Global Panel
on **Agriculture**
and **Food Systems**
for **Nutrition**

MANAGING FOOD PRICE VOLATILITY:
Policy Options to Support Healthy Diets and Nutrition in the Context of Uncertainty

This policy brief identifies policy interventions that can anticipate and mitigate the negative dietary and nutritional outcomes of price volatility and market uncertainty. Policy interventions include short-term actions to protect the quality of consumers' diets as well as long-term strategies that foster more stable and predictable food markets and prices.

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ABOUT THE GLOBAL PANEL ON AGRICULTURE AND FOOD SYSTEMS FOR NUTRITION:

The Global Panel is an independent group of influential experts with a commitment to tackling global challenges in food and nutrition security. The Global Panel is working to ensure that agriculture and food systems support access to nutritious foods at every stage of life.

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Executive Summary

The world's food systems face growing systemic challenges in providing healthy affordable diets for all. These challenges include long-term threats to food production including water scarcity, soil degradation, the environmental impacts of climate change and competition for productive land due to urban expansion. However, a major concern for policymakers today is protecting consumers and their ability to acquire nutritionally adequate diets in the face of current and projected increases in food prices and food price volatility.

Price volatility is a particularly serious problem for poor households, especially in low-income countries, as these households spend as much as 75% of their total income on food.[1] For those who rely on low-productivity agriculture for much of that income, and especially those who are net purchasers of food, sudden changes in food prices increase uncertainty regarding both output and consumption. Price declines can lead to a sharp fall in incomes, while price rises often reduce the quantity and quality (diversity and nutrient density) of foods consumed. For poor urban consumers, unanticipated increases in food prices require dietary changes that often result in poorer nutrition since they typically rely on markets for their food.

The challenge for policymakers is to identify the right combination of policy actions across the food system that can moderate price rises and dampen price volatility, thus protecting consumption and nutrition while mitigating impacts on rural incomes and production. However, policies which fail to recognise and accommodate these relationships are likely to fall short of delivering the desired outcomes. For example, while individual countries can try to insulate themselves from global food price hikes by banning food exports, such measures usually exacerbate international price volatility and fuel greater unpredictability. Similarly, the provision of input subsidies to boost local production and food supplies in the short-term can be costly and difficult to remove when price levels fall.

Policymakers can employ a variety of policy tools to better predict prices and manage the price volatility that can compromise food system integrity. Policy options, and their prioritisation, are context dependent but can include: promoting long-term growth in agricultural productivity through, for example, the production of diverse commodities that contribute to healthy diets; fostering efficient and stable food markets, through investment in road infrastructure and its upkeep; encouraging the transformation of agricultural commodities into food products that are affordable, safe and nutritious; and providing targeted and flexible food safety nets to ensure access to healthy diets and national nutrition security.

The Global Panel recommends that policymakers:

1. **Invest in market monitoring and market-based insurance systems.**
2. **Invest in agricultural productivity growth.**
3. **Facilitate efficient food and agriculture markets and trade.**
4. **Build food transformation capacity to enhance nutritional quality of foods.**
5. **Establish targeted cost-effective consumer protection.**

Introduction



In most contexts, food prices are determined by market factors. They fluctuate by season and year, responding to supply-demand interactions. Prices for staple foods – rice, maize, wheat – are often influenced to a greater or lesser degree by government intervention as they have been demonstrated to be important in political terms. However, variability in food prices is a feature of most food systems; variability reflects producer and market responsiveness to consumer demand and underlying conditions of supply.[2] A lack of change in food prices would reflect a non-functioning food system, so some degree of price variability within bounded norms is typical of open markets. Excessive price volatility, on the other hand, is not desirable.

Volatility is measured by the extent to which prices rise or fall outside of expected ranges, and how fast they do so. In the mid-2000s, global prices for food began to rise after decades of slow decline. In 2007/8, prices for rice, wheat, maize and soya beans surged, rapidly rising to levels far higher than anticipated. While these prices moderated in 2009, they spiked again in 2011/12. In early 2016, however, the global food price index fell to 150 (where the years 2002-2004 represent the benchmark level of 100), which was around 30 per cent lower than at the end of 2012.[3] Today, analysts project that such food price volatility is "likely to persist and continue to challenge the ability of consumers, producers and governments to cope with the consequences."[4] As Kharas (2011) explains, "the crux of the food price challenge is about price volatility rather than high prices per se. […] it is the rapid and unpredictable changes in food prices that wreak havoc on markets, politics and social stability."[5]

Rapid changes in food prices make it hard for farmers to take decisions about investments in production because of uncertainty about future prices. They also make it difficult for traders to determine appropriate stock levels and set prices, and for consumers to make choices about which foods to buy, and when. For smallholders, rising food prices can act as an incentive to increase production and generate income, and may improve access to better quality diets. But higher prices are also a threat because many poor producers are net food buyers meaning they spend more on food than they make by selling produce, and consequently they can be pushed deeper into poverty. For most poor consumers, price rises have implications for diet quality. Many try to protect consumption of staple foods by reducing purchases of more expensive and nutrient-dense foods such as fruits, dairy products, pulses, legumes and certain meats. Consumers may also try to hoard supplies to manage their uncertainty, thus contributing to greater market volatility.

