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High Food Prices and Developing Countries: Policy Responses at Home and Abroad

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1.0 Introduction

The last three years have been a roller-coaster ride for food prices. After trending down in real terms since the 1970s, cereal and grain prices have experienced among the largest percentage price changes over the past 60 years (Sumner 2009). This episode serves as an important reminder that food prices can be highly variable within short periods of time; a lesson that many may have forgotten since the last such event in the 1972-74 period.

Cereal food prices rose dramatically during the 2006-2008 period, more than tripling in some cases. Now, after a sharp fall from May to December 2008, those prices have risen again and remain one-third to one-half above long-term trends. This situation is costly for all consumers, both for the higher cost of food and for the variability in its price. High food prices will have negative impacts on poor families and more broadly on consumers in developing countries.

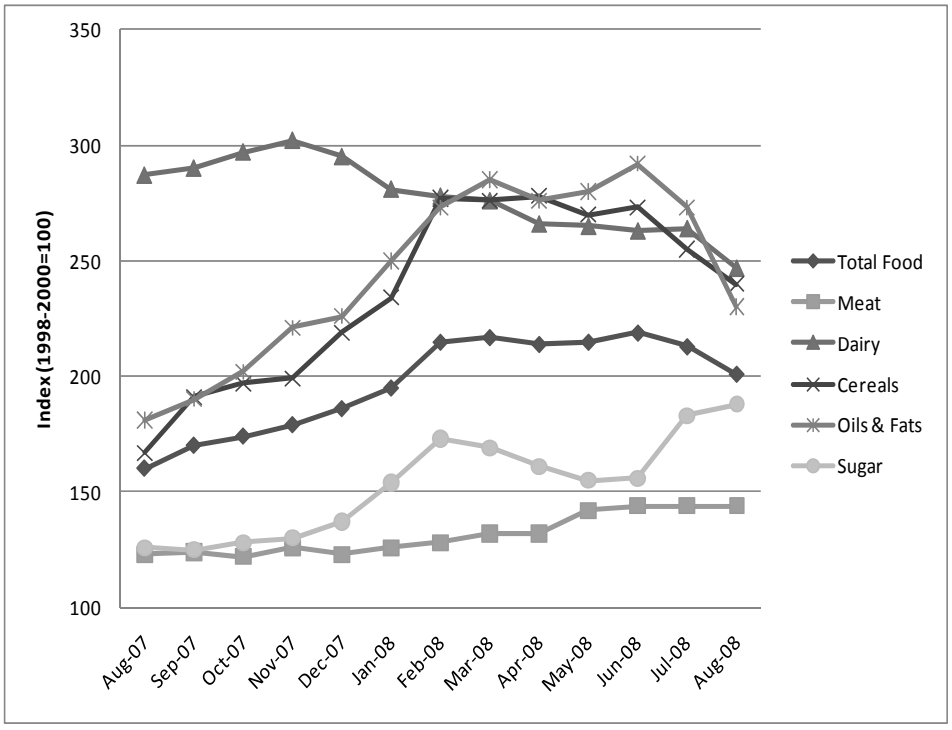
These events raise two important questions: 1) what caused recent price increases, and 2) what can countries do to reduce these negative impacts, both independently (though domestic trade and support policies) and multilaterally (through organisations such as the World Trade Organisation and World Food Programme). Within Canada, it raises the question of what the Government of Canada can and should be doing to deal with this price variability, especially in its aid policies toward developing countries. Should it be increasing food aid shipments, and should it be channelling its food aid differently? Or should it be helping developing countries modify their policies to limit negative impacts of high food prices? This paper reviews the recent price spike in an effort to understand its background and its effects on developing countries. We discuss the responses that can be taken within those countries and by Canada to minimize the damage that higher food prices and food-price instability can cause to poor countries and poor people. We conclude with a set of policy recommendations.

2.0 Rising Prices and Vulnerable Populations

The 2007-2008 increase in global food prices was staggering. Though down in recent months, the FAO's (2008a) global food-price index was recently more than 80 percentage points above 2007 levels (figure 1). The price surge was led by cereals and by oils and fats, both of which were up by more than 100 points over 2007. Even though prices have declined from their mid-2008 peaks, they are still roughly 50 percent above their July 2006 levels in real terms (Sumner 2009). Price increases were experienced almost across the board, with the exception of dairy products. Dairy prices have been trending down after sharp increases in early 2007.

The objective of this paper is to analyse policy responses to, and implications of, high food prices in developing countries. Some context on the causes of high prices is required to understand the policy framework in which commodity prices are being determined. This section briefly summarises some of the important factors that led to the sharp food price increases of 2008.[i]

Figure 1. Food-price Indices

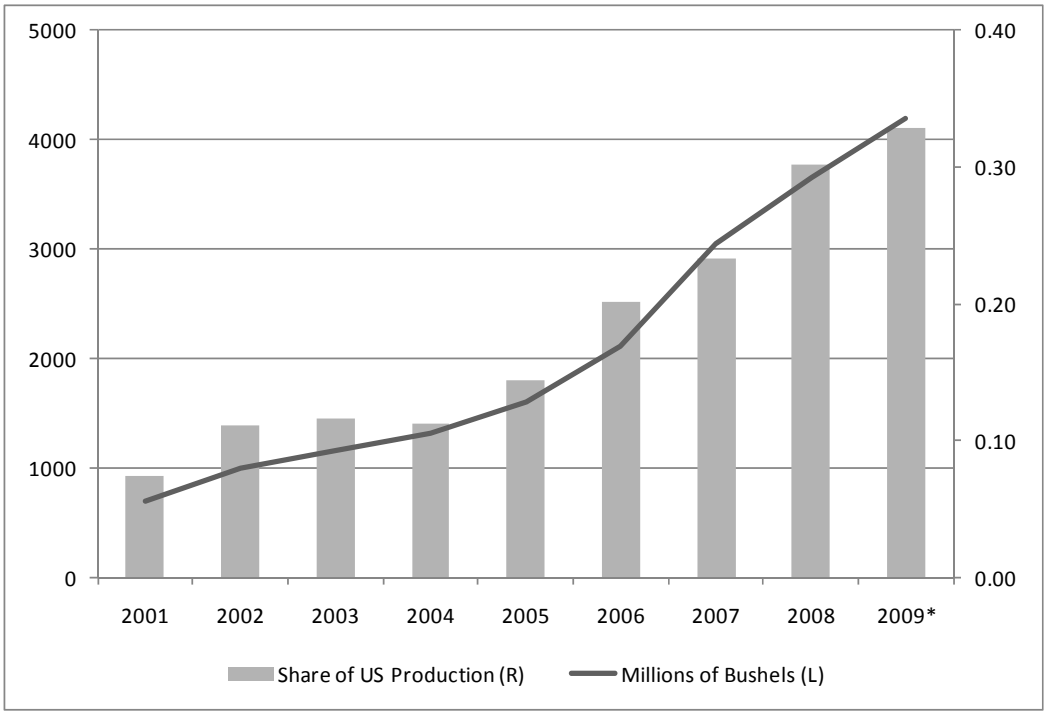


Source: FAO (2008a)

