

Overview: Food-Security Impact of the Financial Downturn, 2008-18

The current global economic crisis is threatening all parts of the world and there is no consensus as to how long it will last and how deep it will get before a recovery. According to analysis by researchers with USDA's Economic Research Service, 100 million more people may experience food insecurity in 2009 if International Monetary Fund (IMF) projections of world economic growth for 2009 become a reality. Reflecting the uncertainty of the current economic climate, the IMF lowered its projections of world economic growth between an initial estimate in October 2008 and a January 2009 update. This lower growth projection, coupled with the financial pressures created by the rising food and fuel prices of 2006-08, has resulted in a precarious food-security situation for many lower income countries.

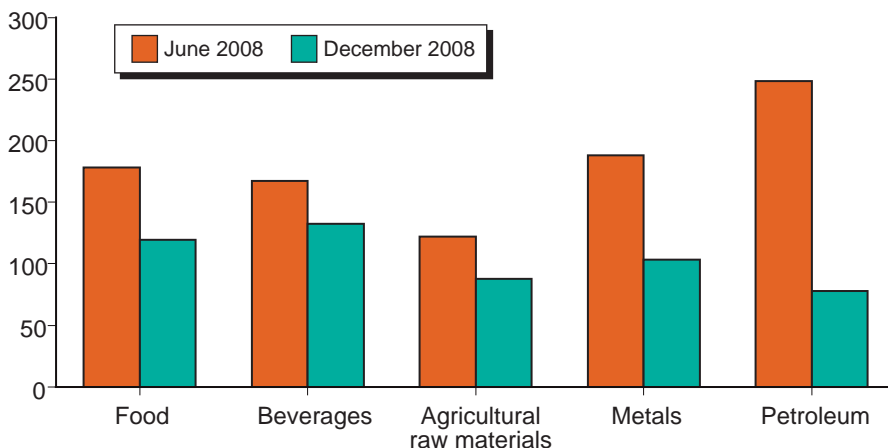
Commodity prices continued their rise in the early part of 2008, but then fell in the later part of the year. From July to December 2008, international prices for food and fuel—key imports of developing countries—declined sharply. Oil prices were cut by nearly 70 percent and food prices by 33 percent. However, prices of food and fuel still remain much higher than they were for much of this decade (fig. 1). The decline in food prices was a positive development for lower income, food-deficit countries, many of which are becoming more dependent on imported foods and food ingredients. However, the rate of decline in food prices was relatively modest compared with the decline in prices of some countries' exports, particularly metals. During the later part of 2008, metal prices declined 45 percent, and prices of agricultural raw materials, such as cotton, which had not increased significantly since 2004, fell nearly 30 percent.

For many countries, this decline in their terms of trade (ratio of a country's export price to its import price), coupled with the more difficult global financial environment, significantly weakened food security because many of these countries increased their food imports (fig. 2). This growing reliance on

Figure 1

Food and commodity prices declined in 2008

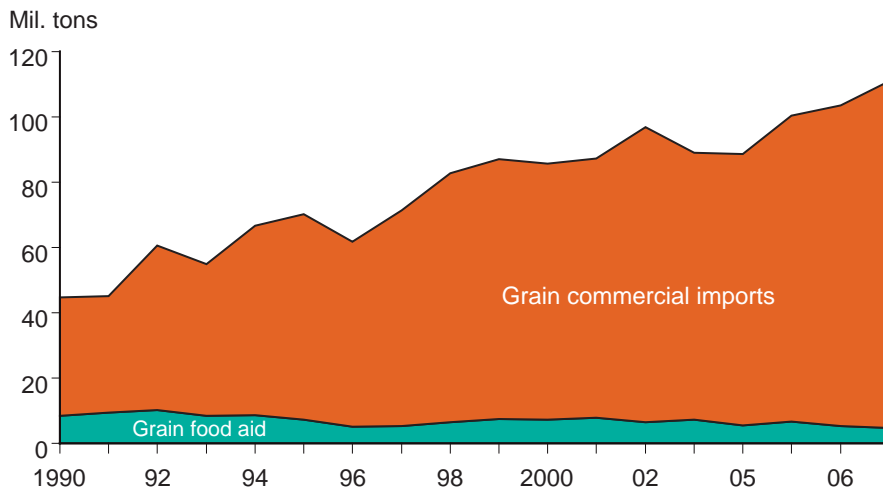
Index price (2005=100)



Source: International Monetary Fund.