Price volatility has therefore become a major concern for governments as they seek to ensure consumers' access to healthy diets. It is the combined effect of higher than normal prices linked to greater uncertainty regarding future price levels that affects consumer behaviour as well as production decisions. Nutrient-rich foods are typically more costly relative to staple grains, roots, and tubers as sources of calories and are thus the first to be cut from budgets when prices rise.[6] As a result, rapid and unexpected increases in food prices "have a greater effect on food consumption in lower income countries and in poorer households within countries."[7] Short-term policy responses to price volatility have included the creation of publicly-held food reserves which can be released when prices soar, establishment of price controls on staple grains, and expansion of social safety nets that aim to provide healthy diets. These measures have been complemented by long-term actions aimed at increasing agricultural production, improving market efficiency, expanding regional trade, and improving labour productivity and wages.

This Global Panel Policy Brief assesses the effectiveness of these various policies in addressing the actual and anticipated impacts that price volatility has on food supply, market prices, consumer demand patterns, consumers' purchasing power, and nutritional outcomes. It suggests that policymakers should prioritise context-appropriate actions that protect their low-income populations against the short-term shocks that most negatively affect food consumption and nutrition. At the same time they should strengthen food systems as a whole to enable all consumers to manage the setbacks associated with price-related shocks and achieve healthy diets.

Food Price Volatility and the Poor

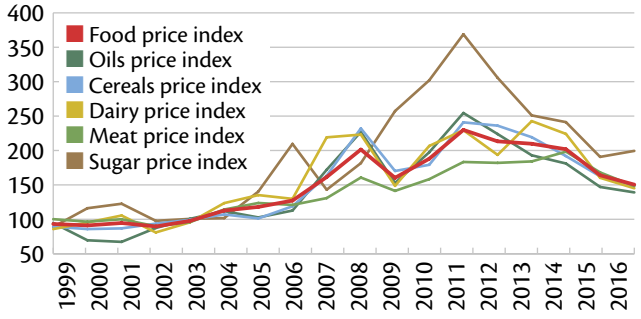
Over the past 20 years, there have been three periods of sharply rising global food prices – 1996 to 1999, 2007/08 and 2010/11. Higher price levels and year-to-year volatility have persisted since 2008. The global food price index calculated by the Food and Agriculture Organization (FAO) includes five 'baskets' of commodities – cereals, vegetable oils, dairy, meat and sugar. As illustrated in Figure 1, the index stood at 91 in 2000, peaked at 230 in 2011 and has since declined to 164 in 2015, still nearly double the level just 15 years earlier.[8] Similarly, the global (aggregate) consumer price index for food (which was 100 in the year 2000) reached 250 during 2015, a 150% rise.[9]

While international food prices are not always transmitted to consumers in low-income countries, a recent analysis of domestic food prices in low-income countries found that prices for staple foods were higher in 2013 than in early 2007, mirroring the pattern in Figure 1.[10] In low-income countries, food represents, on average, a proportionally larger share of household expenditures (in some cases, taking up to 75% of total household spending). Low-income households thus have little flexibility in spending patterns and, faced with higher food prices, generally find themselves forced to make dietary choices that threaten their nutritional wellbeing and health.

What is more, food prices have become more volatile in recent years. The Chicago Board of Trade has reported "excessive global price volatility," that is, those periods when many observed prices exceed a pre-established threshold based upon normal seasonal variation. In 2014, there were 125 days of excessive volatility in maize prices compared with 50 days in 2002. In soft wheat markets, 75 days of excessive volatility were reported in 2014 compared to 35 in 2002.[11]

The FAO tracks volatility of national market prices in terms of the standard deviation on monthly changes in real prices for the preceding year. Recent data shows that price volatility roughly doubled between late 2013 and late 2015 for maize in Tanzania and Uganda, sorghum in Sudan, beans in El Salvador and wheat in the Ukraine.[12] Other analysts have found that domestic cereal prices in Africa have generally become "more volatile than in Asia and Latin America."[13] Again, it is the poor who are strongly affected by price volatility. They have little capacity to accumulate food stocks and may be forced into the market to buy food just when prices are peaking.

Figure 1. Food price indices from 1999 to 2016 (2002-2004=100)



Projections suggest that current conditions characterised by higher and more volatile agricultural commodity prices are likely to continue for the coming decade. A 2015 report on global food security by the United States' Office of National Intelligence argues that macroeconomic conditions combined with changing climate effects are likely to continue producing price spikes up to 2025 along with an "increase in the risk of price volatility."[14]

> "Food price volatility poses risks for everyone – from farmers to consumers. This is one of the biggest challenges for policy makers."
>
> **Agnes Kalibata**
> *President, Alliance for a Green Revolution in Africa (AGRA)*

The evidence from numerous household surveys shows that rising and more volatile food prices have particularly serious, negative impacts on the food purchases and nutritional status of low-income consumers. Faced with higher prices for a staple commodity such as rice or maize, poor households generally allocate available purchasing power to protect their consumption of these foods. For example, rural households in Indonesia were seriously affected by the combined financial and food price crises which the country experienced in the second half of the 1990s. They reduced their rice intake (and thus calorie consumption) but also cut back sharply on nutrient-rich foods. Consumption of dark green leafy vegetables fell by 30% between July and December 1998 and intake of eggs fell by 2.5% per month during that same period.[15] All these consumer choices had negative impacts on the quality of their diets and nutrition.[13, 7, 16] Reduced intake of nutrient-dense foods also resulted in an increase in the prevalence of iron deficiency anaemia among children – from 52% in 1996 to 68% in 1998.[11]

Similarly, during the 2007/08 price crisis in Latin America, households' energy intake (calories from food) fell by an average of 8.0% across seven countries.[17] Some countries in the region fared worse than others, with Ecuador and Panama recording falls in total energy intake of around 15%. In India's state of Andhra Pradesh, the 2007/08 food price crisis was also associated with severe cuts in dietary intake. These led to an increase in child wasting from 19% in 2006 to 28% by 2009.[18]

While governments around the world responded to the global food price spikes of 2007/08 and 2010/11 with both policy

and programme interventions, it is now clear that many of these initiatives were insufficient to address the severe dietary and nutritional impacts of both rising and more volatile prices experienced especially by low-income consumers.[19] Public policies and programmes generally focused on staple cereals (rice, maize, and wheat) and the price volatility introduced from global markets for these commodities.

