveness.

National Corn Growers Association (2008). US Corn Growers: Producing Food & Fuel. Chesterfield, MO, National Corn Growers Association.

The ethanol industry in the United States is hitting its stride in response to America's need for a domestic, renewable source of transportation fuel. Corn use for ethanol tripled from 2001 to 2007. The US Department of Agriculture estimated 4.0 billion bushels of corn will be made into ethanol in 2008/09. More than 160 biorefineries are in operation and dozens more are under construction.

Ng, F. and M. A. Aksoy (2008). "Food price increases and net food importing countries: lessons from the recent past." Agricultural Economics **39**(s1): 443-452.

Recent increases in food and other commodity prices have highlighted concerns that many poor countries are net food importers and higher food prices would worsen their trade balances. In this article, we analyze the changes in food trade balances associated with the 32% increase in food prices from 2000/01 to 2004/05. We find a small deterioration in food trade balances of low-income countries and an improvement in middle-income countries. The deterioration is most severe for countries in conflict and small island states, so attention should be placed first on these countries and on a few very-low-income countries that are also vulnerable. Because low-income countries as a group had much lower agricultural GDP growth rates than middle-income countries, the answers to food vulnerability in low-income countries should probably be addressed within the context of incentives for agricultural production.

Ngongi, N. (2008). Policy Implications of High: Food Prices for Africa. Responding to the Global Food Crisis: Three Perspectives. Washington, DC, IFPRI.

The first half of 2008 witnessed a dramatic rise in commodity prices that brought back sad memories of the 1974/75 food crisis. Food price increases averaging 52% between 2007 and 2008 have posed a heavy burden on consumers in net food-importing countries, especially in Sub-Saharan Africa. The pressure of increasing food prices was a major factor in riots that erupted in many countries (Burkina Faso, Cameroon, Côte d'Ivoire, Egypt, and Senegal).

Pardey, P. G., J. M. Alston, *et al.*, Eds. (2006a). Agricultural R&D in the developing world : too little, too late? Washington, DC, IFPRI.

This book was conceived as a companion to the 1999 volume Paying for Agricultural Productivity, published by Johns Hopkins University Press in conjunction with IFPRI. That volume dealt with investments, institutions, and policy processes regarding agricultural R&D in developed countries. This book addresses the same set of issues for the developing countries, and the relationship of those countries to the richer parts of the world where the preponderance of agricultural innovation still takes place. It also reviews developments within the Consultative Group on International Agricultural Research (CGIAR), along with the changing roles of international research generally,

in light of the substantial shifts in science funding and policy (as well as in the science itself) that are taking place throughout the world.

Pardey, P. G., J. M. Alston, *et al*. (2006b). Shifting Ground: Agricultural R&D Worldwide. Washington, DC, IFPRI.

Throughout the 20th century, improvements in agricultural productivity have lifted millions from poverty and starvation and primed the pump of economic progress. These productivity improvements have been closely linked to investments in agricultural research and development (R&D). In the past quarter century, many countries have made major changes in the way they fund and organize public agricultural R&D and in the incentives affecting private R&D. These changes raise questions about the prospects for sustaining productivity over the next 25 years and beyond. Early indicators suggest a global slowdown in agricultural productivity may have already begun. Today, a slower growing, stagnant, or shrinking public agricultural research pot is increasingly being diverted away from the traditional agenda toward environmental objectives, food quality and safety, and so on. Who, then, will do the research required to generate sustenance for a growing world population when — at least for another quarter century — virtually all the population growth will occur in the poorer parts of the world? These questions and others are raised in this book.

Rapsomanikis, G. and A. Sarris (2008). "Market Integration and Uncertainty: The Impact of Domestic and International Commodity Price Variability on Rural Household Income and Welfare in Ghana and Peru." Journal of Development Studies **44**(9): 1354 - 1381.

We estimate rural household income uncertainties and welfare changes due to commodity price and production variability in Ghana and Peru under different scenarios for international and domestic market shocks. Uncertainties significantly affect the variability of household income, especially for households that are specialized in the production of few commodities. Wider exposure to international markets would increase the income variability for producers of commodities that are subjected to stabilization policies in Ghana but would reduce the variability that rural households in Peru face. In terms of welfare, rural households in both countries are expected to gain if fully exposed to international markets.

