



# Undernourishment around the world

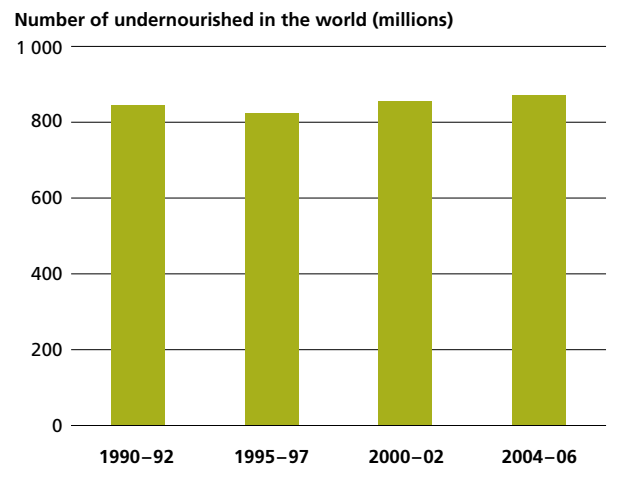
## Hunger has been on the rise for the past decade

**E**ven before the consecutive food and economic crises,<sup>1</sup> the number of undernourished people in the world had been increasing slowly but steadily for a decade (Figure 1). The most recent FAO undernourishment data covering all countries in the world show that this trend continued into 2004–06.<sup>2</sup> Thus, no progress was being made towards the World Food Summit hunger reduction target (see box), even before the two consecutive crises made the situation substantially worse. This is especially disappointing because, in the 1980s and early 1990s, good progress had been made in reducing chronic hunger.

The number of hungry people increased between 1995–97 and 2004–06 in all regions except Latin America and the Caribbean. Even in this region, however, the downward trend was reversed because of the food and economic crises (Figure 2). While the proportion of undernourished continually declined from 1990–92 to 2004–06, the decline was much slower than the pace needed to meet the hunger-reduction target of the first Millennium Development Goal (MDG).

**FIGURE 1**

Chronic hunger has been increasing since 1995–97



Source: FAO.

### What is food security and what are the hunger reduction targets?

- **Food security** exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. Household food security is the application of this concept to the family level, with individuals within households as the focus of concern.
- **Food insecurity** exists when people do not have adequate physical, social or economic access to food as defined above.
- **Undernourishment** exists when caloric intake is below the minimum dietary energy requirement (MDER). The MDER is the amount of energy needed for light activity and a minimum acceptable weight for

attained height, and it varies by country and from year to year depending on the gender and age structure of the population. Throughout this report, the words “hunger” and “undernourishment” are used interchangeably.

- The **World Food Summit goal** is to reduce, between 1990–92 and 2015, the number of undernourished people by half. **Millennium Development Goal 1**, target 1C, is to halve, between 1990 and 2015, the proportion of people who suffer from hunger.



## The global economic crisis: another blow to the food-insecure and vulnerable

In late 2008, as international food and fuel prices continued to fall, there was some optimism that the developing countries might be decoupled from the crisis and recession that had started in the advanced economies. This proved to be a false hope, however, and major international organizations quickly revised their 2009–10 economic growth projections sharply downward for all parts of the world, including the developing countries.