While these actions may have helped low-income consumers to maintain calorie intakes, policies rarely addressed the quality of diets that low-income households could afford and the nutritional outcomes that they would experience. As noted above, many studies have shown that consumers often eliminate animal-source foods and diet-enriching vegetables and fruits when food prices are high. Some households can also find cooking fuels to be too expensive and they therefore increase their intake of pre-prepared foods.[20, 21] The results of these choices, we now know, are likely to have contributed to persistent under-nutrition and an unhealthier population.

Policy attention to the level and volatility of prices across a broader range of foods is therefore important to help ensure the availability and affordability of diverse, nutritionally-adequate diets that can be sourced locally by even the poorest income groups.

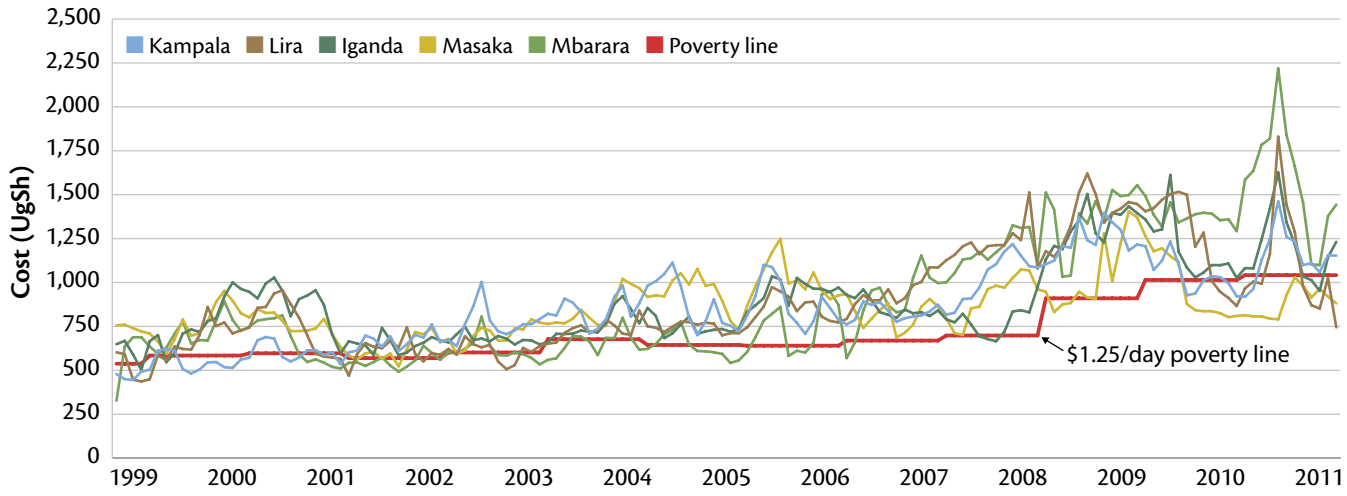
Monitoring the affordability of a minimally nutritious diet is a useful way for policymakers to gauge the potential impacts of price changes on household consumption.[22, 23] By comparing household purchasing power to the market prices of locally-available foods that together meet threshold levels of calorie, protein, fat and micronutrient requirements for all ages and sexes in a population, it is possible to assess the ability of low-income consumers to acquire a nutritionally adequate diet.[24]

This analytical approach highlights the fact that a nutritious diet can be unaffordable for large numbers of people who rely

heavily on food markets even in 'normal' years. For example, in 2007, before food prices spiked, the per capita cost of a nutritious diet ranged from US$0.71 per day in Tanzania to US$1.15 in Myanmar and up to US$1.27 in Ethiopia. At the time a large share of the population of those countries was living on less than US$1 per day.[25] More recently, the same calculation in the Magaria-Kantché district of Niger resulted in the conclusion that a nutritious diet is unaffordable for roughly 64% of the population.[26]

In Uganda, a slightly different analytical approach was used. The minimum real (inflation-adjusted) cost of purchasing, at market prices, a basket of 10 local foods which could meet minimum requirements for 14 nutrients was calculated; the total cost varied, as expected, over time and across different markets around the country (Figure 2).[27] However, much of the time in the locations for which price data were available, a low-income family living on less than US$1.25 per day per person would not be able to afford that basket of food and would, therefore, usually find it difficult to purchase a healthy diet. When price volatility is added to the equation, as it was in Uganda from 2009 onwards and globally before that, the ability of the poor to secure minimally nutritious diets is seriously compromised.

Figure 2. Least-cost nutritionally-adequate diet for Uganda.



