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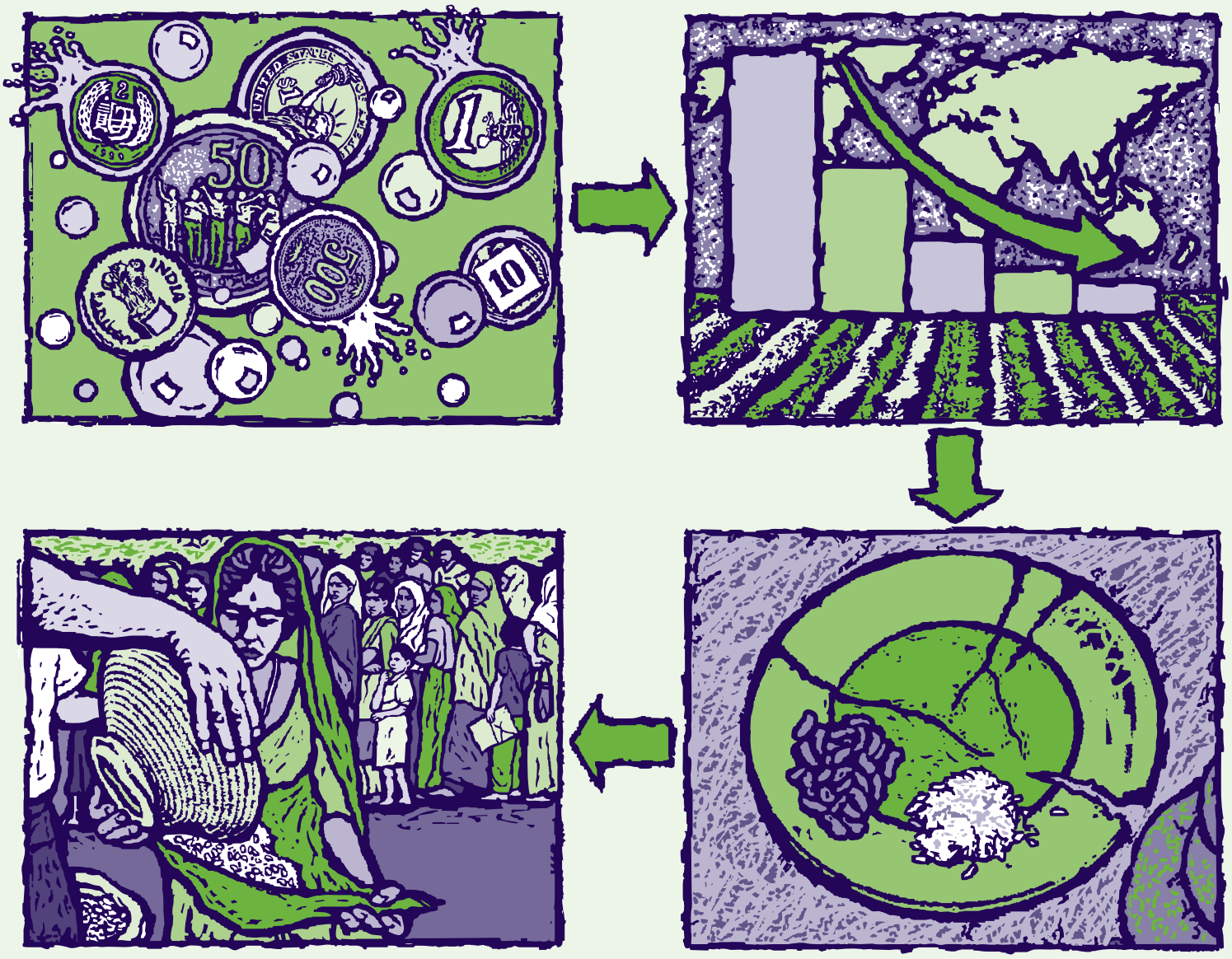
REPORT

FOOD AND FINANCIAL CRISES

Implications for Agriculture and the Poor

Joachim von Braun



ABOUT IFPRI

The International Food Policy Research Institute (IFPRI) was established in 1975. IFPRI is one of 15 agricultural research centers that receives its principal funding from governments, private foundations, and international and regional organizations, most of which are members of the Consultative Group on International Agricultural Research.