Revenga, A. (2008). Rising Food Prices: Policy Options and World Bank Response. Background Note. Washington, DC, World Bank**:** 11.

Policy interventions can be divided into three broad classes: (i) interventions to ensure household food security by strengthening targeted safety nets; (ii) interventions to lower domestic food prices through short-run trade policy measures or administrative action, and (iii) interventions to enhance longer-term food supply. Within all three categories of policies there are ‘first best’ or preferred options that are more effective and equitable, and introduce fewer distortions. Annex I summarizes the main policy options and ranks them according to the extent to which they meet these and other desirable criteria.

Rosen, S. and S. Shapouri (2008). "Rising Food Prices Intensify Food Insecurity in Developing Countries." Amber Waves **6**(1): 16-21.

The use of food crops for biofuels, coupled with greater food demand, has reversed the path of declining price trends for several commodities. For highly import-dependent or highly food-insecure countries, any decline in import capacity stemming from rising food prices can have challenging food security implications. Food aid, a key safety net source, has stagnated during the last two decades, and its share has declined relative to total food imports of low-income countries.

Rosen, S., S. Shapouri, *et al.* (2008). Food Security Assessment, 2007. Washington, DC, Economic Research Service, United States Department of Agriculture.

According to USDA's Economic Research Service, the food security situation in 70 developing countries is projected to deteriorate over the next decade. The estimates also indicate that the number of food-insecure people for these countries rose from 2006-07, from 849 million people to 982 million. Food and fuel price hikes, coupled with a slowdown in global economic growth, hinder long-term food security progress. In Food Security Assessment, 2007, the Economic Research Service estimates and projects the number of food-insecure people globally, regionally, and in each of the 70 developing countries studied. Food-insecure people are those consuming less than the nutritional target of 2 100 calories a day. The report also measures the food distribution gap (the amount of food needed to raise consumption of each income group to the nutritional requirement) and examines the factors that shape food security. Food security is defined as access by all people at all times to enough food for an active and healthy life.

Sanders, D. R., S. H. Irwin, *et al.* (2008). The Adequacy of Speculation in Agricultural Futures Markets: Too Much of a Good Thing? Marketing and Outlook Research Reports. Urbana-Champaign, IL, Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign.

The objective of this report is to re-visit the "adequacy of speculation" debate in agricultural futures markets. The Commodity Futures Trading Commission makes available the positions held by index funds and other large traders in their Commitment of Traders reports. The results suggest that after an initial surge from early 2004 through mid-2005, index fund positions have stabilized as a per cent of total open interest. Traditional speculative measures do not show any material changes or shifts over the sample period. In most markets, the increase in long speculative positions was equaled or surpassed by an increase in short hedging. So, even after adjusting speculative indices for index fund positions, values are within the historical ranges reported in prior research. One implication is that long-only index funds may be beneficial in markets traditionally dominated by short hedging. Attempts to curb speculation through regulatory means should be weighed carefully against the potential benefits provided by this class of speculators.

Schiff, M. and A. Valdes (1992). The Plundering of Agriculture in Developing Countries. Washington, DC, World Bank.

The findings and policy implications presented in this booklet are based on a World Bank comparative study of agricultural pricing policies in developing countries, which examined agricultural pricing interventions in eighteen developing countries during 1960-85.

Schutter, O. D. (2008). Promotion and Protection of All Human Rights, Civil, Political, Economic, Social and Cultural Rights, Including the Right to Development. Human Rights Council, Ninth session, Agenda item 3. New York, General Assembly, United Nations**:** 1-43.

The marked increase of the prices of food commodities on the international markets in the period 2006-08 confronts States with a number of dilemmas, related for instance to whether the price increases should be combated or actions taken instead to ensure that those increases benefit agricultural producers and do not have a negative impact on the most vulnerable, or to the conditions under which agrofuels could be developed as an alternative to fossil fuels in the transport sector. In the present report, the Special Rapporteur on the right to food highlights the impact of the choices to be made on the right to food, placing them in the framework of States' obligations domestically and internationally. He suggests why a human rights framework should be adopted in order both to identify the measures needed to respond to the new situation created by the surge in prices and to guide their implementation. Listing both the risks and the opportunities of the current situation, the Special Rapporteur explains why continued monitoring of initiatives adopted at the national and international levels to respond to the crisis is required.