### ■ The current crisis is different from past crises

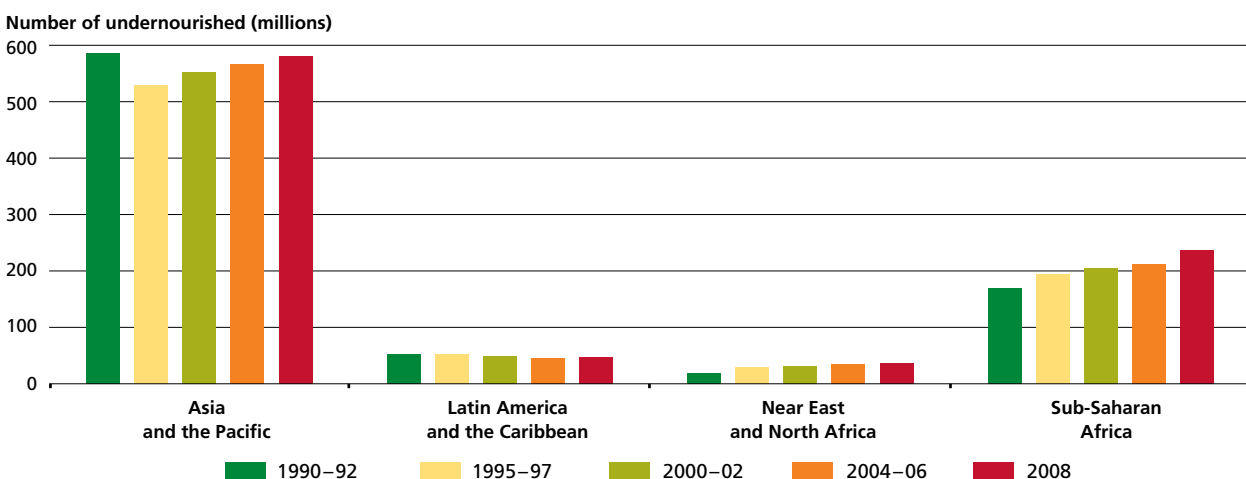
While developing countries have been hit by many crises in the past, the current economic turmoil is different in at least three important aspects. First, the crisis is affecting large parts of the world simultaneously, and, as such, traditional coping mechanisms at national and subnational levels are likely to be less effective than they were in the past. Previous crises that affected the developing countries tended to be confined to individual countries or several countries in a particular region. Under such circumstances, these countries tended to rely on large exchange-rate depreciations to help them adjust to macroeconomic shocks,<sup>3</sup> while remittances (money sent home from family members working in other areas or countries) represented an important coping mechanism, especially for poorer

households. During the 2009 crisis, however, many countries have seen a substantial decline in remittance inflows. The scope for real exchange-rate depreciation is also more limited in a global crisis, as it is not possible for the currencies of all developing countries to depreciate against one another; some must appreciate while others depreciate. This situation has left developing countries with less room to adjust to the rapidly changing economic conditions.

The second key difference is that the current economic crisis emerged immediately following the food and fuel crisis of 2006–08. While food commodity prices in world markets declined substantially in the wake of the financial crisis, they remained high by recent historical standards. Also, food prices in domestic markets came down more slowly, partly because the US dollar, in which most imports are priced, continued to appreciate for some time, but also, more importantly, because of lags in price transmission from world markets to domestic markets. At the end of 2008, domestic prices for staple foods remained, on average, 17 percent higher in real terms than two years earlier. This represented a considerable reduction in the effective purchasing power of poor consumers, who spend a substantial share of their income (often 40 percent) on staple foods.

FIGURE 2

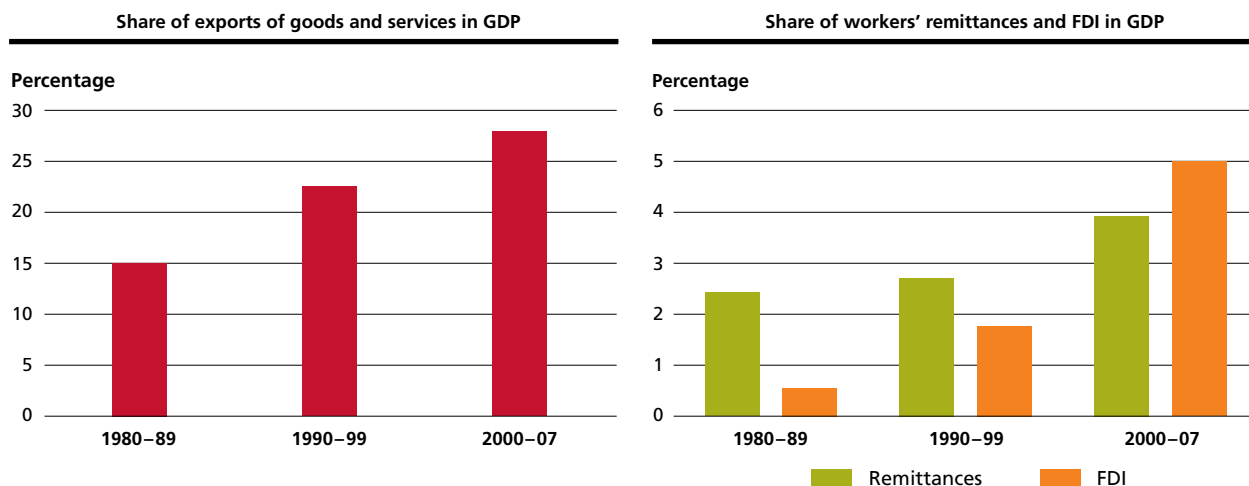
Undernourishment on the rise throughout the world: number of undernourished in selected regions, 1990–92 to 2008



Source: FAO.