Poverty line is based on the World Bank's global poverty standard of $1.25 a day using PPP GDP (LCU per international $). Reference group for diet is adult women, using US RDA for 14 nutrients following Hotz et al. (2012).[63] Least-cost monthly food baskets constructed using retail prices for 10 commodities.

Policy Actions to Manage Food Price Volatility for Better Nutrition

Since 2007/08, government leaders everywhere have become more aware of the negative impacts that rapidly-rising agricultural commodity prices and greater food price volatility and uncertainty can have on social, economic, and political stability. Street demonstrations in many low-income countries called for policymakers to take action to dampen price increases and protect consumers' purchasing power, especially for the staple cereals – rice, maize, and wheat (including bread). In some cases, such as Egypt, Yemen and Tunisia, violence erupted, resulting in political change.[28]

In 2009, world leaders participating in the G-8 and G-20 drew international attention to the challenge of global food insecurity linked with rising and volatile food prices and launched a series of initiatives targeted at agriculture and nutrition. In 2011, the G-20 Ministers of Agriculture agreed to the Action Plan on Food Price Volatility, committing global leaders to "improve agricultural production and productivity both in the short and long term" and to "develop risk management tools for governments, firms and farmers in order to build capacity to manage and mitigate the risks associated with food price volatility."[29]

Since 2007 the importance of African Union leadership in promoting agricultural growth through its Comprehensive African Agricultural Development Programme (CAADP) was underscored. National government leaders independently initiated short-term measures to respond to the crisis conditions of 2007/08 and to recurrences of surging prices in 2010/2011 and many launched longer-term investment programmes to generate economic growth, reduce poverty, and improve nutritional status over time.

Short-term response measures included the release of food stocks and/or the creation of new food reserves, establishment of price controls on staple goods critical to the diets of the poor, waiving of import tariffs on staple commodities to promote lower prices, and expansion of social safety nets to enable an increasing number of people vulnerable to hunger to benefit. Long-term actions aimed to increase agricultural production, improving market efficiency as well as more integrated networks through secondary and tertiary road construction, expanding regional trade, and improving labour productivity and wages. Similar policies and interventions to reduce price volatility were widely deployed regardless of its apparent cause in a particular country or region, and impacts were mixed.[30, 31]

While the sources of recent and continuing agricultural commodity price volatility are being still debated[32], there is growing evidence about the types of policy actions that can be helpful in stabilising conditions across the food system. There is, however, limited empirical data on which policy interventions have worked best in terms of cost-effectively mitigating the negative impacts of price volatility on the diets and nutritional status of the poor.

The next section reviews experiences of policies and actions implemented with the intention of (a) reducing price volatility in general, and (b) specifically aimed at protecting the dietary quality, nutrition, and health of the poor. Examples of policy interventions shaping agriculture and food systems for nutrition are described, across the four key domains that the Global Panel has defined as constituting the 'food environment'. This environment encompasses the domains of agricultural production, markets and trade, food transformation and consumer demand, and purchasing power.[33] In the final section, conclusions are drawn on the most effective policies and combinations of policies.

Policies Affecting Agricultural Production, Prices, and Price Volatility

A wide range of public policies have been mobilised in various countries to buffer the price volatility associated with the underlying variability inherent in agricultural production, i.e. due to seasonality, variable weather, incidence of pests and diseases, and unavailability of technologies. Public policies intervene by stabilising prices paid to farmers, subsidising agricultural capital (equipment, storage facilities, etc.), enhancing the availability of seed and livestock quality through locally-adapted research and distribution systems,[7, 33] and underwriting crop or livestock insurance.[10, 7, 34] Policies that target the provision of relevant farm inputs to high-risk regions and producers[35] as well as reinforcement of extension services that include an explicit focus on management of weather and price shocks are also commonly implemented.

While primarily benefiting producers, actions such as these are critical to the operations of agribusinesses that provide production inputs and services as well as supporting the production of adequate quantities of food at affordable prices for consumers.[13] Governments' capacities to enact and implement production-oriented policies varies. However, it is increasingly recognised that public policies and investments are needed to make high quality seeds, and credit and technical services more affordable to smallholder farmers and, thus, to improve access for consumers to affordable food.[36]

It might be argued that these kinds of policies have, throughout the 20th century, resulted in a remarkable pattern of rising agricultural productivity in many countries and stable or declining commodity prices in global markets. But, agricultural trade patterns reflect the differential success that countries have had in deploying these policies and increasing domestic production sufficiently to cover consumer demands. Many low-income countries in which agriculture is a major sector of the economy actually became net food importers in recent decades, unable to boost domestic agricultural production enough to meet rising food needs.

The 2007/08 food price spikes and the following years of higher prices conveyed a mixed message to policymakers in different countries. The higher food prices made life more difficult for poor consumers in all countries, but created real incentives for some agricultural producers to invest more in their farms and livestock operations. Thanks to their previous investments in agricultural growth, countries such as Vietnam were already in a position to respond to high prices through more sales and exports and to generate real income increases for producers while also improving availability for domestic consumers.[9]

By contrast, a rise in staple food prices for net food importers such as Guatemala and Tajikistan had the effect of reducing income and food consumption across all wealth categories.[37] This outcome will lead to more rather than less poverty as the immediate negative impact on net consumers outweighs the potential income benefits to producers that might be achieved with production-oriented policies where the supply-increasing impacts will take some time to appear.[17]