Searchinger, T. (2008). Summaries of Analyses in 2008 of Biofuels Policies by International and European Technical Agencies. Washington, DC, The German Marshall Fund of the United States.

Since January 2008, international institutions, national technical agencies, and major international scientific organizations have released ten major reviews of biofuel policies. This brief summarizes their conclusions, which include: ▪World land use competition means liquid biofuels are only capable of making a limited contribution to world energy supplies and greenhouse gas reductions. Direct and indirect land use change due to biofuels has a high potential to eliminate or greatly reduce their greenhouse gas benefits. Biofuels have contributed significantly to crop price increases and food insecurity in the last few years. Relying on biofuels grown on dedicated land is mainly likely to spur biofuel production and create rural jobs outside of Europe where production of feed stocks is cheaper. Biomass is more efficiently used for energy and greenhouse gas reductions in electricity production than biofuels. Large biofuel mandates should be reconsidered.

Sen, A. (1982). Poverty and Famines: An Essay on Entitlement and Deprivation Oxford and New York, Oxford University Press.

Helped to shift the attention of policy-makers and international organizations away from excessive concentration on food production to broader issues of 'food security.'

Shapouri, S. and C. Christensen (2008). Biofuels and Higher Global Commodity Prices: Impacts on Food Demand, Commodity Production, and Trade In Sub-Saharan Africa. Washington, DC, Economic Research Service, USDA.

The project focused on exploring in impact of higher global commodity prices on US exports to Sub-Saharan Africa — especially corn, wheat, and vegetable oil — and the potential implications for US export performance in the region. The project focused on key countries where import growth has been strong (Ghana and Senegal in West Africa; Kenya and Uganda in East Africa, Mozambique in Southern Africa). ERS sent two teams to Africa in July-August 2008 — one to West Africa and the other to East Africa. The teams met with a wide range of government officials, representatives of key nongovernmental organizations and private sector operators of trading, milling and processing firms. The team found that higher prices were, in general, transmitted to consumers. In some instances (*e.g.* Mozambique) governments did intervene to affect consumer prices, but in all instances, consumers experienced significant price increases. Virtually all countries faced serious financial constraints, especially given rapidly rising oil prices and in some cases, weak exports. Some countries (*e.g.* Kenya) found it difficult to increase imports from neighboring countries after export bans and/or restrictions were put in place (*e.g.* Tanzania, Zambia). Price transmission to farmers was limited. A variety of factors mitigate against a local supply response to higher prices, including poor price transmission, rising input and transportation costs and infrastructure constraints. Higher prices affected the operations of large donors, such as the World Food Program in Uganda, where efforts to purchase regionally encountered difficulties. Opportunities for greater imports exist. However, South Africa is a dominant supplier in Mozambique. Kenya has a need for additional imports, and has been unable to fully meet it from regional sources, but faces serious financial constraints. Uganda and Ghana, with more diverse local diets, appear less likely to increase imports in the near future. Falling prices make imports more affordable, but poor people in both rural and urban areas lack the purchasing power to maintain adequate diets. Hence, food insecurity appears to have increased in all countries during the high price period. Government policies do not appear to be a major impediment to imports.

Shapouri, S. and M. Missiaen (1990). Food aid: Motivation and allocation criteria. Foreign Agricultural Economic Report Number 240. Washington, DC, Economic Research Service, US Department of Agriculture.

Most attention in the literature on food aid is directed at its role in disposing of surpluses in donor countries (Schultz 1960; Fisher 1963; Talbot 1990). Criticisms have been tendered over both the

factors determining total supply of food aid (Shapouri and Missiaen 1990) and on donors' allocation decisions between recipients (Barrett 2001; Barrett and Heisey 2002). As donors are largely agricultural exporters, one concern has been to use production surplus as food aid while delivering food aid in a manner that would minimize disruption to world markets. For recipients, the importance of surplus disposal in food aid has resulted in less food aid during times of global food shortages when world prices are high and stocks are low. In short, the supply of food aid has been, and to some extent continues to be, greatly influenced by availability instead of need.

Sheeran, J. (2008). High Global Food Prices: The Challenges and Opportunities. Responding to the Global Food Crisis: Three Perspectives. Washington, DC, IFPRI.