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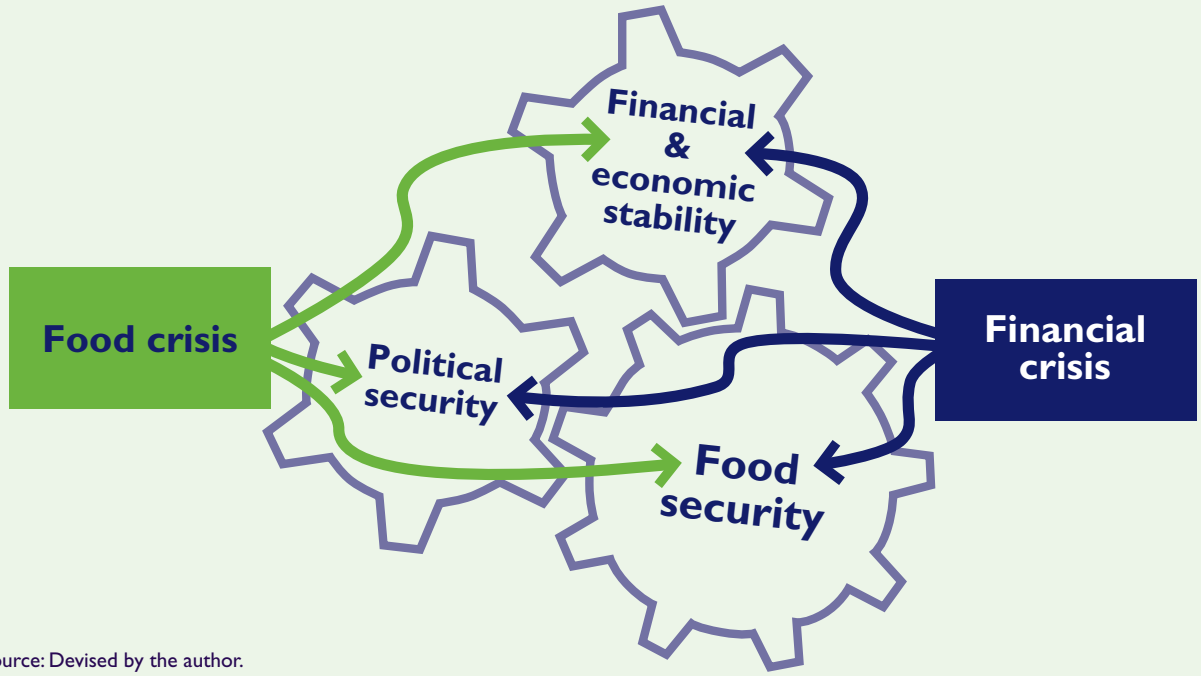
Why the Poor Need a Bailout Now

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

Links between the Food and Financial Crises

New and ongoing forces drove up the prices of food commodities, causing a major food crisis in 2007–08. Income and population growth, rising energy prices, and subsidized biofuel production have contributed to surging consumption of agricultural products. At the same time, productivity and output growth have been

Figure 1—Linkages between the food and financial crises



Source: Devised by the author.

impaired by natural resource constraints, underinvestment in rural infrastructure and agricultural science, farmers' limited access to agricultural inputs, and weather disruptions (for details, see von Braun, Ahmed, et al. 2008).

The financial crisis in the second half of 2008 stemmed from fundamentally different causes—flawed regulatory regimes and subprime mortgage lending—but the two crises have fed on each other. Fueled by capital diverted from the collapsing housing and financial market, speculation in agricultural futures, and ad hoc market and trade policies, the level and volatility of commodity prices further increased.

Although the food and financial crises developed from different underlying causes, they are becoming intertwined in complex ways through their implications for financial and economic stability, food security, and political security (Figure 1). The food crisis has added to general inflation and macroeconomic imbalances to which governments must respond with financial and monetary policies. At the same time, the financial crunch and the accompanying economic slowdown have pushed food prices to lower levels by decreasing demand for agricultural commodities for food, feed, and fuel. Further, as capital becomes scarcer and more expensive and as consumer spending stagnates, the expansion of agricultural production to address the food crisis has been cut short. Because the two crises are interconnected, a coordinated response is needed to alleviate the double blow to the poor.