Nevertheless, many governments took steps in recent periods of price volatility to ramp up existing producer support measures (e.g. subsidised inputs or credit for farmers) by increasing either the level of support or coverage.[5, 35, 38] Most countries that introduced new crop price stabilisation and input support policies in 2007/08 maintained them for at least the subsequent five-year period of volatile prices.[5, 37] Indonesia, Madagascar and the Dominican Republic, for example, introduced agricultural input vouchers and input subsidies in an attempt to kick-start national production, while Bangladesh and Malawi significantly increased the level of their existing fertiliser subsidies.[33]

Some countries, including India[39] and Kenya[40], implemented strategies for increasing food imports (and preventing exports) in the short-term, while bolstering agricultural productivity in the longer-term through increased input subsidies and expanded access to credit. Others, such as Senegal and Burkina Faso, promoted diversification of agriculture in an effort to shift diets towards more locally produced commodities – cassava, sweet potatoes, plantains, vegetables – that would be less affected by global market conditions. This is a longer-term strategy which requires social messaging to align consumers' food demands with producers' capacities to supply.

Policies Shaping Agricultural Markets and Trade

More than 80% of people in the world today live in net food-importing countries.[41] As a consequence, international trade in agricultural commodities has reached a value of more than US$520 billion per year.[42] For many countries, food imports support dietary diversity, enabling consumers to choose products that cannot be produced in their geographic region or are not available in a particular season. Food and agricultural imports for some imply export opportunities for others. While both producers and consumers can benefit from these exchanges, markets are often less stable and predictable than desired. Prices rise and fall, inventories are poorly managed and distributed, and rapid changes in market signals indicate volatility that affects both importers/consumers and exporters/producers.

National and international trade policies are generally developed to make markets more stable and predictable for producers, while also ensuring responsiveness to consumer demands and

needs. Food and agricultural trade policies in some countries allocate major roles to public institutions and support frequent intervention in markets, including strategic infrastructure investments, the setting of commodity prices, managing publicly-held buffer stocks, distribution of commodities to targeted populations below market cost, and levying of tariffs on food imports to protect local producers. By contrast, trade policies in other countries focus largely on providing a legal and regulatory framework with which private marketing agents must comply, such as those linked to food safety and labelling of food quality.

In response to the food price crises in 2007/8 and following years, many countries undertook policy measures that affected markets and trade even as they struggled to understand the causes of the unanticipated volatility. For example, a rise in investor speculation in agricultural commodities, and the expansion of policies that supported conversion of foodstuffs (maize, oil palm, soy, rapeseed) into fuel both appeared to be implicated in contributing to the volatility.[32]

Policymakers, therefore, took steps that included changing tariffs on food imports, restricting exports, imposing new technical barriers on trade, and suspending or not implementing bilateral or multilateral trade agreements. In 2007/08, the two most widely adopted measures were reducing tariffs or custom fees, and selling grain into domestic markets from buffer/reserve stocks or from government purchases in the open market (imports). Tariff/fee modifications were implemented in 43 developing countries while government sales or measures to boost commercial imports were reported in at least 35 countries.[35] Reducing tariffs (fees) on key commodities aimed to facilitate the flow of imports to bolster domestic supplies and dampen prices for consumers.[35, 43]

Policies were also initiated to add certainty to prices, i.e., by setting of consumer and/or producer prices at absolute levels or within defined bands. For example, the government of Sri Lanka established fixed maximum retail and wholesale prices for different grades of rice early in 2008. Malawi announced a set price at which government agents would both buy and sell maize. Malaysia also set ceiling consumer prices and minimum or floor producer prices for rice.[35]

Some countries implemented policies that attempted to stabilise markets by controlling domestic supplies. Export bans, often combined with the release of government stocks, were a key approach. Others (e.g. Egypt[44], Ethiopia[45], Kenya[40], and India[39]) banned or severely limited the export of food crops while simultaneously disbursing emergency reserves into the food system. By the end of 2008, a total of 25 countries, including China, Pakistan and Bangladesh in Asia, Egypt and Kenya in Africa, and Brazil and Argentina in Latin America had enacted bans or partial restrictions on food exports. [39, 40, 44] In response to the increase in maize prices in 2011[62], the Tanzanian Government banned maize exports. This led to improved access for urban consumers and net buyers who could buy maize cheaply, but had a negative impact on smallholder farmers because maize prices were suppressed. This example highlights the trade-off effects of export bans and the need for a combination of policy packages.

The goal of each of these policy interventions was to protect consumption levels of citizens by managing market prices and/or supplies in light of both rising global prices and increased market volatility. However, they may have further distorted international price signals and often represented a 'beggar thy neighbour' approach rather than a coordinated international response to a global challenge.[46] Export bans, especially by large producers, constrained supplies to global markets (which likely further compounded price volatility).[47] Constraints on in-country movement of commodities may also have destabilised markets. The government of Pakistan, for example, decided to control the movement of food within the country to try to prevent hoarding and to protect stocks for the country's large flour mills.[35]

Several analyses of the impacts of these kinds of policies show that they may not always be effective in ensuring that citizens most in need of the food gain access to it.[5, 37] More generally, it is now evident that a number of transactions by governments in response to price volatility did not achieve their intended goals. Few government interventions in the market were sufficiently transparent and cost-effective to achieve focused, short-term results. They often proved to be costly to government budgets, were not targeted to populations who could have derived the greatest welfare benefit (in the form of more affordable foods