The causes of high food prices can be broadly defined along two lines; supply-side and demand-side, with some phenomena (i.e. trade policies and energy prices) falling into both categories. These causes must be analysed in front of a backdrop of low stocks-to-usage ratios for major grain crops; ratios that were at their lowest levels in more than 30 years. While low stocks-to-usage ratios do not, in themselves, cause high prices, they do play a role in how responsive prices are to demand and supply shocks. As Abbot *et al.* (2008) point out, food prices are not linear in stocks-to-usage ratios; prices are more sensitive to demand and supply shocks when stocks are low.

Perhaps the most controversial demand-side factor that has led to rising food prices is the conversion of land and crops from production of food to production of biofuels. Soaring energy prices have increased the price at which converting food crops into energy is profitable, and has led to closer correlation between food and energy prices. The effects of higher breakeven prices for the conversion of food crops into energy products has been exaggerated by government support and protectionist trade policies for biofuel development in the US and the EU. Total support estimates (which include all forms of public support such as import barriers, direct and indirect subsidies and consumption mandates) for biofuel in 2006 have been estimated to be between US$ 5.9 and US$ 7.2 billion in the US and US$ 4.2 billion in the EU (Steenblik, 2007). The share of US maize production destined for ethanol production has been increasing rapidly (Figure 2); this trend has contributed to the drawdown in US maize stocks.

Figure 2. US Maize Destined for Biofuel Production



Source: USDA (2009)

* forecast

Some commentators (Abbot, *et al.,* 2008) have argued that high energy prices, rather than government policies, are the primary driving forces behind the increase in biofuel production. However the two cannot be viewed independently. The infrastructure for producing and marketing biofuels would not exist without government policy interventions, and the resulting breakeven energy prices would be resultantly higher without trade protection and subsidies. Von Braun (2008) estimates that almost one-third of the recent increase in cereal prices is attributable to expanded biofuel production, while a World Bank study (Mitchell, 2008) attributes as much as three-quarters of price increases to the effects of biofuels. The range of estimated effects of biofuel production is wide, however it is clear that biofuel production is a significant factor in the recent upswing in food prices.

Evolving consumption patterns in developing-countries has also played a role in rising food prices. As income rises in developing countries, the share of dietary protein and fat increases at the expense of cheaper starches. Increased demand for feedgrains in the production cycle of livestock in developing countries has shifted out the demand for feedgrains and increased their prices. However the role of evolving diets in recent price increases must not be overstated. The evolution of dietary habits is a long-run phenomenon and not a short-run demand shock. Increased demand for feedgrains in developing countries likely played a role in the drawdown of grain stocks over the past several years, but not a significant role in the recent food-price spike. Also, India and China (the two countries most often cited as exemplifying this phenomenon), are not major traders of maize or wheat in world

markets. It is also noteworthy that Chinese meat consumption has been trending down over the past three years (Abbot, *et al.*, 2008), thereby casting doubt on a causal relationship between increased protein consumption in China and rapidly increasing food prices.

Increased speculation in commodity future markets is another demand-side factor that is commonly cited as a cause for high food prices. While it is possible that more speculative trading activity increases price volatility, speculation in food markets is more a symptom than a cause of high prices in the current environment. A recent IMF (IMF, 2006) study demonstrated that causality runs from spot prices to financial flows in commodity markets, indicating that higher rates of participation in food commodity markets is the result, not cause, of rising food prices.

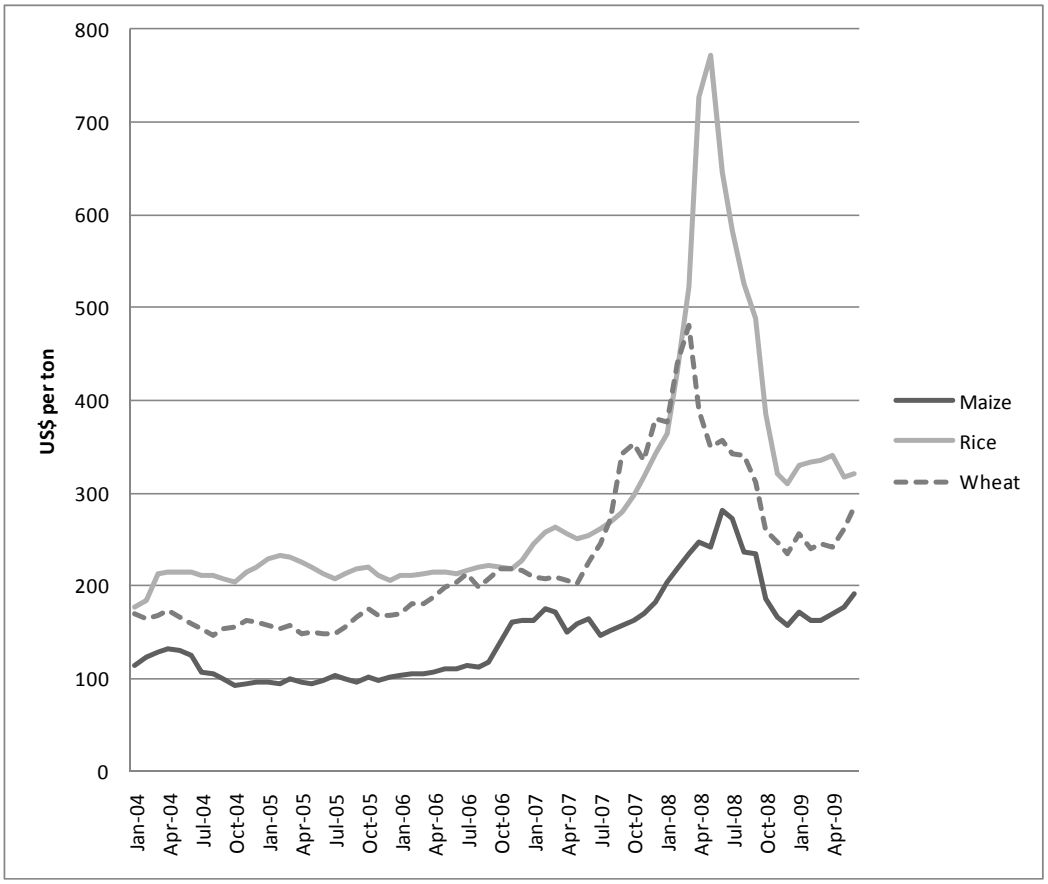
Important supply-side factors include high energy costs, crop failures in important exporting countries and decelerated productivity growth in agriculture. Energy costs act as both demand pull factors (increasing the breakeven value for the use of food crops in production of energy crops) and supply push factors by increasing production costs and augmenting the incentives to take land out of food production in favour of producing biofuel crops. Abbott *et al.* (2008) argue that the demand-pull effects are the stronger of the two. Higher crude oil prices have increased the costs of producing all products, not just food; however food-price inflation has rapidly outpaced broader measures of inflation in most countries.