FIGURE 3

Increased commercial and financial integration of developing countries



Note: GDP = gross domestic product; FDI = foreign direct investment.

Source: World Bank.

Further, even if domestic food prices eventually return to previous levels, months of unusually high food and fuel prices have stretched the coping mechanisms of many poor families to the brink as they have been forced to draw down their assets (financial, physical or human) in attempts – not always successful – to avoid large declines in consumption. As shown in *The State of Food Insecurity in the World 2008*, higher food prices hurt most the poorest of the poor, especially the landless poor and female-headed households in both urban and rural areas. Higher food and fuel prices forced families to choose which type of asset to sell first, and which family member (mother, child or key labourer) should pay the price in terms of reduced health care, education or food consumption. Such decisions are especially difficult given the large share that food represents in the budgets of the poor and their limited access to credit markets. Whatever choices were made would have diminished already limited assets, thus reducing the ability of the most vulnerable populations to deal with another crisis so soon after the earlier one. Higher food prices and reduced incomes and employment mean that, even though aggregate world food availability was relatively good in 2008 and 2009, access by the poor to that food has been adversely affected.

The third factor that differentiates this crisis from those of the past is that developing countries have become more integrated, both financially and commercially, into the world economy than they were 20 years ago. As a consequence, they are more exposed to changes in international markets. Figure 3 illustrates both the increasing significance of remittances – their share in gross domestic product (GDP) during 2000–07 represented a 50 percent increase over that of the 1990s – and marked increases in foreign direct investment (FDI – foreign ownership of productive assets, such as factories, mines and land) and exports.

**Which groups will be most affected by the economic crisis?**

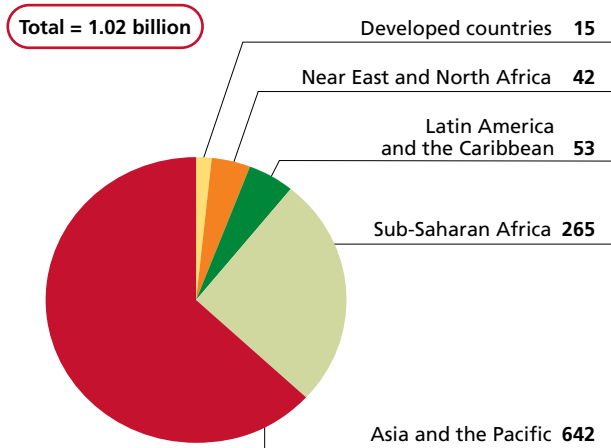
The economic crisis will negatively affect large segments of the population in developing countries. The position of those who were hurt most by higher food prices (the rural landless, female-headed households and the urban poor) is particularly precarious because they have already approached, or in many cases reached, the limit of their ability to cope during the food crisis. Among these groups, the urban poor may experience the most severe problems because lower export demand and reduced FDI are more likely to cause employment to fall in urban areas, which are more closely connected to world markets than rural areas. But rural areas will not be spared – reductions in employment have caused back-migration from urban to rural areas, forcing the rural poor to share the burden in many cases. In some countries, declining prices for specific crops will add to that burden. Thus, despite the recent fall in food prices, urban and rural areas have experienced a reduction in various sources of income, including remittances, diminishing the overall purchasing power of the poor and food-insecure.

**Undernourishment estimates for 2008 and 2009**

In spite of the negative consequences of the food and fuel crisis on the world's poorest and most vulnerable population groups, better-than-expected global food supply in 2007–08 has led FAO to revise its earlier estimates of undernourishment for 2008 down to 915 million (from 963 million). However, based on projections produced by the United States Department of Agriculture (USDA) Economic Research Service (see *Quantifying the food-*

FIGURE 4

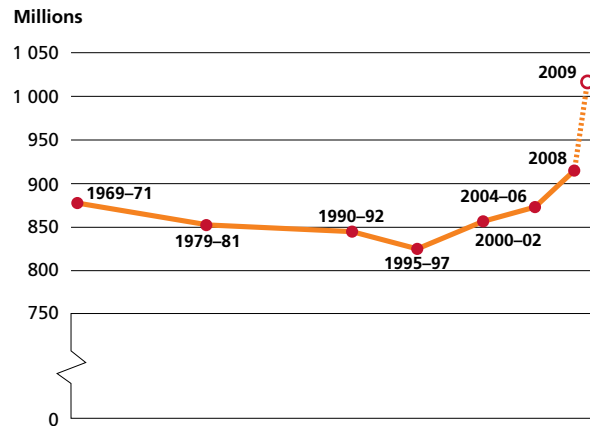
Undernourishment in 2009, by region (millions)



Source: FAO.