Figure 2

Growing commercial grain imports in the 70 countries



Source: UN Food and Agriculture Organization and UN World Food Programme.

food imports was spurred by income growth, trade liberalization policies, and improvements in the global transportation system. Imported foods, including basic staples such as grains and vegetable oils, are an important component of diets in most countries. Available data from 1970 to 2003 show that import dependence grew the most among the least developed countries (LDCs), those with per capita incomes below \$750 per year. In 2003, grain imports accounted for 17 percent of their consumption (compared with 8 percent in 1970), sugar and sweeteners for 45 percent (compared with 18 percent in 1970), and vegetable oils for 55 percent (compared with 9 percent in 1970).

In This Report

Seventy developing countries are covered in this report. Projections of food availability include food aid, with the assumption that each country will receive the 2005-07 average level of food aid throughout the next decade. All historical and projected data are updated relative to *Food Security Assessment, 2007*. Food production estimates for 2008 are based on data from the United Nations' Food and Agriculture Organization (FAO) as of February 2009. Historical production data are from FAO and food aid data from World Food Programme (WFP). Financial and macroeconomic data are based on the World Bank data as of February 2009. Projected macroeconomic variables are either based on calculated growth rates for the 1990s through the mid-2000s or are IMF and World Bank projections.

This report includes a special article, "Developing Countries Face Urbanization Growth, Food-Security Worries, and Food Safety Challenges., which reviews the impact of the rise in urbanization in all developing countries by 2030. The article notes that poor and food-insecure people will account for a large share of urban growth because of rural migration and natural growth. Fertility rates are higher among the poor than among higher income populations. Food safety is becoming a bigger concern as consumption becomes more dependent on purchases from markets instead of home production.

Widespread Food Insecurity in 2008

Food security in developing countries worsened between 2007 and 2008. The number of food-insecure people in the 70 developing countries studied by ERS is estimated to have increased nearly 11 percent or by about 80 million people (see box, “How Food Security Is Assessed: Methods and Definitions”). In most cases, the deterioration in food security reflected limited purchasing power of the poor due to rising food inflation rather than a major food production shortfall.

The food gap to meet nutritional requirements (at the average national level) of 2,100 calories per person per day was estimated at 11 million tons in grain equivalent for 2008 (table 1). Fifty-five percent of this gap was in Sub-Saharan Africa (SSA), the region most vulnerable to food insecurity. The intensity of global food insecurity (measured by the distribution gap—the amount of food needed to raise consumption in each income group to meet nutritional requirements) increased about 25 percent between 2007 and 2008, up 4 million tons to more than 24 million tons. Sub-Saharan Africa accounted for 60 percent of this gap even though it represented just one-quarter of the population of the countries studied here. The Asian countries, with 63 percent of the population, accounted for 32 percent of the distribution gap and Latin America and the Caribbean (LAC) accounted for 7.5 percent (fig. 3). (See the following sections for more detailed regional analysis.)