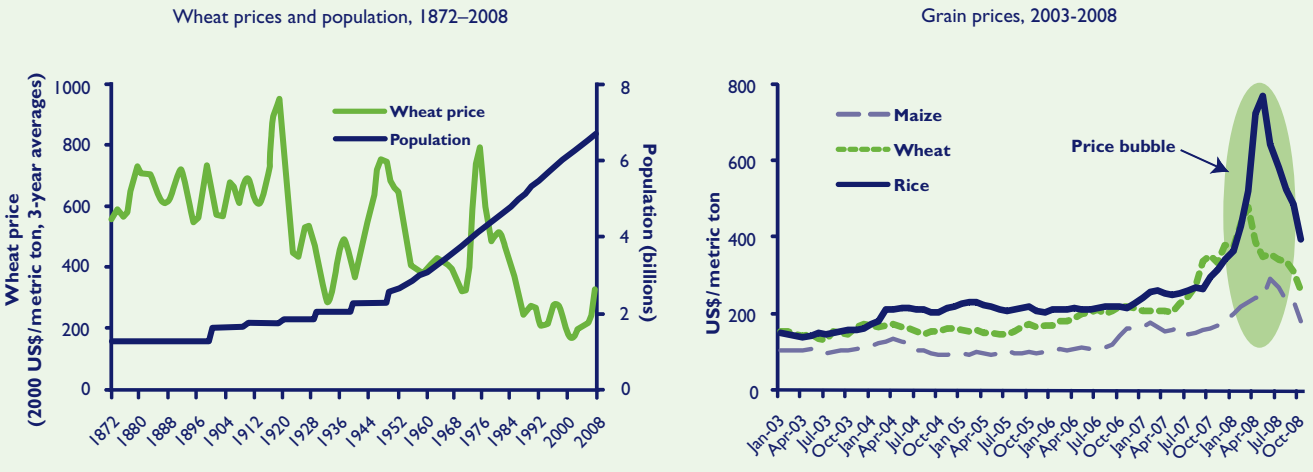
Food Price Developments

The price of nearly every agricultural commodity sharply increased in 2007 and 2008, creating a global food price bubble. At their peaks in the second quarter of 2008, world prices of wheat and maize were three times higher than at the beginning of 2003, and the price of rice was five times higher (Figure 2). Dairy products, meat, palm oil, and cassava also experienced sharp price hikes. The prices of butter and milk, for example, tripled between 2003 and 2008, and the prices of beef and poultry doubled. Even though current prices are not particularly high in historical terms, the recent price hikes increase the challenge of feeding the world's growing population (Figure 2). At the time of notoriously high food prices in the 1870s, the world population was about 1.3 billion, compared with 6.7 billion today.

At the country level, the global food price changes have been transmitted to different degrees owing to factors such as transportation costs, domestic policies, and market structure. From 2003 to 2008, 80 percent of changes in global maize prices were captured by local prices in Tanzania, whereas transmission in Jakarta, Indonesia, was -5 percent (von Braun, Ahmed, et al. 2008). Local nontraded foods are also affected by general price developments, suggesting that self-sufficiency is not a solution to the food price crisis. The price of sweet potatoes in Mozambique, for example, more than doubled from mid-2006 to August 2008.

Food inflation has put upward pressure on general inflation around the globe, hindering future growth by increasing uncertainty and distorting economic planning. Since food accounts for a large

Figure 2—Global food prices in the long and short run



Sources: The historical data are compiled and interpolated by the author from data from BLS 2008, Godo 2001, NBER 2008, OECD 2005, U.S. Census Bureau 2008, and United Nations 1999; the recent food price data are from FAO 2008a.

share of the consumption basket in developing countries, it has clearly dominated the inflation dynamics. In 2007–08, average food inflation has been higher than average overall inflation in 27 of the 31 countries with a high proportion or large number of undernourished people.[1]

The current inflationary trends have been preceded by a complex dynamic of food and nonfood inflation. Food price inflation has driven nonfood and general inflation, with some lag, to varying degrees. In China, Madagascar, Uganda, and Vietnam, for example, the correlation between food and nonfood inflation substantially increased in 2007–08 compared with 2005 (Table 1). In Ethiopia and Indonesia the correlation was high initially and remained so.

In the past few months, the prices of major cereals have fallen by about 30 to 40 percent as a result of the economic slowdown and favorable weather conditions, but they remain high compared with three years ago. This short-term price relief is insufficient, however, to ensure that the poor have sustained access to adequate amounts of nutritious food.

Table 1—Food and nonfood inflation in selected countries

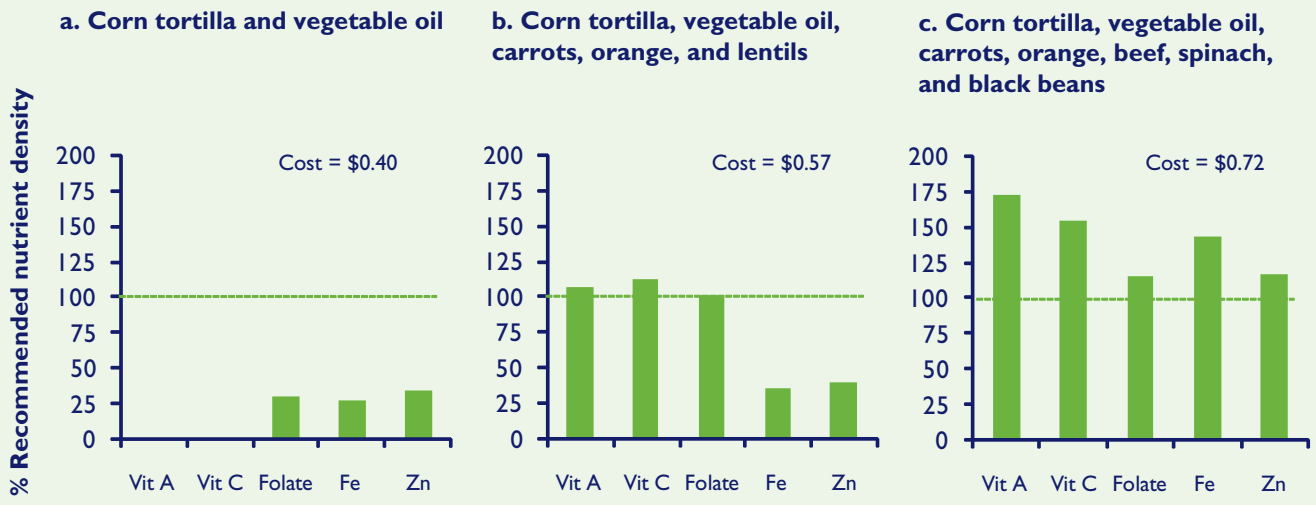
2007–08 correlation compared with 2005	2007–08 correlation		
	Low	**Medium**	**High**
Significantly smaller	Cambodia	Philippines, Zambia	—
No change	Nigeria	Malawi, Mexico, Yemen	Angola, Botswana, Colombia, Ethiopia, India, Indonesia, Tajikistan
Significantly larger	—	China, Guinea-Bissau, Tanzania, Vietnam	Dominican Republic, Madagascar, Niger, Uganda