FIGURE 5

Learning from the past: number of undernourished in the world, 1969–71 to 2009



Source: FAO.

security impacts of the economic crisis on page 22), the economic crisis is expected to increase the number of food-insecure by about 9 percent in 2009, which comes on top of a projected baseline increase of 2 percent for 2009 even in the absence of crisis (see Figure 4 for a regional breakdown). When applied to the revised FAO undernourishment estimates, these projections imply that the number of undernourished in the world will have risen to 1.02 billion people during 2009, even though international food commodity prices have declined from their earlier peaks. If these projections are realized, this will represent the highest level of chronically hungry people since 1970.

While the number of hungry people has been increasing since the mid-1990s, the number of undernourished in the world was actually declining in the 1970s and 1980s in spite of relatively rapid population growth during those decades (Figure 5), and the proportion of undernourished in developing countries was declining quite rapidly (Figure 6). At that time, especially in the wake of the global food crisis of 1973–75, large investments in the agriculture sector (including for scientific research, rural roads and irrigation) led to rapid growth in cereal yields (Figure 7) and lower cereal prices that, in turn, significantly reduced food insecurity. During those decades, the proportion of official development assistance (ODA, i.e. development aid contributed by donor governments) devoted to agriculture was also relatively high (Figure 8).

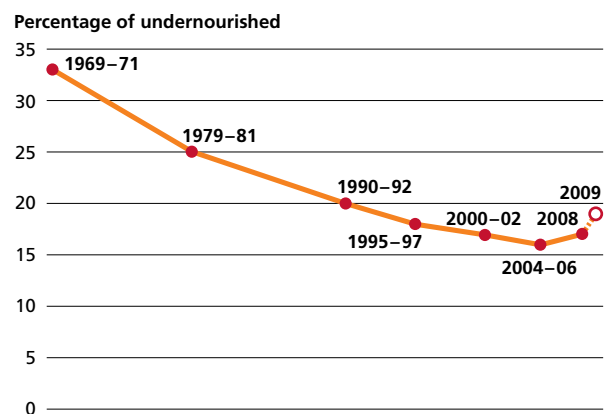
During the 1990s and the current decade, however, the number of undernourished has risen, despite the benefit of slower population growth, and the proportion of undernourished increased in 2008 (Figure 6). In the same period, the proportion of ODA devoted to agriculture declined substantially; in 2007, after adjusting for inflation,

the level of ODA was 37 percent lower than in 1988. Rice and wheat yield growth has also slowed substantially. Maize yield growth has increased, but this may be attributable to the fact that a much greater proportion of research and development (R&D) for maize is in the hands of the private sector compared with rice and wheat, and private R&D has been responsible for an increasingly large share of total R&D.

Given the increased importance of biofuels and the new linkages between agricultural and energy markets, increased cereal yields, if achieved, may not necessarily continue to lead to lower cereal prices. Because the world energy market is so much larger than the world grain market, grain prices may be determined by oil prices in the energy market as opposed to being determined by grain supply. Even if this proves to be the case, however, higher cereal yields will still