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>
> **Emmy Simmons**
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and better nutrition), and created more market instability and uncertainty.[39, 40] For example, India banned grain exports just as Bangladesh, experiencing flood-related harvest losses, searched for imports. The result was a major surge in Bangladeshi rice prices. At the same time, the Philippines entered into opaque bilateral negotiations with Vietnam on prices for large rice shipments and fuelled great uncertainty about the direction of prices across Asia.[40, 48] Similarly, the Zambian government's procurement activities in local markets in 2011/12 (a time of bumper harvests) led to a displacement of commercial and informal market actors; this, in turn, contributed to price uncertainty and sharp price spikes in 2013.[49]

These experiences have re-energised the discussion of public policies that can most effectively shape markets and regulate the trade, which is actively managed by private sector companies. As noted by FAO, the private sector plays "a critical and dominant role in an efficient marketing system [and] there are no examples of efficient marketing systems for food commodities that are dominated by the public sector."[37] Moreover, for the private sector to play its role in making markets more efficient, information about prices and large government transactions should be as transparent as possible. Poor market information can lead to a questioning of price signals and "harm confidence in international markets."[36]

The Agricultural Marketing Information System (AMIS) was established at FAO in 2011 at the request of the G-20 to assist in creation of an open-access source of accurate information about commodity prices, to promote greater market transparency. While AMIS is a useful first step toward facilitation of more coherent and effective agricultural trade policies, there are still gaps and weaknesses in global data systems relating to food market fundamentals. They include shifting consumer demands, trade flows and stocks of agricultural commodities, and prices. Investments are needed to build surveillance system capacity at national and global levels to better track, analyse and report on food price signals and market prospects.[4, 50]

Many governments remain concerned about commodity price speculation, which is believed to have played an important part in contributing to price volatility in recent years.[32, 51] While there have been calls for tighter regulation of financial and commodity markets, greater transparency and accessibility of data on market transactions remains an urgent priority to allow for policy coherence and better coordinated public action.[52]

Policies Responding to Consumer Food Demand

Expanding global trade in food and agricultural commodities has been accompanied by greater involvement of global companies that process, brand, and market food products to specific consumer profiles: busy mothers, youth wishing to project a modern image, and the growing middle class. Private industry plays the main role in the food transformation (processing and packaging) domain, using various market channels (supermarkets, quick-serve restaurant outlets, and corner stores) to interact with expressed consumer demand and to build new markets for these value-added food products.

Retail prices in urban and rural settings were under pressure in most middle and low-income countries from 2007 through to 2012, but few governments sought to control or influence retail food prices. Instead, the focus was on farm-gate prices for producers and the consumer prices of selected staple foods at which subsidies were targeted. There is little empirical evidence of actions taken by private companies to mitigate consumer impacts of agricultural price volatility since 2006, although rising input costs did challenge many food businesses to substitute ingredients (often shifting to lower quality or less-nutrient inputs) to moderate price impacts.[53]

There is now some emerging evidence from low and middle income countries that the food price crises and concurrent market volatility in the 2007 to 2012 period may have encouraged consumers to increase their consumption of processed foods.[54] Family members moved away from home in order to earn the incomes necessary to maintain their family's food consumption levels but, as individuals, they increased their consumption of street foods and other processed foods as they worked in new environments. Other families were unable to afford enough food for the whole family and, instead, gave children or other family members money to eat outside of the home.

Given public health concerns regarding the nutritional quality of many processed foods, some organisations have made efforts to encourage consumers to switch diets towards higher consumption of traditional or so-called under-utilised foods. For example, the West African Health Organization (WAHO), which coordinates the Nutrition Forum activities of the Economic

Community of West African States (ECOWAS), has long been advocating for more policy attention to traditional food systems.[55] When the periods of food price crisis arrived, WAHO took an active leadership role in promoting the production, marketing and consumption of nutrient-rich indigenous foods. The policies recommended, however, point to a longer-term strategy to mitigate volatility by diversification of the entire food system. Active public promotion of indigenous foods is needed to stimulate sufficient consumer demand for the food industry and retailers to respond.

An area of public-private collaboration was also tested in 2008. Governments took the opportunity presented by falling food consumption levels among low-income populations to deploy micronutrient-fortified foods to try to protect against the nutritional deficiencies arising from the falling quality of diets.[35] In 2008, as food prices rose steeply, the government of the Philippines included one kilogram per day of iron-fortified rice (produced by private firms) for distribution in public schools for four months to children and their families.[19] Similar programmes were carried out in Senegal and Mauritania.[56] Where staple grains or oils are used, micronutrients can be added in bulk by the private companies managing large flour mills or processing plants. Where processed packaged foods are used (such as baked snacks, porridge meals or bottled milk), governments procure the food products from the private sector and administer public distribution through designated channels.[45]

Policy Actions to Address Consumers' Purchasing Power

As already noted, many governments take steps in the event of unanticipated food price rises – whether transmitted from global markets or caused by local conditions such as severe drought or typhoons – to protect the ability of poor consumers to acquire food. Policies and programmes to distribute food supplies directly to vulnerable, low-income populations constitute an important approach in protecting consumers, especially when the food emergencies are short-lived. The World Food Programme (WFP), UNICEF, and other multilateral agencies are important partners in these efforts. But internationally supported food safety net programmes are increasingly being supplemented by national food assistance programmes. This helps to ensure that programmes can be scaled up or down to ensure that low-income populations can meet their dietary needs as prices (and their purchasing power) become more volatile. Distribution of cash and/or vouchers as well as food commodities enables social protection programmes to be as efficient as possible.