Supply shocks in major exporting countries (Canada and Australia) through 2005 and 2006 contributed to tighter cereal crop markets, however these shocks were not particularly large (four and seven percent annually, FAO (2008b)) and output has since recovered. The effects of recently-higher yields are already evident in the latest fall in cereal prices (see figure 3).

Slower productivity growth has also been cited as an important contributor to higher food prices (FAO, 2008b; Von Braun *et al*., 2008). Productivity growth in agriculture has been slowing for several years and has certainly contributed to the long-term reduction in stocks-to-usage ratios. However the recent spike in food prices cannot be attributed to the long-term structural decline in public agricultural R&D and productivity growth.

The trade policies of several countries have played important roles in generating high food prices. Several countries have raised new, or increased existing, export barriers and relaxed or removed import barriers in attempts to offset global market phenomena that are increasing domestic food prices. These responses from developing countries are described in more detail in section three, however it is important to differentiate between those countries whose policies have and have not significantly affected world prices. Several large countries ("large" as defined by output) have implemented export restrictions on wheat, rice, soybeans and other commodities; these include China, India, Brazil and Argentina. However not all of these countries are "large" in the trade policy sense. China and India together account for almost 50% of world rice consumption, but just over 10% of world rice exports (Abbott *et al.*, 2008). Export restrictions from these countries have not been key factors in the recent food-price spike. The same holds for wheat exports from China and India. Export restrictions in important Southeast Asian

Figure 3. Cereal Prices



Source: FAO (2008a)

exporting countries have been relatively common and have had significant effects on world prices, however.

The depreciation of the US dollar through 2007 and 2008 played a major role in rising food prices, which are generally traded and reported in US dollar terms. A recent FAO report (FAO, 2008b) indicates that the recent spike in food prices is much less dramatic when food-price indices are adjusted to account for the recent fall in the US dollar. Prices in 2008 were significantly higher than one year earlier when reported in alternative currencies, however domestic price effects in different countries depend on the exchange rate policies of trading partners. For countries whose currencies appreciated sharply against the US dollar through 2007 and 2008 (China, for example), the importation of food that is quoted in US dollars has become relatively cheaper. Countries whose currencies have remained stable, or depreciated, against the US dollar (South Korea, Vietnam) have been faced with higher food import bills.

Finally, cross-price effects between cereals have been important features of the broad increase in food prices. Cereals are often close consumption substitutes to each other, at least at the margin, and in some cases they are also production

substitutes. An increase in the price for one cereal can trigger upward pressure on all cereals prices.

This has relevance for the recent round of cereal price increases. Biofuel programmes appear to have had initial effects on the maize market at a relatively early stage in 2006. It is likely that this started to affect other cereals and soybean markets, especially by the next planting season in early 2007, contributing upward pressure on their prices. Similarly, the round of export restrictions that beset the rice market in the latter part of 2007 and early 2008 probably made some contribution to the continued rise in other cereals' prices in the latter stages of the upward price cycle.

The degree to which cereals prices are correlated over time illustrates these effects. We examined annual data so as not to have this relationship clouded by random short term fluctuations in individual cereals prices. Table 1 shows correlation coefficients between major cereals prices, using annual data from 1961 to 2005. It shows that all nine cereals' prices are highly correlated, ranging from 0.79 to 0.98. The correlations predictably decline using monthly data, with rice prices having the lowest (but still relatively high) correlations, between 0.62 and 0.74 with wheat, barley, and maize.

Table 1. Correlation Coefficients Between Eight Cereal Crops

Commodity	Barley	Maize	Oats	Rice Milled	Rice Paddy	Rye	Sorghum	Wheat
Barley	1							
Maize	0.959	1						
Oats	0.954	0.935	1					
Rice Milled	0.937	0.931	0.895	1				
Rice Paddy	0.845	0.819	0.794	0.869	1			
Rye	0.926	0.885	0.901	0.894	0.856	1		
Sorghum	0.964	0.989	0.942	0.928	0.810	0.878	1	
Wheat	0.975	0.974	0.944	0.940	0.827	0.917	0.978	1

Source: FAO PriceSTAT, authors' calculations.

2.1 Distributional Effects of Rising Food Prices: Who is Affected?

Rising food prices affect everyone, but the degree of hardship on specific populations depends on five factors: income levels, the products that comprise a

population's consumption basket, whether they are net food sellers or buyers, the share of food in total expenditure, and the degree of price transmission from world markets to local markets. Table 2 provides a snapshot of food-price inflation in a range of countries from February 2007 to February 2008. The wide range of inflation rates is striking, from near 1% in Japan to as high as 26% in Sri Lanka. This wide range speaks to the differential impacts of rising food prices across countries and the need for non-uniform responses to high food prices across (and within[ii]) countries. We now analyse the factors that determine the impact of high food prices on vulnerable populations.