FIGURE 6

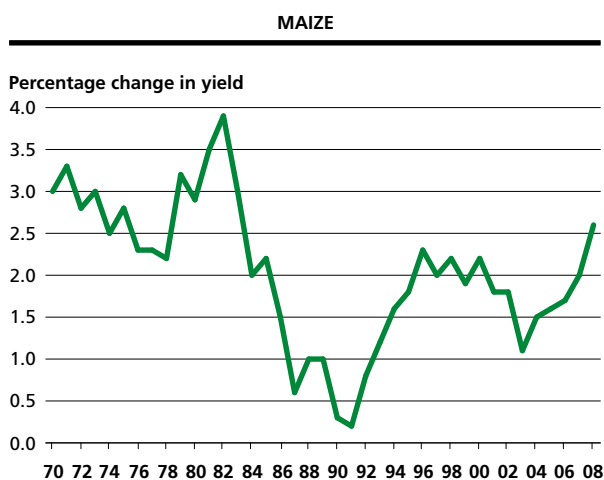
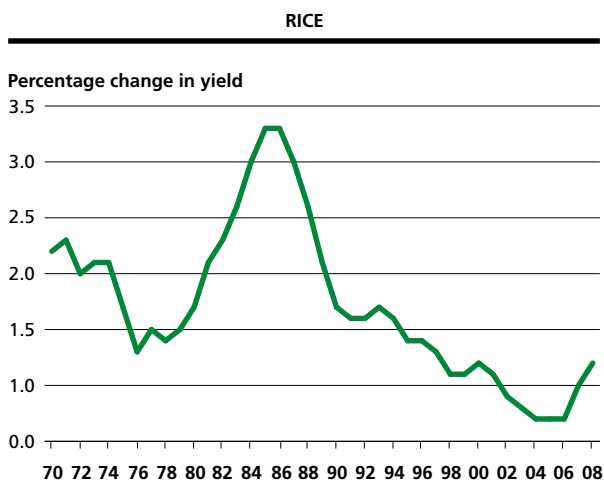
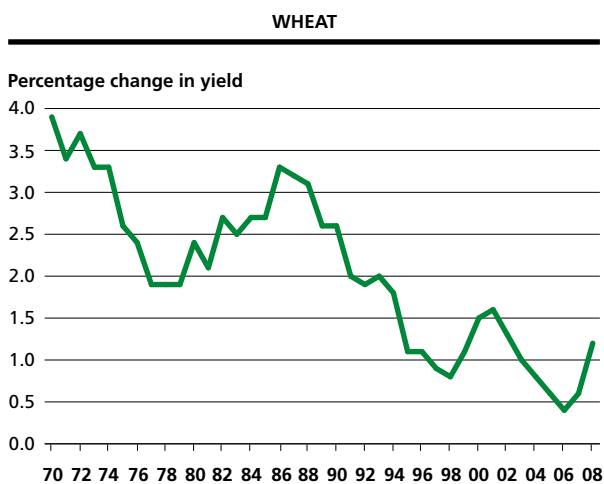
The declining trend in the proportion of undernourished in developing countries has been reversed



Source: FAO.

**FIGURE 7**

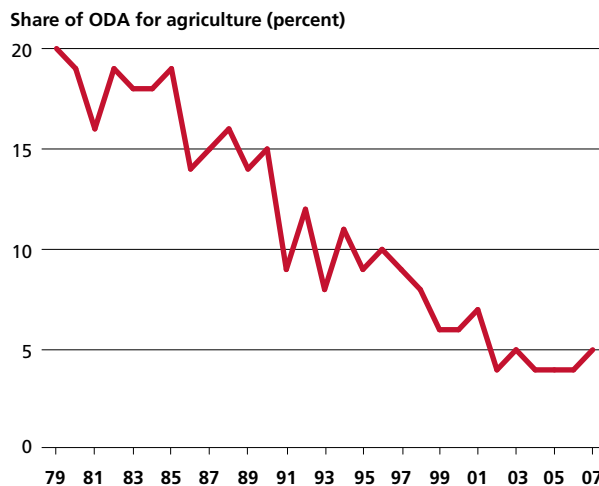
Investment in agriculture is needed to rejuvenate cereal yield growth rates



Note: Data represent the average annual percentage increase in yield between successive rolling five-year periods (e.g. data for 1970 refer to the increase in average yield comparing 1966–70 with 1961–65). Source: FAO.

**FIGURE 8**

Aid for agriculture has declined



Note: ODA = official development assistance. Source: OECD.

help reduce poverty by raising revenues for small farmers and increasing demand for rural labour. Thus, it is time to learn from the past and re-invest in the agriculture sector to reduce food insecurity and poverty.