Many countries used cash transfers in response to the food price peaks of the late 2000s, including China, Haiti, Mozambique and Costa Rica. Some already had large-scale ongoing cash transfer programmes that were expanded to include more participants (as in Mexico, Ecuador and Brazil).[35] Other countries focused on expanding pre-crisis public feeding programmes in times of crisis.[45, 57, 58] The Committee on World Food Security recommends "the use of national and local social protection and safety net programmes, as well as local purchase mechanisms, whenever appropriate."[43]

The linking of local purchase of food to food distribution can be done through schools, hospitals, orphanages or used in conjunction with food or value-denominated vouchers. For example, Ethiopia's Productive Safety Net Programme and school meals programmes are expanded during periods of crisis.[59] Madagascar doubled the number of children receiving free meals through schools between 2007 and 2008.[35] Similarly, Brazil[40] and South Africa[48] significantly increased the coverage and content of their pre-existing safety nets to address a rising need for food consumption protection. Of the 42 developing countries that introduced new programmes or new elements of social protection in response to the 2007/08 crisis, 23 focused on cash transfers while 19 prioritised food-based interventions.

However, many governments responding to the food crises in 2007/08 and following years intervened in food and agricultural commodity markets to control or dampen market prices for consumers and/or to support incomes of agricultural producers or other low-income workers. These less-targeted approaches likely affected urban populations more than rural populations but, as discussed above, were unlikely to have enabled already-poor households to acquire nutritionally adequate diets. The World Bank estimates that 95% of income and purchasing power losses by the urban poor during recent price crises were incurred by households that were already poor before the shock.[57] Another study found that in 12 of 18 low- and middle-income countries, urban food insecurity at the start of the 2007/08 price crisis was at least at the same level as in rural areas (and was higher in countries like Ethiopia, Senegal, Laos and Tajikistan).[31] In other words, the urban implications of food price volatility are as urgent a policy concern as rural impacts.

More than a dozen governments took measures in the late 2000s to increase salaries of government workers, or (as in the case of El Salvador, Guyana and Panama) to reduce income tax rates on the poorest households and to increase disposable income and purchasing power.[35] Burkina Faso, Haiti and India all subsidised electricity and fuel prices with the avowed aim of decreasing costs to the poor, but given that the poor tend to use less of such resources than relatively less-poor households this kind of untargeted income transfer did not always achieve its declared aim.[19]

Recommendations to Policymakers

To protect nutrition and food security effectively in the face of price volatility, governments must take short-term actions to protect the quality of consumers' diets. At the same time they need to launch long-term policies and strategies that foster more stable and predictable markets and affordability of food supplies. The rising prices and increased price volatility experienced since 2007/08 have demonstrated the importance of selecting and implementing policies that will be cost-effective, targeted to the most vulnerable, and sustainable over time. A rushed response based on incomplete knowledge of rapidly changing conditions may waste resources and not benefit those most in need. Investments are needed to establish programmes and build needed institutional capacity, budgets and personnel before conditions call for an urgent public sector response.

The challenge for policymakers is to identify the right combination of policy actions across the food system that will moderate price rises and dampen price volatility, thus protecting consumption and nutrition while mitigating impacts on rural incomes and production. However, policies which fail to recognise and accommodate these relationships are likely to fall short of delivering the desired outcomes.

The Global Panel recommends that policymakers consider the following measures to anticipate and mitigate the negative nutritional outcomes of unforeseen price rises and increased price volatility and uncertainty:

Invest in Market Monitoring and Market-Based Insurance Systems

- Food price volatility should be tracked by national governments using a form of Domestic Food Price Volatility Index[56] combined with other relevant metrics.[57] International institutions should link these metrics to global monitoring systems that transparently communicate the dynamics of world food prices.
- Market-based risk management systems, including harvest-based insurance, should be assessed in terms of potential cost-effectiveness.
- Coordinated public and private actions should be promoted that protect producers in the context of price crises.

Invest in Agricultural Productivity Growth

- Public investment in agricultural productivity is an essential part of a country's food and nutrition security. Robust local production of a diversified set of nutritious foods can buffer consumers against unforeseen changes in global commodity markets. Greater support is needed for domestic agricultural research initiatives focused on: making higher quality seeds and breeds more widely available to smallholder farmers (including greater support for indigenous foods and biofortified crops where appropriate); enhancing access to credit; and promoting local and regional market development.
- Use of public procurement opportunities, such as meals in schools and safety net programmes, to establish stable demand for agricultural production should be widely adopted.

Facilitate Efficient Food and Agriculture Markets and Trade

- Efficient markets can reduce price volatility. Market efficiencies can be promoted through enhanced transparency of all forms of food-related market transactions, including enhanced tracking of food supply and stock data, financial derivatives linked to agricultural commodities, and price futures. Governments should promote transparent real-time communication of all transactions and price movements via efficient and accessible market price information systems.
- Public investments in market infrastructure (roads and bridges, physical markets, storage facilities), and effective regulatory systems, including reduced red-tape at in-country and international borders, will help reduce transaction costs and food market performance.[60]
- Government actions relating to food trade (imports as well as exports) should be made predictable and transparent to all stakeholders. National commitment to international policy coordination is a priority, including eschewing unilateral export restrictions, bans and other trade-distorting actions that make international markets more volatile. New multilateral agreements are needed to discourage trade distortions when food prices spike and to focus on coordinated efforts to reduce rather than rearrange the adverse impacts of volatile prices on the poor.
- Where national food buffer stocks/reserves are considered, governments should explore ways to make these dynamic; that is, cash-based (virtual stocks) rather than building large food stores. Clearly articulated triggers for drawdown of reserves and channels for targeted distribution are needed to ensure predictability of government actions and support clear expectations among market actors.
- Appropriate oversight is needed of national as well as global agricultural commodity markets, focusing on enhanced transparency of, and accessibility to, data concerning market transactions (including speculative behaviour and the use of foodstuffs to support fuel policies).