Table 1

Food availability and food gaps for 70 countries

Year	Grain production	Root production (<i>grain equiv.</i>)	Commercial imports	Food aid receipts (grain equivalent)	Aggregate availability of all food	
	1,000 tons					
1999	568,938	68,961	66,508	8,586	809,488	
2000	565,939	70,877	65,820	8,700	825,208	
2001	583,065	73,247	63,286	9,601	833,481	
2002	556,111	75,535	74,672	8,284	844,998	
2003	610,166	77,577	67,170	8,599	868,545	
2004	604,933	81,154	67,969	6,654	884,552	
2005	635,850	84,314	78,841	8,387	923,225	
2006	657,060	87,176	86,661	6,695	952,547	
2007	673,609	88,494	92,211	5,873	971,359	
Projections				Food gap*		
				NR	DG	
2008	692,168	89,639	78,919	11,399	24,407	970,420
2013	753,848	97,295	90,682	8,115	22,730	1,056,173
2018	822,474	105,515	100,952	10,174	24,459	1,145,687

*NR stands for nutritional requirements and describes the amount of grain equivalent needed to support nutritional standards on a national average level. DG stands for distributional gap and describes that amount of grain equivalent needed to allow each income quintile to reach the nutritional requirement.

Source: USDA, Economic Research Service, using data from FAOSTAT, UN Food and Agriculture Organization and World Food Program..

How Food Security Is Assessed: Methods and Definitions

The Food Security Assessment model used in this report is based on 2008 data (updated in February 2009), and, therefore, does not reflect any subsequent changes that may have transpired related to the food-security situation of these countries. An annual update includes revising all historical data, as sometimes new information leads to changes in historical data series. Those updates can therefore change food-security estimates for past years. Food-security indicators for 2008, 2009, and future years are estimates. Commodities covered in this report include grains, root crops, and “other” which refers to the remainder of the diet. The three groups account for 100 percent of all calories consumed in the study countries and are expressed in grain equivalent. The conversion is based on calorie content. For example, grain has roughly 3.5 calories per gram and tubers have about 1 calorie per gram. One ton of tubers is, therefore, equivalent to 0.29 ton of grain (1 divided by 3.5), and 1 ton of vegetable oil (8 calories per gram) is equivalent to 2.29 tons of grain (8 divided by 3.5).

Food consumption and food access are projected in 70 lower income developing countries—37 in Sub-Saharan Africa, 4 in North Africa, 11 in Latin America and the Caribbean, 10 in Asia, and 8 in the Commonwealth of Independent States. (See appendix 1 for a detailed description of the methodology and definitions of terms and appendix table 1 for a list of countries.) The short term projection (2008) is based on FAO preliminary production assessment, and the long term projections are based on 2005-07 production data and 2004-06 macro data. For commercial imports, the 2008 figure is based on projections, not actual data. The periods covered are 2008, 2009 (projection), and 2018 (10-year projection). The model analyzes the gap between projected food availability (production plus commercial and food aid imports minus nonfood use) and two alternative consumption standards. The nutritional standard is the per capita nutritional requirements (NR) of roughly 2,100 calories per capita per day—depending on the region. The average *nutrition gap* is the gap between available food and food needed

to support a per capita nutritional standard (for definitions of terms used see appendix 1).

The estimated *distribution gap* measures the food needed to raise consumption in each income quintile to the nutritional requirement. In many countries, consumption in the lower income quintiles is significantly below the average (per capita) consumption for the country as a whole. In these countries, the distribution gap provides a measure of the intensity of hunger—the extent to which the food security of already hungry people deteriorates as a result of income or economic conditions. In some countries average consumption of the poorest quintile (20 percent) of the population narrowly exceeds nutritional requirements. In such cases we include the lowest decile (10 percent) of the population in our estimation of food gaps. However, when our estimates show no distribution gap for the poorest 10 percent population, we consider the country food secure despite the fact that food insecurity may exist, but for less than 10 percent of the population. Finally, based on the population share who consume below nutritional requirements and total population data, the projected number of people who cannot meet their nutritional requirements is calculated.

The common terms used in the reports are:

- **Domestic food supply**—the sum of domestic production and commercial and food aid imports
- **Food availability**—food supply minus nonfood use, such as feed and waste
- **Import dependency**—the ratio of food imports to food supply
- **Food consumption**—which is equal to food availability.
- **Food-insecure**—which is when average per capita food consumption for a country or income quintile falls short of the nutritional requirement.