Source: Based on data from publicly available government statistics.
Note: The correlation between food and nonfood inflation is considered high if the coefficient of correlation is larger than 0.8, medium if larger than 0.4 and smaller than 0.8, and low if smaller than 0.4. The correlation is considered to have significantly changed if the coefficient of correlation changed by 0.4 or more.

The Double Blow to the Poor

Even before the world food crisis, the poorest of the poor were being left behind (von Braun and Pandya-Lorch 2007). High and rising food prices further undermined the food security and threatened the livelihoods of the most vulnerable by eroding their already limited purchasing power. Poor people spend 50 to 70 percent of their income on food and have little capacity to adapt as prices rise and wages for unskilled labor fail to adjust accordingly. To cope, households limit their food consumption, shift to even less-balanced diets, and spend less on other goods and services that are essential for their health and welfare, such as clean water, sanitation, education, and health care. It has now become much more expensive to eat nutritious food. For example, in Guatemala, the price of a diet based on corn tortilla, vegetable oil, vegetables, and beans—which supplies key recommended micronutrients—is almost twice as high as the price of a less-nutritious diet based only on tortilla and vegetable oil (Figure 3). In fact, the cost of this balanced diet for just one person is almost three quarters of the total income of a poor household living on one dollar a day. The financial crunch poses additional threats by further lowering the real wages of the poor, and many are now losing their employment altogether. It also limits the funds available for food aid and social protection, which are essential for helping the most vulnerable people avoid malnourishment or even starvation.

Figure 3—Costs per person per day of corn tortilla-based diets in Guatemala at different micronutrient levels



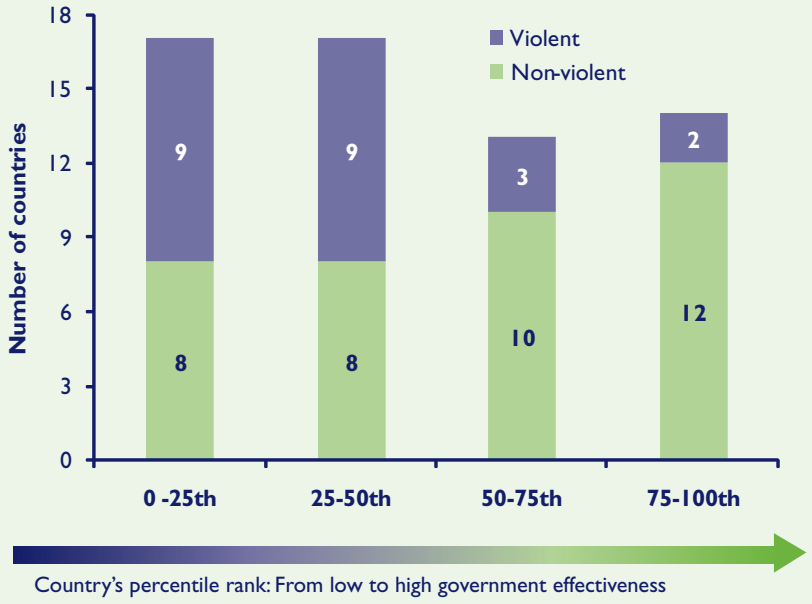
Source: Erick Boy, IFPRI, based on Guatemala City market prices in November 2008; and data from FAO/WHO 2002.

Compared with previous crises, the current ones are likely to have strong and long-lasting effects on emerging economies and the people most in need. Rising food prices and the credit crunch have reached all corners of the world. At the same time, since many more of the poor in rural and urban areas now depend on wages and are more closely connected to the rest of the economy than in the past, they suffer more from economic shocks.