High food prices are not only causing a humanitarian crisis, but also putting at risk the development potential of millions of people. Global agriculture markets are undergoing structural changes, and the next three to four years will pose great challenges for achieving an affordable and accessible food supply for the world's most vulnerable. Soaring food and fuel prices are creating a "perfect storm" for the world's most vulnerable. The consequence is that the bottom billion could become the bottom 2 billion overnight, as those living on USD 1 a day see their purchasing power cut in half.

Stiglitz, J. and A. Charlton (2005). Fair Trade for All: How Trade Can Promote Development. Oxford and New York, Oxford University Press.

Unfortunately, in the years since it was launched , the Doha Round has not delivered on its development mandate in several important respects.

Timmer, C. P. (2008a). Causes of High Food Prices. ADB Economics Working Paper Series 128. Manila, Asian Development Bank**:** 52.

Since mid-2007 basic food prices have rocketed with disastrous consequences for poor consumers. The spike in international market prices through the first half of 2008 has now subsided. Still prices of rice, wheat, corn (maize), and edible oils remain well above the levels of just a year ago and are likely to remain elevated and volatile for years to come. Two separate dynamics need to be understood in order for countries to make necessary adjustments. A gradual rise in food prices has been under way since at least 2004 with three general and fundamental factors at work: rapid economic growth in the People's Republic of China and India especially put upward pressure on prices as demand simply outpaced supply; a sustained decline in the United States dollar since mid-decade added to the pressures on dollar-denominated international market prices; and a combination of high and rising fuel prices coupled with legislative mandates to increase production of biofuels has established a firm link between petroleum prices and food prices. The causes of price spikes are crop-specific. Drought and disease in 2007 caused wheat prices to jump, and supplies of edible oil were reduced as farmers in the United States shifted acreage out of soybeans into corn for nonfood uses (ethanol). Rice is the clearest example of crop-specific causes — the price spike was driven by export bans that were aimed at helping contain domestic food price inflation in exporting countries, but had the unintended effect of setting off panic as supplies to the already thin world rice market were sharply reduced. Asia will need several years of good rice harvests in order to stabilize the situation and reduce the exposure of the poor to another shock in food prices. This will not be easy to achieve as input costs are driven higher by high energy prices. Thus, it seems unlikely that world food prices will return to the declining trend seen between the mid-1970s and the first few years of this century.

Timmer, C. P. (2008b). Global commodity price rises and impacts on developing Asia. Asian Development Outlook 2008 Update. Manila, Asian Development Bank. **September:** 75-93.

Chapter on causes of high food prices and lessons for policy responses drawn from his working paper.

Trostle, R. (2008). Global Agricultural Supply and Demand: Factors Contributing to the Recent Increase in Food Commodity Prices Outlook Report WRS-0801. Washington, DC, ERS, USDA**:** 30.

World market prices for major food commodities such as grains and vegetable oils have risen sharply to historic highs of more than 60% above levels just 2 years ago. Many factors have contributed to the run-up in food commodity prices. Some factors reflect trends of slower growth in production and more rapid growth in demand, which have contributed to a tightening of world balances of grains and oilseeds over the last decade. Recent factors that have further tightened world markets include increased global demand for biofuels feedstocks and adverse weather conditions in 2006 and 2007 in some major grain and oilseed producing areas. Other factors that have added to global food commodity price inflation include the declining value of the US dollar, rising energy prices, increasing agricultural costs of production, growing foreign exchange holdings by major food importing countries, and policies adopted recently by some exporting and importing countries to mitigate their own food price inflation.

Trostle, R. (2009). "Fluctuating Food Commodity Prices: A Complex Issue With No Easy Answers." Amber Waves **6**(5): 11-17.

Rising food demand, increased energy costs, a weak US dollar, and other factors contributed to the rapid escalation of food commodity prices until July 2008.

Tyers, R. and K. Anderson (1992). Disarray in World Food Markets: A Quantitative Assessment. Cambridge, Cambridge University Press.

Why have agricultural policies become more inward-looking as the world becomes increasingly interdependent economically? Disarray in World Food Markets addresses the nature and causes of this crisis in international trade policy. Its analysis of the effects of these food policies is complemented by a quantitative review of the long term trends in world food markets. The study also extensively examines the reasons why governments choose to implement distortionary policies. These issues have been widely discussed, particularly because of the interest generated by the so-called Uruguay Round of multilateral trade negotiations, held under the auspices of the GATT. Disarray in World Food Markets analyzes some of the elements of the reforms emerging from these trade negotiations and discusses what the likely benefits may be. The model on which the analysis is based has a number of features unique for its time. It incorporates thirty countries and country groups, seven food commodity groups, the dynamic properties of international food markets, the pure protection component of food and agricultural policy, as well as the insulating component of policy.