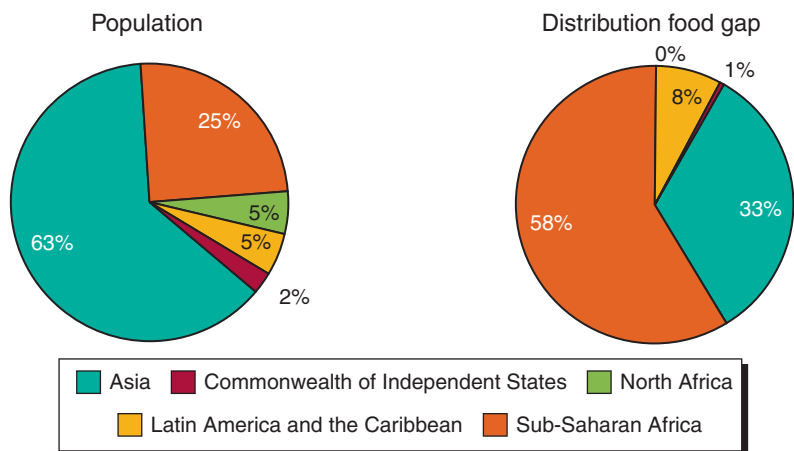
The difference between these gaps reflects the *intensity and depth* of the impact of skewed purchasing power on food security within countries. To put these numbers in perspective, the amount of food aid these countries received in 2007 (the last year data was available) was less than 6 million tons.

Financial Crisis Will Deepen Food Insecurity in 2009

Despite a decline in prices in the later part of 2008, deteriorating purchasing power and food security were expected in 2009 because of the growing financial deficits and higher inflation of recent years. ERS food-security baseline estimations for the 70 countries show a near 2-percent increase in the number

Figure 3

Population share versus distribution food gap share, 2008



Source: USDA, Economic Research Service, based on UN FAOSTAT.

of food-insecure people in 2009. The growth in the number of food-insecure people was highest in SSA because domestic production is expected to revert to normal levels rather than the above-average levels experienced in many countries in 2008. The distribution gap for 2009 is estimated to decline by 6 percent, mainly because of the estimated improvement in food security in Asia that far outpaced the growth in food gap in SSA.

The economic outlook worsened in the early months of 2009 as the International Monetary Fund has projected a global economic downturn. The key questions are: How much will the import capacity of the lower income countries contract? What are the implications for their food security? Assuming no major domestic production shortfalls, the two critical determinants of food imports and consequently food security in 2009 are changes in export earnings and changes in import financing capital inflows (credit, foreign direct investment, financial assistance, and remittances).

ERS developed two scenarios to interpret how the worldwide financial crisis might affect food security in developing countries (see box, “Scenarios Evaluate Likely Impact of Financial Crisis”). In Scenario 1, the reduction in export earnings growth, and the subsequent cut in import capacity, is projected to result in a decline in food consumption. Consequently, the distribution gap is projected to increase by 2 percent from the food-security baseline and the number of food-insecure people is projected to rise by 7 percent or 61 million in 2009 (fig. 4). The impact will not be uniform across all regions and countries as the results vary depending upon countries’ import dependence and the significance of export earnings in overall foreign exchange availability of the countries. Food security in the Asian countries would be affected deeply, with the number of food-insecure people increasing by 11 percent. This comes after the Asian countries experienced the highest export growth, relative to other regions (over 10 percent per year since 2000). In SSA, a decline in export earnings growth will intensify food insecurity, increasing the number of food-insecure people by 3 percent.

Scenarios Evaluate Likely Impact of Financial Crisis

ERS developed two scenarios to evaluate the likely impact of the financial crisis on food security of lower income countries in 2009, based on IMF projections (International Monetary Fund, *World Economic Outlook*, January 2009):

Scenario 1. Export growth of the countries is reduced in 2009 relative to the baseline estimates. This reduction uses the same proportion as the estimated decline in the countries' economic growth for 2009 (50-percent decline in export growth in North Africa and Sub-Saharan Africa, 40 percent in Asia, and 60 percent in Latin America and Caribbean countries and in the Commonwealth of Independent States). This scenario assumes constant financial inflows at the base level to finance trade deficits of the countries.