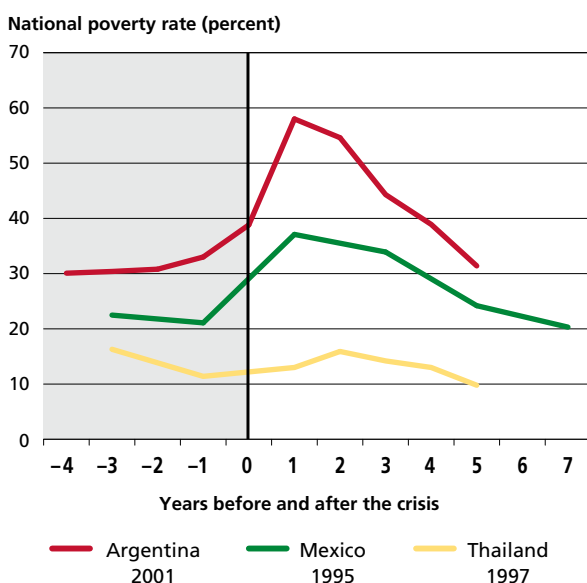


## Transmission of the economic crisis to the developing countries

Economic crises can have severe impacts on poverty and income levels, which in turn affect food security. An FAO analysis of six developing countries shows that, in the wake of the 1995 Mexican peso crisis and the Asian crisis of 1997–98, poverty rates increased by up to 24 percentage points (e.g. from 35 to 59 percent), with an average of 12 percent. It took the affected countries five to eight years to recover to pre-crisis poverty rates. Figure 9 illustrates the cases of three of these countries: Argentina, Mexico and Thailand. Furthermore, given today's greater global integration, economic crises in one country or region can easily be transmitted to others. For example, after the 1997–98 Asian crisis, GDP fell in 12 of the 17 largest Latin American economies, with a median drop of 5.4 percent in real per capita GDP; it took, on average, five years for countries to restore their pre-crisis income levels.<sup>4</sup> Unemployment increased in 15 of the 17 countries, with a median increase of 4 percentage points, and it took, on average, eight years for countries to recover to their pre-crisis employment rates.

FIGURE 9

Economic crises can wipe out years of poverty reduction



Source: see notes on p. 56.

### ■ Countries with large current account deficits, recurring crises and large food price shocks are most vulnerable

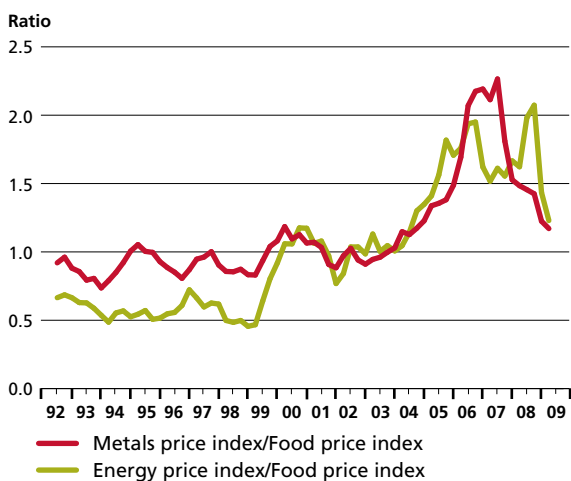
The degree to which countries are affected by economic crises that started elsewhere depends on their degree of integration with international markets for goods and services, including financial products. Countries with large current account deficits (which occur when a country's total imports of goods, services and transfers is greater than its total exports of goods, services and transfers) and low levels of foreign reserves (foreign currency deposits and bonds held by central banks and monetary authorities) are particularly at risk, because these deficits are paid for with inflows of private or public capital, such as FDI, remittances, foreign aid and borrowing. But these financial inflows can end abruptly: the 17 largest Latin American economies received US\$184 billion in 2007, which was roughly halved in 2008 to US\$89 billion, and is expected to be halved again to US\$43 billion in 2009. A reduction in capital inflows will mean that consumption must be reduced. For some low-income food-deficit countries (LIFDCs), adjusting consumption may mean reducing badly needed food imports and other imported welfare-related items such as health-care equipment and medicines.

Countries that have experienced other crises in recent years are particularly vulnerable to the current crisis because national and regional crises strain coping systems and often lead to macroeconomic imbalances. FAO's Global Information and Early Warning System (GIEWS), which identifies hotspots and emergencies every year, has identified 16 countries that have experienced human-made crises, natural crises or both at least once in each of the past ten years (Table 1, page 15). Nearly all these countries have been ranked by the International Monetary Fund (IMF) as highly vulnerable to the current crisis (only Uganda was considered to be at low risk). Indeed, these countries constituted a major share of the 26 countries identified by the IMF as highly vulnerable.