UN High Level Task Force on the Global Food Security Crisis (UNHLTF) (2008). Comprehensive Framework for Action. New York, United Nations.

On 29 April 2008, the Chief Executives Board (CEB) of the United Nations decided to establish a High-Level Task Force (HLTF) on the Global Food Crisis, under the leadership of the Secretary-General which brought together the Heads of the United Nations specialized agencies, funds and programmes, Bretton Woods institutions and relevant parts of the UN Secretariat. The CFA is a framework for setting out the joint position of HLTF members on proposed actions to: 1) address the current threats and opportunities resulting from food price rises; 2) create policy changes to avoid future food crises; and 3) contribute to country, regional and global food and nutritional security.

United Nations. (2009). "United Nations Millennium Development Goals." from http://www.un.org/millenniumgoals/.

The eight Millennium Development Goals (MDGs) – which range from halving extreme poverty to halting the spread of HIV/AIDS and providing universal primary education, all by the target

date of 2015 – form a blueprint agreed to by all the world's countries and all the world's leading development institutions. They have galvanized unprecedented efforts to meet the needs of the world's poorest. The Millennium Project was commissioned by the United Nations Secretary-General in 2002 to develop a concrete action plan for the world to achieve the Millennium Development Goals and to reverse the grinding poverty, hunger and disease affecting billions of people. In 2005, the independent advisory body headed by Professor Jeffrey Sachs, presented its final recommendations to the Secretary-General in a synthesis volume "Investing in Development: A Practical Plan to Achieve the Millennium Development Goals."

United Nations and Government of Spain (2009). Statement of the High-Level Meeting on Food Security for All. Madrid, Spain.

The Madrid high-level meeting on food security, convened by the Government of Spain and the UN, brought together a broad range of committed stakeholders from more than 126 countries. They came from national governments, civil society, trade unions, private sector, academia, donor agencies and multilateral organizations: the purpose was to accelerate progress in meeting MDG 1 and address the effects of price fluctuations in vulnerable populations. They worked together to review progress achieved since the Rome High Level Conference (June 2008), to agree on ways to move forward, quickly, with short-, medium- and long-term actions, and to establish mechanisms for better coordination.

Valero-Gil, J. N. and M. Valero (2008). "The effects of rising food prices on poverty in Mexico." Agricultural Economics **39**(s1): 485-496.

We evaluate the impact of the rise in food prices during 2006–08 on the poverty and extreme poverty rates in Mexico. We concentrate on the poor's consumption of staple foods, and analyze the change in their consumption brought about by changed prices. We also allow households receiving income from the farming and livestock sector to benefit from increases in prices of food products. We find a modest increase in poverty using 2006–07 prices; however, there is a daunting effect on the poor once the 2008 prices are taken into account. After considering the positive effects of public policies announced in 2008, such as reduced taxes and tariffs on food products and greater subsidies to the extremely poor, the poverty rate measured through consumption increases from 25% to 33.5%, and the extreme poverty rate from 10.58% to 15.95%, given the increase in food prices. Further analysis using the theory of optimal taxes suggests policies oriented towards relieving the food price pressure on the Mexican poor should aim at lowering the prices of eggs, vegetable oil, milk, and chicken.

von Braun, J. (2008). Food and Financial Crises: Implications for Agriculture and the Poor. Food Policy Report 20. Washington, DC, International Food Policy Research Institute.

High food prices from 2007 through mid-2008 had serious implications for food and nutrition security, macroeconomic stability, and political security. The unfolding global financial crisis and economic slowdown have now pushed food prices to lower levels. Yet the financial crunch has also decreased the availability of capital at a time when accelerated investment in agriculture is urgently needed. The food and financial crises will have strong and long-lasting effects on emerging economies and poor people. A synchronized response is needed to ease the burden on the poor and allow agriculture to face new challenges and respond to new opportunities. Three sets of complementary policy actions should be taken: (1) promote pro-poor agricultural growth, (2) reduce market volatility, and (3) expand social protection and child nutrition action. Agriculture requires strategic investment action, and the food-insecure poor need a bailout now.

von Braun, J. and M. Torero (2009). Implementing Physical and Virtual Food Reserves to Protect the Poor and Prevent Market Failure. IFPRI Policy Brief 10. Washington, DC, IFPRI.