Scenario 2. A 50-percent reduction in the level of capital inflows that finance imports in 2009 due to tightening global credit markets is added to the assumption of the first scenario. Although lower income countries have weaker linkages with the rest of the world, over time capital inflows have become a major source of import financing. Throughout this report, we compare the results of these scenarios with the 2009 baseline results of our model.

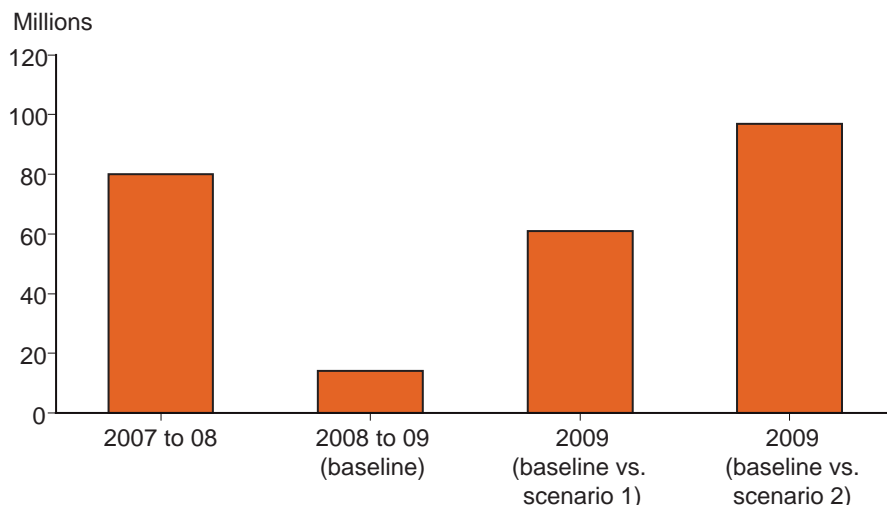
Under Scenario 2, when the cutback in capital inflows is added to the decline in export earnings growth, the food-security situation of the study countries is projected to deteriorate further. Under this scenario, the number of food-insecure people in the 70 countries is estimated to increase 12 percent (or 97 million) from the baseline for 2009 (fig. 4). The share of the number of food-insecure people is the highest in Sub-Saharan Africa, 48 percent; followed by Asia, 45 percent; Latin America and the Caribbean, 6 percent; and Commonwealth of Independent States, 1 percent. No change in food security is projected for North Africa.

The impact is projected to be greatest in the LAC region, where the number of food-insecure people is estimated to increase 20 percent (or 10 million) from the baseline level for 2009. In the baseline, 32 percent of the region's population was projected to be food insecure in 2009, increasing to 38 percent of the population under scenario 2. The number of food-insecure people in Asia is estimated to increase nearly 13 percent (or 47 million) from the 2009 baseline (fig. 5). As these countries have further increased their share of global trade, they have become increasingly linked to the state of the international economic environment, particularly the performance and policies of the major developed countries. The weakening of the global economy directly affects the food-security situation of the countries of this region, many of which suffer from persistent extreme poverty. The impact will be limited in India because that country's cautious financial policies reduced its exposure to external financial shocks. In addition, the continuing government support for the agricultural sector has changed the profile of the country from a net importer of grains to net exporter.