Because many low-income countries are also net food importers, large numbers of poor people in these countries were vulnerable to the domestic food price increases experienced during the global food crisis. However, the extent to which basic food prices rose in low-income countries – and subsequently fell in late 2008 – was not

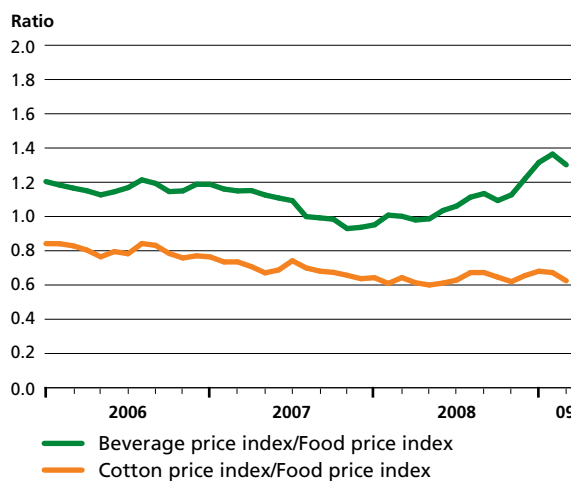
**Changing terms of trade can make some countries vulnerable**

**A** The ratios of metals and energy prices to food prices have returned to more normal levels



Sources: FAO and IMF.

**B** Changing terms of trade, January 2006 to March 2009



Sources: FAO and IMF.

As the economic crisis took hold, world commodity prices plunged across the board. The declines for metals, fuel and fertilizers were particularly sharp. World food prices also fell, but not to the same extent. World prices for beverages (coffee, cocoa, tea) relative to food commodities actually increased, as beverage prices fell less than the food price index. Such changes in relative prices are referred to as changes in the terms of trade (the relationship between the prices at which a country sells its exports and the prices it pays for its imports). If the prices of a country's exports rise relative to the prices of its imports, its terms of trade are said to have improved.

Although the fall in metal and energy prices was steep, the International Monetary Fund (IMF) price indices for these commodities in the first quarter of 2009, relative to the FAO food price index, were still well above their average level from 1992 to 2003 (by 25 and 66 percent, respectively; see Figure A). Thus, while lower prices obviously hurt oil and metal exporters, the declines started from a historical high. To the extent that metal- and energy-exporting countries practised prudent macroeconomic management by saving some of the windfall earnings and increasing foreign-exchange reserves, the impact of the recent reduction in prices can be mitigated.

The ratio of beverage prices to food prices on world markets started to increase in the second half of 2008 (Figure B), although the ratio remains within normal

historical ranges. Thus, several countries that rely on earnings from beverage exports to import food seem to have experienced a slight improvement in their terms of trade as the economic crisis took hold.

In the case of cotton exporters, the story is more pessimistic. Cotton prices have been falling relative to food prices since 2006, and their decline continued into early 2009 (Figure B). Burkina Faso is one country that has been particularly hurt by these shifts in the terms of trade. Economic modelling suggests that the fall in cotton prices has reduced the purchasing power of households by 3.4 percent. Burkina Faso was also hit hard by the rise in oil prices from 2004 to mid-2008, although the decline in the latter half of 2008 provided some relief.<sup>1</sup>

<sup>1</sup> L.G. Bellù. 2009. *International price shocks and technological changes for poverty reduction in Burkina Faso: a general equilibrium approach*. Rome, FAO.

TABLE 1

## Number of consecutive years with crisis occurrence, by type

Country	Consecutive years with occurrence of some type of crisis <sup>1</sup>	Occurrences of human-made crises <sup>1</sup>	Occurrences of natural crises <sup>1</sup>	IMF overall vulnerability assessment <sup>2</sup>	Main type of vulnerability <sup>3</sup>
Somalia	15	16	15	NA	NA
Afghanistan	15	16	10	M	ODA, R
Ethiopia	15	11	13	M	ODA
Iraq	15	15	9	NA	NA
Eritrea	15	11	12	M	R
Sudan	15	15	8	H	T, ODA, R
Haiti	15	4	14	H	ODA, R
Burundi	15	15	1	H	ODA
Democratic Republic of the Congo	15	15	0	H	T
Liberia	15	15	0	H	T, R
Angola	14	13	1	H	T
Mongolia	13	13	12	H	–
Democratic People's Republic of Korea	13	7	12	NA	NA
Uganda	12	13	8	L	–
Tajikistan	11	9	12	H	R
Georgia	10	11	4	M	–

<sup>1</sup> The sum of columns 3 and 4 can exceed the number in column 2 if countries experience more than one crisis in a given year.