Table 2. Food-price Inflation

Developing Countries

Country	Food-price inflation (%)*
Guatemala	11.6
Sri Lanka	25.6
Botswana	18.3
India	5.8
Indonesia	11.4
Pakistan	18.2
South Africa	13.6
Jordan	9.1
Peru	6.4
Senegal	10.9
Egypt	13.5
Haiti	11.8
Kenya	24.6
Bangladesh	14.2
China	23.3
Average	*14.6*

Developed Countries

Country	Food-price inflation (%)*
USA	5.1
France	5
Germany	7.4
UK	5.6
Japan	1.4
Greece	6.6
Spain	7.1
Switzerland	2.2
Poland	7.1
Sweden	5.9
Average	*5.3*

*February 2007 to February 2008

Source: OECD (2008)

Income

Access to safe food of sufficient volumes is fundamentally a matter of income. Food-price spikes generate disquiet in high and middle-income countries, however such volatility does not typically generate large-scale nutritional shortfalls in these countries. Such spikes can cause large-scale nutritional shortfalls in low-income countries where a large share of income is spent on food. These events can lead to stunting, increased incidence of sickness and to the distress sale of productive

assets to purchase food. The only viable long-term solution to food security issues is to increase the purchasing power of those most vulnerable to food-price increases; that is to increase their *entitlement* to adequate food supplies (Sen, 1999).

We focus on short-term policy responses to recent high food prices in this study, and not on transformational development strategies that could increase income levels over the long-term horizon. Short-term responses such as targeted cash transfers to increase purchasing power can be effective in ameliorating the adverse effects of price spikes, and we discuss the role of these programmes in the recent food-price crisis in section three.

Food Consumption Basket

It is difficult to draw conclusions about vulnerable populations from aggregate data that describe a nation's food consumption basket. Such data mask intra-country dietary differences that are functions of income levels, and generally report the share of consumption expenditure spent on various categories of food, not the share of calories derived from each category. For example, an average of 50% of food expenditure in Great Britain is on beverages and tobacco (Seale *et al.,* 2003). This is fairly representative of developed countries where a large share of food expenditure is not directed towards meeting basic nutritional requirements. This is not the case in developing countries where basic commodities' shares of food expenditure are much higher. For example, there is a strong negative correlation between income and share of food expenditure on cereals. Consumers in many African and South Asian countries spend upwards of 40% of their food budgets on bread and cereals, compared to much lower shares (near 10% in much of Western Europe and North America) in richer countries (Seale *et al.,* 2003). It is also important to note that dietary habits vary widely within countries; the poor generally derive a much larger share of their calories from cereals and breads than the wealthy for two reasons. First, low incomes often force consumers to cut back on relatively expensive protein sources. Second, the poor often engage more in physical labour and need more calories to supply extra energy. It is the poor who are most abjectly affected by the recent increase in relative and absolute cereal prices.

There exist substantial differences in grain consumption across countries that also determine the burden of higher cereal prices. Those countries that rely relatively heavily on rice as their primary source of cereal consumption have, *ceteris paribus*, been more adversely affected because the rice price increase was larger than for other cereal commodities (see figure 3). There are also differences in the level of processing in consumption baskets of consumers across countries and families. Put differently, the cost share of food raw materials varies greatly across countries, income groups and food baskets. Consumers in developed countries tend to buy foods that are more heavily processed; these foods experienced smaller percentage cost increases relative to raw commodities. This is also true when raw commodities are purchased in low value-added local markets compared to high-service supermarkets in rich countries.

Net Food Buyers or Sellers

The status of households as net food buyers or sellers is an important determinant in the impact of higher food prices on welfare. One must be careful, however, not to draw broad conclusions that rural dwellers are net food sellers based on aggregate data that report rural/urban splits within countries. The presumption that rural dwellers will fare less badly, or in fact benefit, from high food prices is not always the case. Only those rural populations who are net sellers of commodities and own the proceeds of their harvested food crops can benefit from higher prices.[iii] And even among this group, many rural dwellers in Africa only sell food immediately after harvest and are net food buyers through the rest of the year. Another complicating factor is that input prices that are positively correlated with energy prices (especially fertiliser and fuel) have tended to rise faster than output prices in recent years (IMF, 2008), thereby exacerbating the price-cost squeeze faced by agricultural producers.

Urban residents are generally net food buyers (the FAO (2008b) reports that 7% of urban households are net food sellers compared to 31% of rural households among a sample of developing countries) and are therefore vulnerable to higher food prices without reaping the potential benefits of higher crop revenues. There are two offsetting factors that determine how urban consumers will weather price swings. One factor is that urban residents are more likely to consume tradable processed foods whose prices are closely integrated with world price fluctuations. If domestic trade and support policies are successful at insulating raw commodity prices from global volatility, then the global price effects on raw commodities may be smaller and urban residents may be more heavily impacted. An offsetting factor is that urban residents' diets are generally comprised of more heavily-processed foods; the percentage increase in the prices for processed foods was much smaller than for raw commodities. This effect partially offsets the link to global commodity prices, and dampens the effects of commodity price increases. These offsetting effects make it difficult to draw general conclusions about the impact of commodity price swings on urban vs. rural residents. Another confounding factor is the degree of market instability for urban vs. rural dwellers. Rural food markets that are not geographically integrated with other markets, though potentially detached from global price swings, are inherently more unstable because they rely on a small number of sources. Urban markets generally have more diversified supply bases and are less vulnerable to small-scale shocks. The fallout of these (often conflicting) effects is that the relative effects of global price increases are idiosyncratic and each case must be evaluated individually.

Food Budget Share

Consumers in developing countries are particularly vulnerable to food-price inflation because a relatively large share of their income is spent on food. There is a very strong negative correlation between income and food's share of expenditure; food expenditure shares range from above 70% in Tanzania and Nigeria to near 10% in the US and Hong Kong (Seale, 2003). Low-income food-deficit consumers who are faced with rapid food-price inflation have little room to adjust their expenditure patterns away from non-necessary[iv] items. An increase in food prices markedly reduces the real incomes of such groups.

The food budget share, or Engel coefficient, is a measure of food security and is an important measure of policy success in many developing countries. It is appropriate at either the household or the national level. If incomes increase or food prices decrease, then the food budget share falls, consumers are in a more secure situation in procuring their food and food security is increased. In times like the recent food-price crisis, food security is decreased. The current recession further decreases food security by lowering incomes. This measure also shows that the poorer the country, the more likely it is to face food security difficulties after food-price increases.