Under Scenario 2, the number of food-insecure people in SSA is projected to increase by 9 percent or 36 million. SSA is the world's most food-insecure region. Average food intake in the region is by far the lowest in the world,

Figure 4

Change in the number of food-insecure people



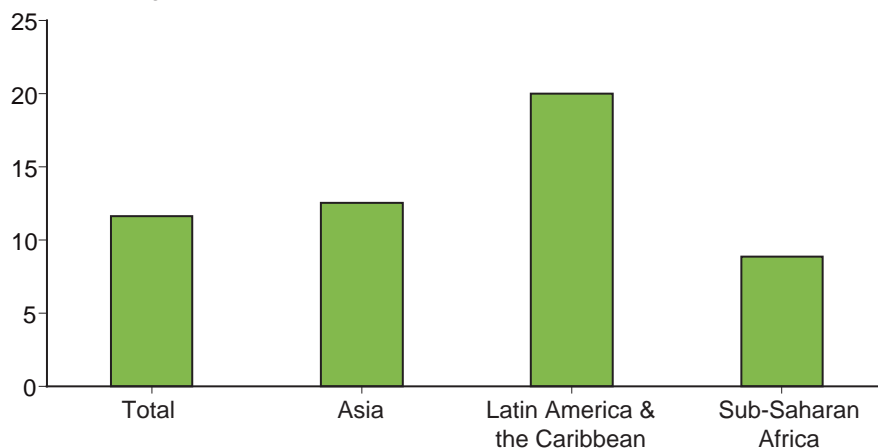
Source: USDA, Economic Research Service.

Figure 5

Change in share of food-insecure population

(Scenario 2 relative to baseline, 2009)

Percent change



Source: USDA, Economic Research Service.

not much higher than the daily requirement of 2,100 calories per day. Many countries in SSA do not have an adequate supply of food, and the inequality in purchasing power exacerbates the problem. The countries that will be hardest hit by the economic crisis are those with large balance of payments deficits and high levels of dependence on food imports. In SSA, many countries have become more dependent on food imports because of a combination of slow domestic production growth, high population growth (SSA has the highest population growth of all the regions), income growth, market liberalization policies, and, more recently, a boost in foreign direct investment. It is the combination of food-import dependence and inability to pay for these food imports that can lead to food insecurity.

In the CIS countries, the impact is projected to increase the number of food-insecure people to 5 million from 2 million in the 2009 baseline. Georgia, already one of the most vulnerable countries in the region, will feel the effect

the most. The increase in current-account deficits in recent years is a factor in this development, as is internal political turmoil.

Overall, the magnitude of changes in food-insecurity indicators under the two scenarios highlights the vulnerability of millions of poor people whose food consumption is at or near basic nutritional requirements. Annually, such vulnerability is intensified either because of internal factors, including weather-related domestic production shortfalls and inadequate domestic policy responses, or external factors such as the global economic shocks currently being experienced. The scenarios also reveal an important aspect of the food-security equation: the critical role trade and capital inflows play in assuring food security in lower income countries with substantial food imports.

For countries where domestic production accounts for most of the food supplies, a reduction in imports will likely have a less direct effect on food security. The indirect effect still could be substantial if imports are generally sold to vulnerable groups or urban populations whose food needs are difficult to supply effectively from local production. Regionally, import dependence on grain, the main staple food consumed by the poor, is lowest in Asia, followed by SSA and CIS, and highest in LAC and North Africa. Most of the LAC and North African countries included in this study import nearly half of their grain supplies. Some countries can forgo imports of other commodities and allocate a larger share of their import budget on food during a crisis period. But for those that were highly food insecure at the outset, like many in SSA, the decline in economic growth and import capacity can have widespread adverse food-security implications.

Continued Food Insecurity in the Long Term

The near- and medium-term food security of countries depends on the depth and the length of the current economic downturn. Tighter credit and weaker global growth are likely to cut into government revenues and investment in areas such as human capital and infrastructure that are essential for sustained growth.

Even under the assumption that the 2009 financial crisis will be followed by a rebound in global economic activities, food security in many lower income countries is expected to remain precarious in the long term. Under the best scenario—a rebound in the global economy in 2010—the number of food-insecure people will remain relatively flat through the next decade, reaching 834 million by 2018. The trends in the two large food-insecure regions of SSA and Asia are projected to diverge: deteriorating food security is projected for SSA, while an improvement is projected for Asia.