Recent estimates from the Food and Agriculture Organization of the United Nations (FAO) show that the number of undernourished people increased from 848 million to 963 million between 2003–05 and 2008, largely owing to the food price crisis (FAO 2008b). Food price hikes have also exacerbated micronutrient deficiencies, with negative consequences for nutrition and health, such as impaired cognitive development, lower resistance to disease, and increased risks during childbirth for both mothers and children. In Bangladesh, for example, a 50 percent increase in the price of food is estimated to raise the prevalence of iron deficiency among women and children by 25 percent (Bouis 2008). Because good nutrition is crucial both for children's physical and cognitive development and for their productivity and earnings as adults, the adverse consequences of this price shock will continue even after the shock ends. A 2008 *Lancet* article shows that boys who benefited from a randomized nutrition intervention in their first two years of life earned wages as adults that were 50 percent higher than those of nonparticipants (Hoddinott et al. 2008). Food price shocks have the opposite effect; they negatively impact future economic prospects.

Food insecurity can be a key source of conflict, and with food and general living costs on the rise, people have turned to the streets in protest. Social and political unrest has occurred in 61 countries since the beginning of 2007, with some countries experiencing multiple occurrences and a high degree of violence. Although this unrest has occurred mostly in countries with low performance in governance, countries with high governance performance have also been affected (Figure 4).

Figure 4—Food protests by type and government effectiveness, 2007–08



Sources: Compiled by IFPRI; food protest data are from news reports; government effectiveness data are from Kaufmann, Kraay, and Mastruzzi 2008.
Notes: Food protests are defined as strikes, protests, or riots on food- or agriculture-related issues since January 2007. A violent food protest is defined as one that involves the use of physical force, results in casualties, or both.

New Challenges and Opportunities for Agriculture

Agricultural growth is crucial for resolving food price crises, enhancing food security, and accelerating pro-poor growth. After decades of policy neglect and underinvestment in public goods such as agricultural science, rural infrastructure, and information and monitoring, high food prices have provided some positive incentives for policymakers, farmers, and investors to increase agricultural productivity. The variability of food prices, however, has been an obstacle to long-term planning. At the same time, farmers in developing countries who took advantage of rising agricultural prices to invest in expanding production may now find themselves unable to pay off their debts because of falling output prices. As banks cut lending because of the financial crisis, it is harder for small farmers to make new investments. Broader plans for investment in agriculture, especially in low-income and emerging economies, are also at risk of being scaled back.

High prices and favorable weather encouraged agricultural expansion in developed countries in 2007 and 2008, but the production response in developing countries remained slow. Cereal output grew by 11 percent in developed countries between 2007 and 2008 and by only 0.9 percent in developing countries (FAO 2008c). If Brazil, China, and India are excluded, cereal production in the rest of the developing countries actually fell by 1.6 percent. Even before the crisis hit, global cereal stocks had been at their lowest levels since the early 1980s. Just to bring stocks back to these very low levels, cereal production would have had to increase by 40 percent in 2008—this rate of growth has not happened (FAO 2008c). Overall productivity growth is not high enough to result in output increases on such a scale. Annual world cereal yield growth declined from about 3 percent in the 1960s and 1970s to less than 1 percent since 2000

Table 2—Total factor productivity growth in developing-country regions, 1992–2003

	Average annual % growth				
Region	**1992-94**	**1995-97**	**1998-2000**	**2001-2003**	**1992-2003**
East Asia	5.0	4.5	–1.1	2.5	**2.7**
South Asia	1.7	–0.2	1.2	1.4	**1.0**
East Africa	–1.7	2.0	0.2	1.3	**0.4**
West Africa	1.8	2.5	2.4	–0.1	**1.6**
Southern Africa	0.4	3.3	3.6	–0.6	**1.3**
Latin America	1.8	2.0	2.9	4.3	**2.7**
North Africa and West Asia	–0.1	1.9	1.5	2.8	**1.4**
All regions	2.8	2.7	0.6	2.5	**2.1**

Source: von Braun, Fan, et al. 2008 and Nin Pratt, IFPRI.

(World Bank 2007). Total factor productivity (derived from the ratio of total output growth to total input growth) in developing countries grew by 2.1 percent per year from 1992 to 2003 on average; in some regions, the annual rate of growth was even lower (Table 2). In the future, as climate change further increases climate variability, temperature, and the risk of droughts and floods, threats to agricultural productivity and production will rise.

The food price crisis has increased competition for land and water resources for agriculture, and declining capital for long-term investment due to the credit crunch has resulted in revaluation of natural resources. Farmland prices, for example, have been rising throughout the world. In 2007 alone, farmland prices jumped by 16 percent in Brazil, by 31 percent in Poland, and by 15 percent in the Midwestern United States, according to news reports. Constraints in capital have also led to overexploitation and degradation of natural resources. In many countries, developed water sources are almost fully utilized, even as agricultural demand for water is expected to increase drastically in the future. The International Water Management Institute points out that at least an additional 2,000 to 3,000 cubic kilometers of water—the equivalent of 33 percent of current agricultural water use—will need to be found for irrigated and rainfed cropping by 2030 (Global Economic Symposium 2008).