The price crisis was triggered by a complex set of long-term and short-term factors, including policy failures and market overreactions. One important factor in the crisis was the entry of significant financial resources into futures markets, including food commodity markets, which contributed to a price spike during the first six months of 2008. This episode highlights the need to modify the architecture of international financial and agricultural markets to address the problem of price spikes, especially their effects on the livelihoods of the poor. This brief offers some specifics on implementing a proposal described in our earlier IFPRI policy brief titled Physical and Virtual Global Food Reserves to Protect the Poor and Prevent Market Failure (June 2008).

Warr, P. (2008). "World food prices and poverty incidence in a food exporting country: a multi-household general equilibrium analysis for Thailand." Agricultural Economics **39**(s1): 525-537.

A multisectoral, multihousehold general equilibrium model of the Thai economy is used to analyze the implications of recent increases in international food prices. Higher food prices, especially staple grains, worsen poverty incidence in Thailand despite the presence of large numbers of poor farmers, many of whom benefit from higher prices. The positive effect on the welfare of poor farmers is dominated by the negative effect on poor consumers. Of the recent price increases for rice, sugar, cassava, maize, soybeans, urea, and petroleum, the increases in rice prices raise poverty incidence the most, despite Thailand being the world's largest rice exporter.

Westcott, P. C. and L. A. Hoffman (1999). Price Determination for Corn and Wheat: The Role of Market Factors and Government Programs. Technical Bulletin No. 1878. Washington, DC, Market and Trade Economics Division, Economic Research Service, US Department of Agriculture.

Annual models for US farm prices for corn and wheat are developed based on market factors as well as government agricultural commodity programs. The pricing relationships utilize a stocks-to-use modeling framework to capture the effects of market supply and demand factors on price determination. This formulation is augmented by factors that represent the changing role of agricultural policies, particularly government price support and stockholding programs. For wheat, international market effects as well as wheat feed use and related cross commodity pricing considerations also are included. Model properties and model performance measures are presented. Additionally, recent price-forecasting applications of the models are discussed. The relatively simple structure of the estimated price models and their small data requirements lend themselves to use in price-forecasting applications in conjunction with market analysis of supply and demand conditions. In particular, the models have been implemented into USDA short-term market analysis and long-term baseline projections. In these applications, the models provide an analytical framework to forecast prices and a vehicle for making consistency checks among the Department's supply, demand, and price forecasts.

Wodon, Q. and H. Zaman (2008). Rising Food Prices in Sub-Saharan Africa: Poverty Impact and Policy Responses. Policy Research Working Paper 4738. Washington, DC, World Bank.

The increase in food prices represents a major crisis for the world's poor. This paper aims to review the evidence on the potential impact of higher food prices on poverty in sub-Saharan Africa, and examines the extent to which policy responses will benefit the poor. The paper shows that rising food prices are likely to lead to higher poverty in sub-Saharan Africa as the negative impact on net poor consumers outweighs the benefits to poor producers. A recent survey shows that the most common policy response in sub-Saharan African countries is reducing taxes on food while outside the region price controls or targeted consumer subsidies are the most popular measure. Sub-Saharan African countries also have a higher prevalence of food-based safety net programs which are being scaled up to respond to rising prices. The review suggests that the benefits from reducing import tariffs on staples may accrue largely to the non-poor. Social

protection programs show more promise, but geographic targeting is likely to be crucial in ensuring that benefits reach the neediest. The paper also argues that anti-poverty interventions ought to retain their focus on rural areas where poverty remains highest even after taking into account the adverse impact on the urban poor due to the rise in food prices.

Woodham-Smith, C. (1962). The Great Hunger: Ireland: 1845-1849. New York, Harper and Row.

Cecil Woodham-Smith, an authority on the Irish Famine, wrote in The Great Hunger; Ireland 1845–1849 that no issue has provoked so much anger and embittered relations between England and Ireland as "the indisputable fact that huge quantities of food were exported from Ireland to England throughout the period when the people of Ireland were dying of starvation." Ireland remained a net exporter of food throughout most of the five-year famine.

World Agricultural Outlook Board (WAOB) (2008). World Agricultural Supply and Demand Estimates May 2008. Washington, DC, United States Department of Agriculture.