Trade Policy and Global Market Integration

A country's trade policies are important determinants of the degree of transmission, or pass through, of international food prices to domestic markets. Several large food-exporting countries have raised export barriers in the forms of tariffs, quotas and bans in response to domestic pressures for food-price stability. A large-country exporter that imposes an export tax shifts its excess supply function to the left, thereby lowering the quantity available on the world market. The large-country's exports fall and domestic prices fall, *ceteris paribus*. Such policies can have significant negative impacts on production incentives and generate domestic market distortions; we discuss these consequences in section three.

Several countries have also reduced import barriers in attempts to dampen domestic food-price inflation. Lower import barriers increase food supplies on domestic markets and decrease domestic prices, *ceteris paribus*. Though practiced by many countries over the last year, this tool has not had large effects in many cases because import barriers for food products were already low in many developing countries.

Table 3 provides a case study of world food-price pass through into domestic food markets. A recent study by Dawe (2008) compared changes in food prices measured at world prices in US dollars, world prices in domestic currency (DC) and domestic prices faced by consumers in seven Asian countries. The differences between columns (1) and column (2) largely reflect exchange rates effects. Trade policies (as well as domestic price control programmes) account for the differences between columns (2) and (3). As countries close themselves off from global markets, price signals are muffled. The rate of pass through ranges from 6% in the Philippines to 64% in China; this large range illustrates the effects of international market integration on domestic prices.

3.0 Policy Responses from Developing Countries

Developing-country governments often find that they must act to reduce large food-price increases in response to political pressures. Most have followed two paths in their attempts to tame domestic food-price inflation and soften its effects on consumers; trade policies and domestic budgetary programmes. These two policy tools, though sharing the goal of reducing food prices to consumers, differ in their distribution of costs.

Table 3. Food-Price Pass Through - Cumulative Percentage Changes in Real Prices

Country	(1) World Price (US$)	(2) World Price (DC)	(3) Domestic Price (DC)	(4) Pass through (%) = (3)/(1)
Bangladesh	56	55	24	43
China	48	34	30	64
India	56	25	5	9
Indonesia	56	36	23	41
Philippines	56	10	3	6
Thailand	56	30	30	53
Viet Nam	39	25	3	11

Notes: Data for China compare 2003 to 2007 (annual) and data for Viet Nam compare 2003 to 2006 (annual). DC stands for "Domestic Currency".
Source: Dawe (2008)

Before discussing a preferred response, we should note that the concern over food prices is essentially a concern over food security, a common and politically important national goal. The Engel coefficient provides guidance to appropriate policy. A policy that raises incomes or lowers food prices will enhance food security, and conversely. This is no substitute for examining the distributional effects of higher food prices, but it is good summary measure to show whether one is moving toward or away from a more secure food situation. For example, investing in agricultural productivity (research, human capital and infrastructure) is usually a high-payoff, income-increasing policy. Closing the border with trade restrictions does the reverse. Targeted price relief to low-income consumers can also enhance food security compared to across-the-board food subsidies.

3.1 Trade Policies

Trade policies include export taxes and bans, and reductions in import duties in attempts to reduce food prices. Both approaches lower domestic consumer prices, but they impose a tax on farm producers because the price decrease is across-the-board. This will lower farmers' incentives to produce the taxed commodity in the future, thereby reducing domestic production capacity. Also, the net effects of this policy will be to reduce domestic GDP (income) and increase world prices. Governments often find this policy option appealing because it lowers domestic prices and does not impose new direct costs on taxpayers.

At least 30 (IMF, 2008) food-exporting developing countries (an up-to-date list can be found on the FAO website (2008c)) have erected export barriers in attempts to increase domestic food supplies and reduce domestic food prices. Some measures of note include Argentina's ban on wheat exports, a six-month ban on rice exports from Bangladesh and a temporary Egyptian ban on rice exports.

The use of export restrictions to tame domestic food-price inflation is controversial and unadvised for two reasons. The first is that restricting exports necessarily reduces global food supplies and applies upward pressure on global food prices. The motivations of policymakers who implement such trade barriers are often clear; placation of domestic pressure (which has taken the form of riots in some countries) to reduce domestic food prices. However such policies are necessarily beggar-thy-neighbour in that lower food prices at home come at the expense of higher food prices abroad. Export restrictions simply export food-market instability abroad (Conklin, 2008).

Export restrictions are also controversial because they have negative consequences on future production by reducing incentives for higher output. Agricultural producers respond to price signals, and keeping food prices artificially low will not provide producers the signals they require to increase output to ameliorate shortfalls in the future.

Several developing countries have also reduced import barriers in attempts to tame domestic food-price inflation. The FAO (2008c) reports that 22 developing countries have recently reduced import tariffs or increased import quotas as part of their efforts to constrain food-price inflation. Nigeria has suspended all rice tariffs for six months, China has halved import tariffs on pork and protein meal products, Mexico removed all tariffs on wheat, rice and maize, and the Philippines has reduced its rice import tariffs.

The reduction of import barriers, though targeted at the same objective of lowering domestic prices, is fundamentally an opposite approach to the erection of export barriers. Lower import barriers increase domestic food markets' degree of global integration and facilitate the transmission of price signals to producers; export barriers do the opposite. But initial price effects on world markets are similar (raising prices) and the negative effects on domestic farmers are also similar. There are two important constraints on developing countries' ability to use this tool to constrain food-price inflation, however. The first is that many developing-country governments are highly dependent on import taxes as reliable sources of revenue.[v] Import tariffs are relatively simple to collect and can account for a large share of government revenues in developing countries. A reduction in these revenues could negatively affect government finances and programme spending. A second constraint is that food import barriers are already low in many developing countries. Sharma and Konandreas (2008) estimate that average tariff rates on basic food commodities in low-income food-deficit countries are four, eight and six percent on wheat, rice and maize respectively. There is very little room for lowering these rates.

Given the prevalence of evolving trade policies during the recent food-price spike, it is worth investigating whether such policies adhere to member countries' WTO obligations. The case of lower import barriers is clear; reductions are allowed (even encouraged) and can be increased at a later date up to the point that is prescribed by member countries' commitments in the Uruguay Round Agreement on Agriculture. Export barriers are subject to disciplines under the 1994 GATT, which outlaws export bans for all developed countries and for developing countries that are net exporters of the commodity in question. This discipline is waived in instances of domestic shortfalls, however, and it is almost inconceivable that a complaint would

be made against a developing country in the current situation. Furthermore, export taxes are not disciplined, so export bans could easily be converted into prohibitive export tariffs and generate the same result (Sharma and Konandreas, 2008). The Doha Development Agenda negotiations have not generated much in the way of new disciplines on export restrictions and prohibitions, other than sunset provisions on new barriers. Export restrictions will continue to be policy options for WTO member countries in the future (Meilke, 2009).