The pressures on natural resources, combined with increasing distrust in the functioning of regional and global markets due to the price crisis, have renewed attention to foreign direct investment in agriculture. A number of countries, many with severe natural resource constraints but rich in capital, have begun investing in agriculture overseas to secure domestic supply. The media report that Egypt and the United Arab Emirates, for example, have made such investments in Sudan, Libya in Ukraine, Saudi Arabia in Thailand, and South Korea in Madagascar. China has invested in agriculture in a number of African countries, as well as in the Philippines and in Russia. In principle, such investments are not to be condemned given that greater investment in agriculture is needed. Recipient countries need to negotiate contracts wisely, however, and an enforceable code of conduct is called for to ensure the participation of local producers, respect for customary property rights, appropriate compensation, sustainable management of natural resources, and non-impaired trade policy rules.

Indeed, rule-based, transparent, fair, and free international trade is particularly needed in times of crisis. The World Trade Organization (WTO) Doha Round, however, remains uncompleted, and turmoil in financial markets should not divert attention from its successful conclusion. Failure of the Doha negotiations could result in a loss of more than US$1 trillion in world trade (Bouët and Laborde 2008).

Recession Scenarios

Many developing regions have experienced high economic growth in recent years. In 2005–07 developing countries in Asia grew at 9 percent and in Africa at 6 percent a year on average. In 2008, however, with the onset of the food and financial crises, growth has slowed and optimistic projections have been scaled down. Low economic growth is likely to have negative second-round effects for investment and productivity, with direct ramifications for food prices and food security around the globe.

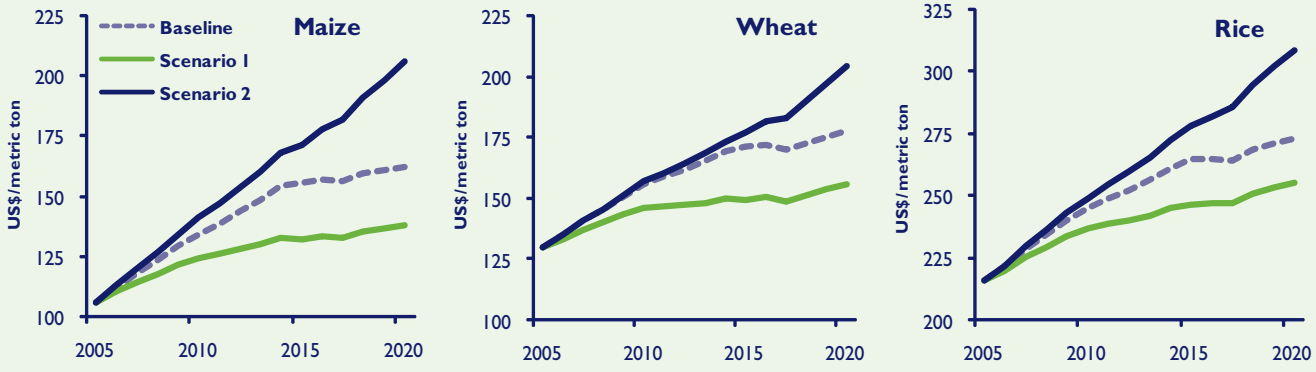
IFPRI projections from 2005 to 2020 compare a scenario of continued high economic growth and maintained productivity and investments in agriculture (baseline scenario) with two recession scenarios: [2]

- **Scenario 1:** economic growth is reduced by 2 to 3 percentage points depending on the region, and wise policy choices maintain agricultural productivity and investments.
- **Scenario 2:** economic growth is reduced as in Scenario 1, and agricultural investment and productivity decline in line with the reduced economic growth—this scenario is unfortunately more likely.

Under Scenario 2, the prices of major cereals will increase significantly, possibly triggering a bigger food crisis (Figure 5). In 2020, maize, wheat, and rice prices will be 27, 15, and 13 percent higher, respectively, than under the baseline scenario.

As a result of a recession, poor people are likely to consume less food. Compared with the baseline, global per capita calorie consumption under Scenario 2 will be 5 percent lower in 2020. In some regions the effects will be even more severe. In Sub-Saharan Africa, for example, per capita calorie consumption would be 10 percent lower in 2020 under Scenario 2. Globally, 16 million more children will be malnourished in 2020

Figure 5—The implications of a recession for cereal prices, 2005–20

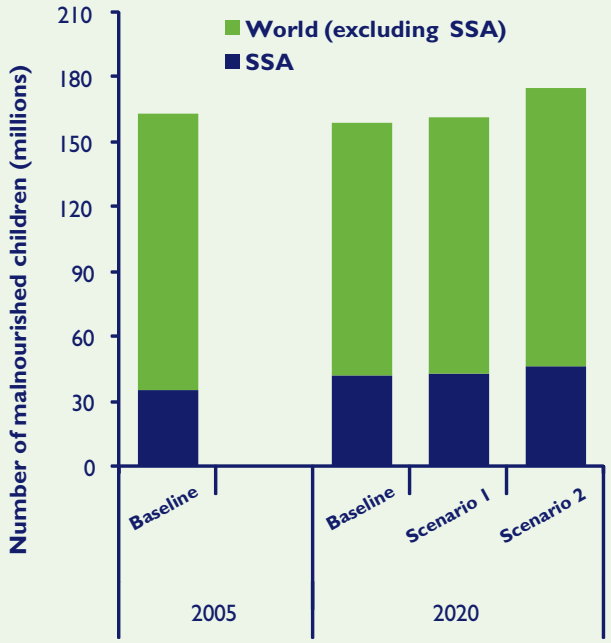


Source: Results of IFPRI IMPACT scenario analysis, October 2008.