Build Food Transformation Capacity to Enhance Nutritional Quality of Foods

- Governments should explore partnerships with industry to make nutrient-fortified foods (staple grains and oils as well as foods for specific target groups, such as young children) available through social protection mechanisms, and increased better coverage during times of crisis.

Establish Targeted Cost-Effective Consumer Protection

- While open market economies support higher levels of productivity growth, they tend to transmit international food prices (and hence volatility) to local markets.[38, 61] Policymakers should establish cost-effective consumer protection mechanisms that target households vulnerable to dietary and nutritional compromise. These should be designed for 'normal times' and be expandable when clearly defined conditions call for it.
- While actions to protect incomes (through adjustments to taxes or wages and entitlements such as child grants and old age pensions as well as social safety nets) can be helpful, specific attention is needed in low-income countries to protecting diet quality and nutrition. This may require action on consumer prices for nutrient-dense foods, and not just staple grains.
- Where pre-crisis social protection and safety net systems cannot be rapidly adjusted to cope with food price inflation, vouchers denominated in nutritious food quantities or direct food transfers targeted to nutritionally-vulnerable groups should be considered.

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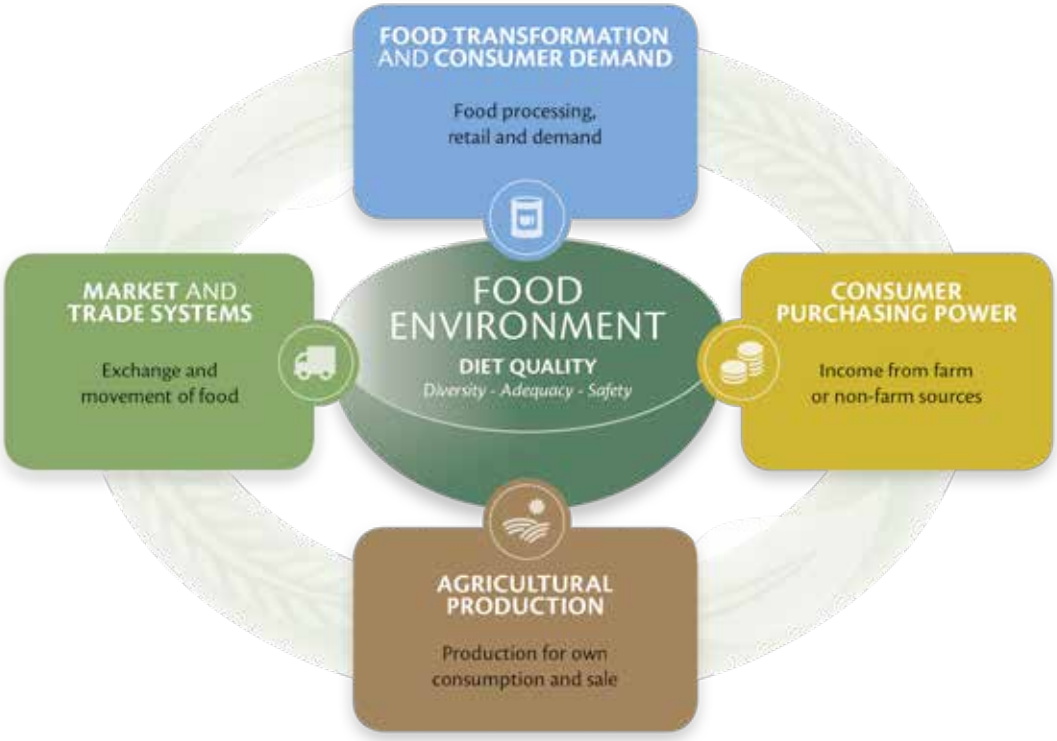
How can Agriculture and Food System Policies improve Nutrition?

The multiple burdens on health created today for low- and middle-income countries by food-related nutrition problems include not only persistent undernutrition and stunting, but also widespread vitamin and mineral deficiencies and growing prevalence of overweight, obesity and non-communicable diseases. These different forms of malnutrition limit people's opportunity to live healthy and productive lives, and impede the growth of economies and whole societies.

The food environment from which consumers should be able to create healthy diets is influenced by four domains of economic activity:



In each of these domains, there is a range of policies that can have enormous influence on nutritional outcomes. In the Global Panel's Technical Brief, we explain how these policies can influence nutrition, both positively and negatively. We make an argument for an integrated approach, drawing on policies from across these domains, and the need for more empirical evidence to identify successful approaches.

Find out more here: www.glopan.org/Food-Price-Volatility

Managing food price volatility provides examples of policies within the market and trade systems domain that can mitigate the negative impacts of food price volatility on diets and nutrition.

Download *Policy Brief No. 4* here: **http://glopan.org/Food-Price-Volatility**

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