3.2 Domestic Support Programmes

Trade policies provide some insulation from global price increases, however developing-country governments are left with a large number of food insecure people once these policies have run their course. A range of domestic support programmes have been implemented to offset the effects of food-price inflation. Domestic budgetary programmes generally take the form of either across-the-board food subsidies or subsides that are targeted to specific groups. Here there are taxpayer costs which, in the case of non-targeted programmes, can be very high. Targeted consumer subsidies are a preferred option for two reasons. First, the budgetary cost can be greatly reduced compared to untargeted programmes. Second, because the market price effects will be much smaller with such programmes, this approach will not (significantly) tax food producers. The negative side to a targeted subsidy is that there are substantial administrative demands in setting up the institutions necessary to implement such a policy and to avoid corruption.

Direct food subsidies are perhaps the fastest method to lower the prices that are faced by consumers. Honduras, for example, is selling government stocks of beans and maize at subsidised prices and Panama is selling paddy rice at subsidised prices (FAO, 2008c). Such untargeted policies, though fast, are blunt and do not target the groups most in need of assistance. Relatively wealthy consumers who spend more (though a smaller share of their total income) on food can be the largest beneficiaries of such programmes and, as a result, these untargeted subsidies can be unnecessarily expensive to governments.

Cash transfers and domestic food aid programmes that are targeted at those who are most food insecure are preferred to general food-price subsidies. Targeted programmes eliminate unnecessary expenditure by subsidising only those most in need. Some targeted programmes, such as school-feeding programmes, also provide incentives for parents to continue sending their children to school in the face of high food prices. Children are often removed from school during periods of food insecurity because tuition payments are required to buy food, and because children's labour is used to generate additional income. The removal of children from school, like the distress sale of productive assets, has negative long-term implications for economic growth and development. Also, targeted programmes can be tailored to different regions as well as to specific consumer groups within a region. The disadvantages of targeted programmes are the institutional difficulties of avoiding corruption where subsidized food is distributed to well-connected, and not necessarily poor, individuals.

A range of other domestic programmes have also been implemented by developing countries, including higher salaries for state employees (Syria), lower

food taxes (Kenya and Brasil) and price controls (Mexico)[vi]. All of these programmes share a lack of targeting. Relatively wealthy groups benefit from these programmes as much as, if not more than, a nation's poorest groups (particularly in the case of higher state salaries). There are also negative side-effects of these policies, including unnecessarily large government expenditures (or reduced government revenue) and disincentive effects for producers. Difficult though they may be, targeted programmes offer the best hope of alleviating the burden of high food prices on those most affected in the short run.

4.0 Responses from Abroad

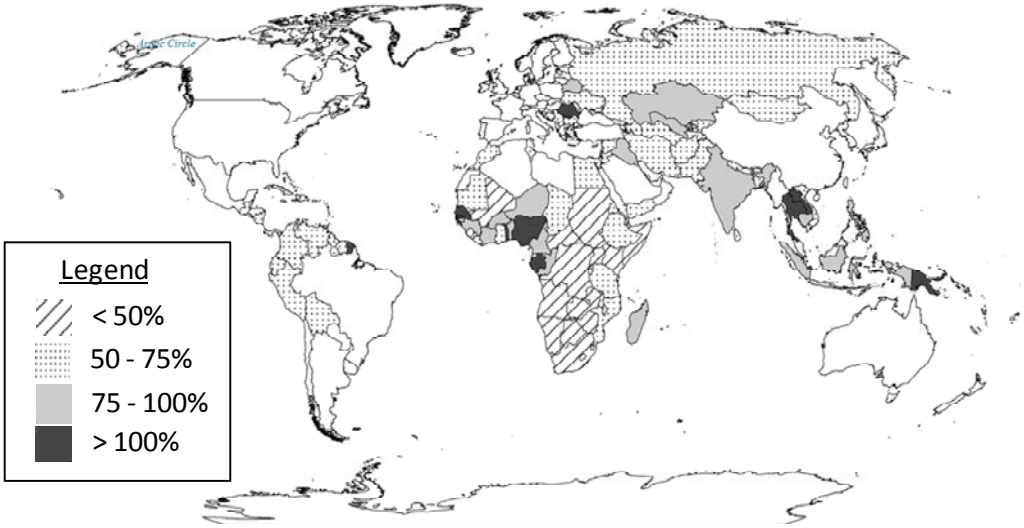
The responses from developed countries and international organisations to high food prices have been piecemeal and ad hoc. Reactions have ranged from increased emergency aid funding to the pronouncement of technical and policy advice at conferences and meetings.

The most concrete action to date has been in the form of increased levels of food aid. Higher food prices have generated considerable anxiety at food aid agencies that are concerned that they will be unable to meet their programme requirements on fixed budgets. The World Food Programme (WFP) issued an appeal in April of 2008 for an additional US$ 775 million after "recosting" their planned programmes in light of higher prices and a depreciated US dollar.[vii] The international community responded to this appeal and provided an additional US$ one billion in funding; Saudi Arabia alone provided US$ 500 million to this appeal (WFP, 2008). Canada contributed US$ 163 in 2008; this makes Canada the third-largest donor after the US and Saudi Arabia. Canada also made a significant policy change in 2008 by removing all tying requirements for Canadian food aid. Canadian-funded food aid agencies were previously required to purchase 50% of food from the Canadian Wheat Board, which added cost and time delays to food aid projects. Removing these requirements will increase the efficiency of Canadian food aid projects.

The effects of higher food prices on food aid shipments will differ across recipients. The impact on specific countries depends on three main factors: 1) the commodity composition of their food aid baskets, 2) a recipient's sources of food aid and 3) the substitutability of commodities within those baskets. Figure 4 presents a broad-stroke assessment of how the cost of food aid baskets for major recipients will be affected by higher food prices. Representative food aid baskets separated by commodity are computed using a three-year average of wheat, rice and maize food aid receipts[viii]. The price increases of figure 2 are applied to these representative food aid baskets to estimate the increased cost of procuring these baskets. Those countries whose food aid baskets have been traditionally heavy in rice will see their costs increase the most. South and Southeast Asia account for a large share of these shipments. Many Sub-Saharan African countries receive food aid shipments that are relatively heavy in maize. Maize price inflation has been much slower than rice and wheat inflation, so food aid shipments to these countries should not be as adversely affected.