compared with the baseline scenario (Figure 6). Sub-Saharan Africa's share of the number of malnourished children globally will increase from one-fifth in 2005 to one-fourth in 2020 under Scenario 2.

If, however, developing countries and investors can maintain agricultural productivity and investments under a recession, they can avoid many of the negative effects of slower growth. Cereal prices and the number of malnourished children would be much lower, and per capita calorie consumption would be much higher in 2020 compared with Scenario 2.

Figure 6—The implications of a recession for child malnutrition, 2005–20



Source: Results of IFPRI IMPACT scenario analysis, October 2008.
Note: SSA = Sub-Saharan Africa.

Coping with Turmoil

Given poor people's diverse sources of income, the same poor people are not necessarily hit by each blow. Yet it is the poor who lose the most, whatever the nature of the crisis. This seems to be particularly true for poor girls and women (Quisumbing et al. 2008), but also for vulnerable groups like minorities and disabled people. It is essential that the evolving responses at national and international levels address the immediate challenges poor and food-insecure people face. Sound economic and agricultural policies, including significant investments in agriculture, can prevent gruesome outcomes. In view of the financial crisis and the constraints and risk-averse behavior of the private banking sector, public sources will have to facilitate much of the investment. At the same time, policy and investment decisions in agriculture should be geared toward exploiting new opportunities and building resilience for future challenges. International financial institutions—such as the World Bank—are on their way to regaining importance and leverage with the deepening shortage of private capital, lack of trust in banks, and increasingly depressed investment climate. It is crucial that these institutions maintain their renewed focus on food and agriculture triggered by the price crisis in the past year and become more involved in financing research on agricultural science and technology.

Global and regional responses to the food price crisis have been responsible and included pledges to support food aid, nutrition interventions, social protection activities, and measures to increase agricultural output in affected countries (Table 3). It is important, however, to ensure that all pledged funds are actually released in a timely manner and appropriately targeted. Oxfam estimates that of the US$12.3 billion pledged at the food security summit held by the FAO in June 2008, little more than US$1 billion has been disbursed (Oxfam International 2008). Follow-up resource commitments should also be made and fulfilled where needed.

At the country level, responses to the crisis have varied widely. It is commendable that China and India, for example, increased their investments in agriculture and social protection by 27 and 24 percent in 2008 (Table 3). These positive investment trends need to be sustained and followed by other countries.

More actions are needed to successfully resolve the food price crisis, build resistance to future challenges, and reduce poverty and hunger. Three sets of complementary policy actions should be taken: (1) promote pro-poor agricultural growth, (2) reduce market volatility, and (3) expand social protection and child nutrition action.

Promote pro-poor agricultural growth. Investments should be made in research and development (R&D), rural infrastructure, rural institutions, and information monitoring and sharing. Even though spending on agricultural R&D is among the most effective types of investment for promoting growth and reducing poverty, such spending has stagnated since the mid-1990s. A recent study by IFPRI shows that if investments in public agricultural research doubled from US$5 to US$10 billion from 2008 to 2013, agricultural output would increase significantly and millions of people would emerge from poverty. If these R&D investments are targeted at the poor regions of the world—Sub-Saharan Africa and South Asia—overall agricultural output growth would

Table 3—Examples of global pledges and national investments to combat the food crisis, 2008

Donor organization/country	Pledge (billions of US$)	Month
African Development Bank*	1.0	May
Asian Development Bank*	0.5	May
Inter-American Development Bank*	0.5	May
World Bank	1.2	May
European Union	1.6	July
France	1.5	June
Saudi Arabia	0.5	June
Spain	0.8	June
United Kingdom	0.9	April
United States	5.0	June

Increase in public budgets on agriculture and social protection

Country	Billions of US$	% change
China	23.2	27
India	6.0	24

Source: News sources and government budgets.
Note: Asterisks indicate commitments made to member states.

increase by 1.1 percentage points a year and lift about 282 million people out of poverty by 2020 (Table 4). Expanding agricultural R&D investment would also have a significant impact on international food prices.