This report presents USDA's initial assessment of US and world crop supply and demand prospects and US prices for the 2008/09 season. Also presented are the first calendar-year 2009 projections of US livestock, poultry, and dairy products.

World Agricultural Outlook Board (WAOB) (2009). World Agricultural Supply and Demand Estimates January 2009. Washington, DC, United States Department of Agriculture.

This report presents USDA's January 2009 assessment of US and world crop supply and demand prospects and US prices for the 2008/09 season. Also presented are the first calendar-year 2009 projections of US livestock, poultry, and dairy products.

World Bank (2007). Agriculture for development. World Development Report. Washington, DC, World Bank.

World Development Report 2008 seeks to assess where, when, and how agriculture can be an effective instrument for economic development, especially development that favors the poor. It examines several broad questions: How has agriculture changed in developing countries in the past 20 years? What are the important new challenges and opportunities for agriculture? Which new sources of agricultural growth can be captured cost effectively in particular in poor countries with large agricultural sectors as in Africa? How can agricultural growth be made more effective for poverty reduction? How can governments facilitate the transition of large populations out of agriculture, without simply transferring the burden of rural poverty to urban areas? How can the natural resource endowment for agriculture be protected? How can agriculture's negative environmental effects be contained?

World Bank (2008a). Double Jeopardy: Responding to High Food and Fuel Prices. G8 Hokkaido-Toyako Summit, Japan, World Bank.

For the first time since 1973, the world is being hit by a combination of record oil and food prices. Such record oil and food prices are a destabilizing element for the global economy because of their potentially severe growth, inflation, and distributional effects. In terms of their impact on income distribution, inflation and poverty, high food prices are of greater and more immediate concern than high fuel prices. However, the challenge of crafting appropriate policy responses to the food crisis is made much harder in a context of rising oil prices and ensuing fiscal and balance of payments pressures. The next few months will be critical for stemming this joint crisis and avoiding any potential ripple effects. Compared to the earlier price increase in oil that occurred between 2003 and 2005, developing countries are more vulnerable to the recent increases. The International Community is facing an unprecedented test: the question is whether the World Bank can act swiftly enough to help those most in need. For globalization to work fully, it must be inclusive and sustainable. This means acting now in the interests of the poor who are most affected

by this double jeopardy of food and fuel crisis, and who are least able to help themselves. The G8 Hokkaido-Toyako summit has the potential to spark accelerated action.

World Bank (2008b). "Food Price Crisis in Africa." World Bank Research Digest **3**(1): 1-2.
Rising food prices mean higher poverty in Africa. Which policy responses most benefit the poor? The most promising interventions are those boosting agricultural productivity.

World Bank (2008c). Framework Document for Proposed Loans, credits and Grants in the Amount of USD 1.2 Billion Equivalent for a Global Food Crisis Response Program. Washington, DC, World Bank.
The proposed Global Food Crisis Response Program (GFRP) facilitates a rapid and flexible Bank response, while supporting the evolving coordination role of the United Nations Task Force on the Global Food Crisis established in late April 2008 in Berne and the World Food Programme (WFP)'s work on the emergency delivery of food and relief operations to the worst hit countries. It provides a framework for the Bank to coordinate its response to the crisis in partnership with other multilateral organizations and donor agencies. The Bank's engagement as proposed under the GFRP is based on a role distinct from its partner agencies. The Bank's multi-sectoral expertise gives it a strong comparative advantage in providing integrated solutions to address food security concerns and effectively mitigate the adverse effects of rising food prices. In particular, the Bank is able to: (i) rapidly provide significant funds to countries at risk, (ii) undertake policy analysis drawing upon country, regional and global experience, (iii) provide access to a mix of innovative financial instruments to mitigate a portion of the increased food price risk, partially alleviating the need for costly physical remedies such as strategic grain reserves, (iv) design and deliver well-targeted social protection interventions to mitigate the effect of the price rise on the poor and vulnerable; and (v) support policy and programmatic responses over the medium and longer term including measures critical to improving the domestic agricultural supply response. Through the International Finance Corporation (IFC), the World Bank Group (WBG) is also well positioned to extend support to the private sector to address the food price crisis and ensure suitable medium term investments are made. WBG has a strong presence on the ground in many of the most vulnerable countries and has the systems in place to carry through a program to rapidly respond to the unfolding crisis in these countries.