The calculations that form the basis of figure 4 are simplifications and one cannot project that food aid receipts will fall by the amounts indicated on the map. Food aid agencies have appealed for, and received, increased funding in response to higher prices. Also, there exists some degree of substitutability between sources of food aid procurement (Tschirley and del Castillo, 2007) and between commodities within food aid baskets (Cardwell and Kerr, 2009). As the relative prices of commodities rise in one source country relative to another, donors will move to procure food aid from relatively cheaper sources. Also, there is some evidence that the commodity makeup of food aid baskets adjusts towards cheaper commodities when relative food prices change, particularly for emergency food aid. Figure 4 also exaggerates the effects of higher prices because food aid agencies don't generally pay the aggregate world prices that are quoted by the FAO; food aid is often bought at discounted prices or on favourable credit terms from a variety of sources. The directions and magnitudes of price movements across sources should be similar to those in figure 2, however. Despite efforts to procure food aid from small-scale traders and local markets in recipient countries, a large share of food aid is purchased from large commercial traders. Many donors and aid agencies aim to increase the share of aid that is purchased locally, but these efforts are constrained by the need for large, safe and predictable orders that can often be satisfied only by large traders. Such traders often have the option of selling on the world market at prevailing prices and there exists a high degree of price transmission from global markets to these traders.

Figure 4. Estimated Cost Increases of Representative Food Aid Baskets



Sources: FAO (2008a), WFP, authors' calculations

Several multilateral efforts have also been initiated under the banners of various intergovernmental organisations, such as the World Bank and the FAO. The World Bank has announced a New Deal on Global Food to help with short, medium and long-term responses to high food prices. The New Deal includes cash transfers, food-for-work programmes and new plantings in affected countries. The World Bank

and FAO are also party to the United Nations' Global Food Crisis Task Force, which was struck to facilitate policy coordination between agencies.

5.0 Effects on Developing Countries

The effects of the increase in food prices on developing countries have been alluded to several times in the foregoing discussion. To summarize briefly, higher food prices: a) create political pressures to provide relief, b) increase inflation rates, c) negatively affect government budgets if relief programmes include consumer subsidies, and d) change trade policies if relief programmes involve export restrictions or reduced tariffs. Governments may be pressed to provide some offset to producers to compensate them for the decline in their prices. If there is an agency that is responsible for food prices or stocks, then such a crisis places pressure on it to procure adequate stocks to respond to pressures, and it will place further pressure on the government to provide the agency with sufficient resources to do so. These bureaucratic developments open the door to increased corruption in the agency and the government.

We can illustrate two country responses from Southeast Asia, drawn from current and previous food-price episodes in Vietnam and Indonesia. In the case of Vietnam, world rice prices doubled in 1992/93 for the better part of a crop year. The response of the government was to protect consumers' interests by stopping (new) rice exports for the period. The ban was easily enforced due to the preeminent role of a state-owned enterprise that was the designated sole rice exporter. The result was predictable: domestic rice prices rose only slightly and maintained a flat trajectory, while world prices spiked and then fell. Vietnam responded in the same way this time as in 1992/93. They banned all new rice exports in an effort to keep rice prices low for consumers.

This was an effort to insulate urban consumers as much as possible from the rice price increases, using an export ban as their policy tool. In effect, the government chose a non-targeted price reduction programme whose costs were borne primarily by rice farmers. Although supply responses from rice farmers were likely muted following these export bans, the country is such a large rice exporter there was probably no effect on domestic rice supplies from the lower farm price; any reduction was at the expense of future exports.

Indonesia chose a different route in response to the (domestic) rice price increase of 1998, and the current (world market) rice price increase. The Indonesian government relied on a targeted rice price subsidy in 1998, distributed through the state enterprise, the Rice Logistics Agency (BULOG). In this case, the agency's distribution network and storage facilities were already available, and the agency lobbied for the resources to undertake the large operation. Although there is acknowledged to have been substantial corruption in the process, the programme met with some success in targeting poor consumers.

More recently, the tripling of world prices coincided with a fortuitous series of large rice harvests in Indonesia, which reduced the country's dependence on high-priced imports. The domestic price therefore has not increased significantly, although it was already high enough that the margin over the world price shrunk from about 50

percent to near 10 percent. The targeted rice subsidy still exists and has been institutionalized into a new programme, known as “rice for the poor”, with BULOG still administering it with a large budget. This difference in policy response between Indonesia and Vietnam reveals not only a difference in the weight attached to consumer interests versus farmer interests, but also the substantial political clout enjoyed by the rice agency in Indonesia.

5.1 Households

The share of households’ budgets that are allocated to food increases when food prices rise, and this necessitates reductions in expenditures in other areas. This problem is made more severe by the coincidence of food-price spikes with recession-induced reductions in jobs and incomes.

We know, from observations on previous such crises, that there is great diversity in how poor consumers are affected by rising food prices. But when faced with mounting food costs, households are forced to make reductions in some areas of food consumption and there is likely to be an increased incidence of malnutrition among the poorest groups. When this affects children, it can lead to numerous long-term obstacles, depending on the type of nutritional shortfall. Malnutrition episodes of some types have been estimated to result in productivity losses of up to 10 percent of lifetime earnings and GDP losses of 2-3 percent in the worst affected countries (Alderman, 2005).

An instructive example comes from Indonesia at the time of the 1998 financial crisis. Due to a dramatic depreciation of the Indonesian rupiah, traded goods’ prices doubled and tripled. A policy decision was made to double the price of rice. Although a targeted subsidy was applied, it was a small programme that benefitted a relatively small number of poor households.

Helen Keller International, an NGO that focuses on vision-related health issues, collected detailed food consumption data on a sample of poor families that provided comparisons of consumption patterns before and after the doubling of rice prices. The striking result was that rice consumption did not significantly decrease. However, consumers cut back significantly in many other food areas, notably on protein and micro-nutrients. Consumption of eggs, fish and meat were cut back most severely. These new diets contained insufficient levels of vitamin A, and led to numerous vision problems, including a higher incidence of bight blindness among children.