International agricultural research projects with substantial payoffs for a large number of beneficiaries should be given investment priority. The centers of the Consultative Group on International Agricultural Research (CGIAR) have identified examples of "best bets" in agricultural research. These "best bets" include programs to revitalize yield growth in intensive cereal systems in Asia, increase small-scale fish production, address threatening pests like virulent wheat rust, tackle cattle diseases such as East Coast Fever, breed maize that can be grown in drought-prone areas, and scale up biofortified foodcrops that are rich in micronutrients such as vitamin A, zinc, and iron (Table 5). Many of these projects offer large-scale opportunities for public–private partnerships in planning and execution, with shared costs, risks, and benefits.

Reduce market volatility. Regulatory reforms are needed not only in financial markets, but also in agricultural commodity markets to move out of the crisis and prevent future turmoil. Reduced volatility is essential for avoiding extreme price bubbles and ensuring that the world can respond to emergencies generated by price crises. Two global collective actions are needed. First, a small physical reserve, to be managed, for instance, by the World Food Programme, must be established to facilitate smooth emergency response. Second, an innovative "virtual reserve" should be created to help avoid the next price bubble (von Braun and Torero 2008). The virtual reserve could be implemented by the Group of Eight Plus Five and some other large grain-exporting countries. The organizational design could include a permanent high-level technical commission that would intervene in futures markets and a global intelligence unit that would signal when prices head toward a bubble. Usually, intervention would not be necessary, and the whole operation would remain promissory or virtual. These collective actions would protect the poor, improve market efficiency, and strengthen long-term investment incentives in agriculture.

Expand social protection and child nutrition action. Actions for stimulating agricultural growth and reducing market volatility are essential, but not sufficient, to achieve food security in the increasingly complex international economic context. Also needed are protective actions to mitigate short-term risks as well as preventive actions to preclude long-term negative consequences. In particular, expanding such social protection programs in Africa is both feasible and essential (Adato and Hoddinott 2008). Protective interventions include conditional cash transfers, pension systems, and employment programs. Preventive health and nutrition interventions such as school feeding and programs for improved early childhood nutrition should be targeted to vulnerable groups and strengthened and expanded to ensure universal coverage.

The design of specific national strategies must be country-driven and country-owned, with country-specific prioritization and sequencing. Yet there is a lack of credible and up-to-date data on the impacts of food and nutrition insecurity and the effects of policy responses (Benson et al. 2008). Such information would

Table 4—Impact of doubling R&D investment on poverty and output growth under poverty minimization

Region	R&D allocation (millions of 2005 US$) 2008	2013	Change in number of poor (millions) 2008-2020	Agricultural output growth (percentage points) 2008-2020
Sub-Saharan Africa	608	2,913	–143.8	2.75
South Asia	908	3,111	–124.6	2.40
Southeast/East Asia	1,956	2,323	–13.4	0.69
West Asia and North Africa	546	614	-0.2	0.23
Latin America	957	990	-0.2	0.07
Total	**4,975**	**9,951**	**–282.1**	**1.11**

Source: von Braun, Fan, et al. 2008.

Table 5—Indicative "best bets" for international agricultural research

Approach	Cost (millions of US$)	Beneficiaries (millions of people)
Revitalizing yield growth in intensive cereal systems of Asia	150.0	3,000
Ensuring productive and resilient small-scale fisheries	73.5	32
Controlling wheat rust	37.5	2,900
Developing vaccine for East Coast Fever in cattle	10.5	32
Developing drought-tolerant maize for Africa	100.0	320
Scaling up biofortification	125.0	672
Increasing CO2 sequestration and improving forest livelihoods	45.0	48
Conducting climate change and adaptation research	127.5	1,200
Combining organic and inorganic nutrients for crop productivity	55.0	400
Promoting sustainable groundwater use	24.0	261
Enhancing germplasm exchange	15.0	Global
Improving market information and value chains	10.5	45
Including women in extension and innovation	30.0	200
Exploiting agriculture-health links to benefit the poor	75.0	Global

Source: von Braun, Fan, et al. 2008.

allow international and national decisionmakers to use feedback to adjust their responses and achieve maximum effectiveness. Much more investment and sound coordination are needed in this area. In addition, policy actions should be combined with investments in developing countries' capacity to implement policy so that they can exploit potential opportunities for agricultural growth. Given that prioritization, sequencing, transparency, and accountability are also crucial for successful implementation, policy and governance practices in many developing countries must be strengthened.

Conclusion

The successful resolution of the food crisis should be measured not primarily by declines in food prices, but by significant declines in the number of food-insecure people. A new boost in technological and policy innovation is essential for achieving this goal. The CGIAR and national agricultural research systems have key roles to play in building a sustainable and resilient agricultural system through solid research insights and innovative policy approaches. The world's poor and food-insecure people need a bailout through agricultural growth, stable food markets, and protection of their basic nutrition. Such a bailout not only is an ethical and humanitarian imperative, but also makes economic sense.

Notes

1. This analysis by the author is based on publically available government statistics.

2. IFPRI's global scenario analyses are based on the International Model for Policy Analysis of Agricultural Commodities and Trade (IMPACT), which is directed by Mark W. Rosegrant at IFPRI. Tingju Zhu contributed to the scenario analyses.

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