World Bank (2008d). Global Economic Prospects 2009: Commodity Markets at the Crossroads. Washington, DC, World Bank**:** 196.
Chapter 2 looks at longer-term supply and demand prospects in commodity markets. It takes into account the long-term growth prospects of developing countries and their rising share in world GDP (gross domestic product), the declining quality of new pools of resources, and the influence of technology on both demand and supply.

World Bank (2008e). Rising Food and Fuel Prices – Addressing the Risks to Future Generations, Human Development Network (HDN) and Poverty Reduction and Economic Management (PREM) Network, World Bank.
While the rises in global food and fuel prices have moderated in recent months, domestic prices remain much higher than previous years and show few signs of abating. The effects of the food and fuel crisis on malnutrition and schooling can undermine years of progress on the MDGs. Effective nutritional and social protection interventions can protect the most vulnerable from the devastating consequences of nutritional deprivation, asset depletion and reductions in education and health spending. In parallel to these short-term actions, countries must act to build sounder and more comprehensive social protection systems over the medium term. The global development community has a responsibility to act quickly and comprehensively in the face of this global threat to the human capital of the poor.

World Bank. (2009). "Food crisis." from http://www.worldbank.org/html/extdr/foodprices/.

World Food Program (2008a). Recent Food Price Developments in Most Vulnerable Countries, Issue 1. Rome, World Food Program.

The objective of this briefing note is to provide early warning information on recent price developments and their potential contribution to the cost of the food basket, using staple food commodities that are essential in terms of calorie contribution to households' food basket at individual country-level.

World Food Program (2008b). Recent Food Price Developments in Most Vulnerable Countries, Issue 2. Rome, World Food Program.

This price watch bulletin covers the quarterly period from September to November 20081. The objective of the bulletin is to provide early warning information on price changes of staple food commodities and their likely impact on the cost of the food basket. Price changes are determined for each country on a quarterly basis.

World Food Program (2008c). Summary of Price Impact Assessment Findings. Rome, Food Security Analysis Service, World Food Program.

Tables by country of causes, impacts and responses to high food prices.

World Food Program (2009a). Coping with High Food Prices and the Financial Crisis. Rome, World Food Program.

World Food Program. (2009b). "Dossier: Food Out Of Reach." from http://beta.wfp.org/dossiers/foodoutofreach.

World Food Program. (2009c). "World Food Program website." from http://www.wfp.org/.

World Food Program (2009d). Purchase for Progress (P4P). Rome, WFP.

P4P builds on WFP's local procurement programme and takes it a step further - reaching smallholder and low income farmers and enabling them to gain more from supplying food to WFPs global operations.

Wright, B. D. (2009a). Grain Price Gyrations: Recent Research and Its Policy Implications. 35th Annual James C. Snyder Lecture. Purdue University, West Lafayette, IN, Department of Agricultural Economics.

Recent experience in world grain markets has led many observers to infer that irrational bubbles are clearly evident, and/or that financial speculators have caused recent market instability. In this presentation I shall outline recent theoretical progress on modeling commodity price processes, and in empirical estimation of markets for storable commodities. This research helps us understand why major markets have been so fragile recently. It does not support arguments for market irrationality, or disruptive speculation. The evidence does however point to a clear need for collective commitment to open markets of the global grain trade is to continue to operate as a dependable source of staple foods. There is also a plausible argument for strategic stockpiles in some certain circumstances, but effective implementation of such stockpiles is complex.

Yang, J., H. Qiu, *et al.* (2008). "Fighting global food price rises in the developing world: the response of China and its effect on domestic and world markets." Agricultural Economics **39**(s1): 453-464.

This article addresses how China is being affected by and is responding to the world food crisis. So far, Chinese officials have responded to higher world prices by drawing down stocks and limiting exports of major grains. These policy instruments were not available for soybeans, so domestic prices of soy and other oilseeds have risen with international prices. Using a global CGE model,

we show that the initial world price rise was largely due to higher world oil prices and demand for biofuels as opposed to other factors, especially in maize and soybeans. China's response to this shock has kept domestic grain prices low relative to world grain markets and to domestic soybean prices. As grain stocks are depleted, however, demand growth will push domestic prices back into alignment. Anticipating this pressure on consumers and accelerating supply response through public investment will facilitate adjustment.