6.0 Future

Predicting food-price levels is always difficult, but we know what history tells us: price levels will decline from peaks and resume their long-run trends, which over the period since World War II has been a decline in real terms (Sumner, 2009). Two important factors must be considered in the outlook, however. First, if biofuel programmes continue around the world as they now exist, then there is a permanent shift in the allocation of food resources to energy resources. This suggests that food prices will not fall to their previous (pre-2006) levels, but remain at a higher level.

Second, to what trend lines will food prices return? The trend may resume a downward trajectory, but be less steep due to the decline in agricultural research spending that has occurred since the early 1990s. These factors lead to the expectation of more slowly-declining real food prices, and prices at a higher level than prior to the recent price spike.

Future food-price variability may be even more important than the future price level for food-insecure households. Whether due to global warming and more variable rainfall, or due to government policy responses, it would appear that cereals prices are likely to exhibit more variability than in the past 50 years. The link between energy prices and food prices will solidify and fuel market instability will translate into food-price variability.

The recent food crisis and concerns about food security will likely lead to a host of new polices across countries. There is a risk that these policies could take the form of inefficient and costly policies, such as food self-sufficiency policies. Another policy response, both by national governments and by multilateral and bilateral aid agencies, is to re-establish the importance of agricultural research and productivity. This would be an effective response to the food-price crisis, and should be encouraged.

Finally, food aid policies might also become more prominent. This response rests mostly with developed-country governments and aid agencies, rather than with developing-country governments. We expect an increase in resources allocated to this activity above recent years, but not in comparison to the peak of funding reached in 2008. A renegotiation of the Food Aid Convention, which commits donor countries to minimum volume donations each year, may be expedited by recent events.

7.0 Conclusions

Food price increases over the 2006-2008 period have raised two issues of special concern to developing countries: 1) rapidly rising food prices after 30 years of general real declines, and 2) a substantial increase in food-price variability. The latter has been emphasized by the decline in food prices between mid-2008 and the end of the year, followed by another shift upward in food prices during the first half of 2009. This situation is not necessarily new, but after a lengthy period with minimal concerns over these matters, and with real food prices now so much lower than they were 50 years ago, there is whole generation of government policy makers and aid agency personnel who must become acquainted with what are largely previously-learned lessons. These important lessons include:

- Food prices matter. This is especially true where there are large numbers of poor people, and when price increases are rapid.

- Many small farmers are net food buyers, and therefore lose from rising prices. Even among net food sellers, landless farmers lose the apparent advantage of higher prices by having to pay compensating higher land rents when food prices rise. Farm land owners are the only clear beneficiaries of higher food prices, and only if they grow the commodity that has experienced price increases.

- Food-price instability is a scourge of poor consumers and is costly to farmers, making this as difficult a problem as increased prices.

- A food-price crisis leads to long-overdue attention to farm productivity, including investments in agricultural research, extension and training, and infrastructure. This is the silver lining, if there is one, to a food-price crisis.

- Food aid budgets may be insufficient. The renegotiation of the Food Aid Convention may be the appropriate forum for this issue.

A number of policy recommendations follow from this food-price crisis. First, food security policies are useful. A central feature should be the adoption of policies to improve agricultural productivity. This can be done within a poor country, but should also involve developed countries that can support agricultural research through multilateral agencies like the Consultative Group on International Agricultural Research (CGIAR). This also involves multilateral agencies like the World Bank, the regional development banks, and bilateral aid agencies like the Canadian International Development Agency, where investments in agricultural research can be complemented with investments in extension education and rural infrastructure.

Second, some price relief to consumers in high-price periods is often politically necessary. However, it should be done using targeted (instead of across-the-board) subsidies to keep the costs down. Targeted policies also minimise subsidy-induced reductions in domestic prices that affect farmers and diminish future productive capacity. The establishment of low-price food shops, to which only certain individuals have access, is one option. Each country's options will depend on the administrative capability and existing institutions within the country.

Further, consumer subsidies should be financed using budgetary instruments, not by consumers through border restrictions. Following this recommendation will not increase (and may decrease) the food budget share, thereby helping to improve food security. A food crisis is no time to disengage from world markets by following policies of domestic food self-sufficiency or export bans.

Food aid can also be a helpful contribution from developed-country governments and international agencies, especially to target extra supplies and lower prices for selected commodities and in selected regions. It should be undertaken in a manner that limits the price-depressing effects on farmers, as discussed for across-the-board consumer subsidies. This can include school-feeding safety nets, as is being done by the World Food Programme. Supplying food aid is an activity that the Canadian International Development Agency is familiar with, and it could be institutionalized to provide such support rapidly whenever a threshold of food-price inflation is met.

Longer-term policy improvements, particularly in developed countries, include reforming of biofuel policies to avoid the conflict with food production. This can be achieved by focusing on crops other than cereals and on the production of biofuels on land not intensively used for food production. Another longer-term response could be the introduction of a strategic food reserve, as proposed by the International Food

Policy Research Institute (von Braun, 2008) and as already undertaken on a local scale in countries such as Cambodia, Thailand, and India.

Finally, to act effectively and with coordination across countries, there is a need for a much better information system about what the impacts of higher food prices are on poor families, where the problems are most severe, and how effective policy responses are on the ground. Good quality information requires local-level data collection on a regular basis, which is rare. Data collection is often forgotten at a policy level by domestic governments and multilateral agencies alike, because it does not appear to directly increase food supplies in the short run.

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[i] See Abbott *et al.* (2008) and FAO (2008b) for more detailed treatments of these causes.
[ii] Experiences also differ widely within countries. See discussion, below.
[iii] In Indonesia, for example, three-quarters of the poor are net rice consumers, so rice price increases have hurt them, even though the bulk of those defined as poor are in rural areas.
[iv] The term “non-necessary” is used here instead of “luxury” because expenditure is often moved away from education and health care; categories which can scarcely be regarded as luxuries.
[v] Many developing countries have weak revenue collection infrastructures, and personal and corporate incomes are often so low that any collected tax revenue is small.
[vi] See FAO (2008c) for an up-to-date list of policies.
[vii] The depreciated value of the US dollar in 2008 magnified negative effects on NGOs and charities because many such organisations receive budgetary commitments in US dollars.
[viii] Wheat, rice and maize account for more than 90% of cereal food aid shipments. Cereals make up 80-90% of food aid shipments in most years. (WFP Interfais)