<sup>2</sup> H = high, M = medium, L = low, NA = not assessed.

<sup>3</sup> Type of vulnerability indicates the types of shock to which the country is highly vulnerable: trade (T), foreign direct investment (FDI), official development assistance (ODA), remittances (R). A dash (–) indicates that the country did not receive a highly vulnerable ranking for any of the four types of shock, although medium risks from many different types of shocks can lead to high overall vulnerability; NA indicates that the country was not assessed.

Sources: FAO, GIEWS and IMF. 2009. *The implications of the global financial crisis for low-income countries*. Washington, DC.

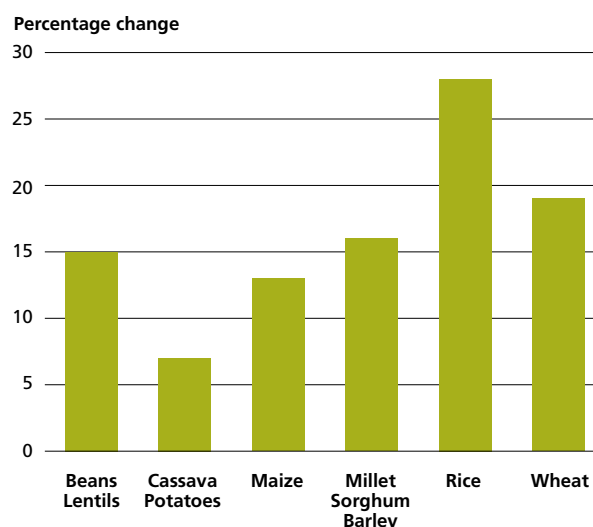
fully understood until recently. The domestic food price database compiled by FAO shows that year-on-year price increases (e.g. January 2007 compared with the same month a year earlier), even after adjusting for general inflation, exceeded 48 percent for half of nearly 127 case studies of domestic grain and bean prices in the developing countries. Although domestic prices for most countries declined somewhat during the second half of 2008, in the vast majority of cases, and in all regions, their decline did not keep pace with that of international food commodity prices. At the end of 2008, domestic staple food prices were still 17 percent higher in real terms than two years earlier, and this was true across a range of important foodstuffs (Figure 10).

### Migration and remittances

It is clear that the current economic crisis is precipitating a drop in remittances that will result in lower incomes, and consequent problems, for many. For a significant share of the population living in developing countries, migration and subsequent remittances represent an important livelihood strategy and a source of income for the family members who stay behind. Officially recorded remittances account for around US\$300 billion, or 2 percent of total GDP of

FIGURE 10

Domestic food prices remain higher than before the crisis: price increases over two years to end-2008



Note: Data refer to median percentage increase in inflation-adjusted price, December 2008 compared with December 2006. Source: FAO.

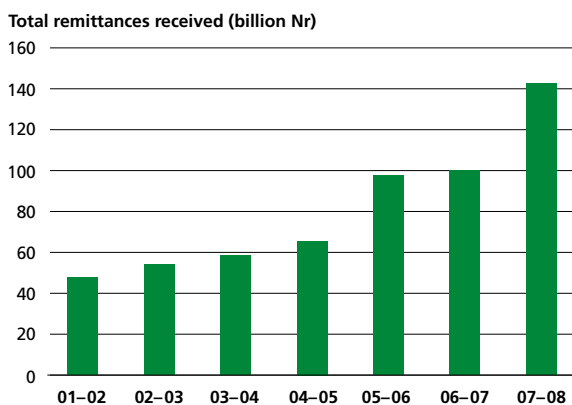


### Variation in remittance income within countries: the case of Nepal

The flow of workers' remittances into Nepal continuously increased from 2001–02 to 2007–08 (Figure A). Remittances tripled from 47.5 billion rupees (Nr) in 2001–02 to Nr 142 billion in 2007–08 (more than doubling in real terms).<sup>1</sup> On the basis of data provided by the Nepalese Department of Labour and Employment Promotion, the number of workers going abroad for employment in 2007–08 increased by almost 13 percent from 2006–07. Many factors have contributed to the

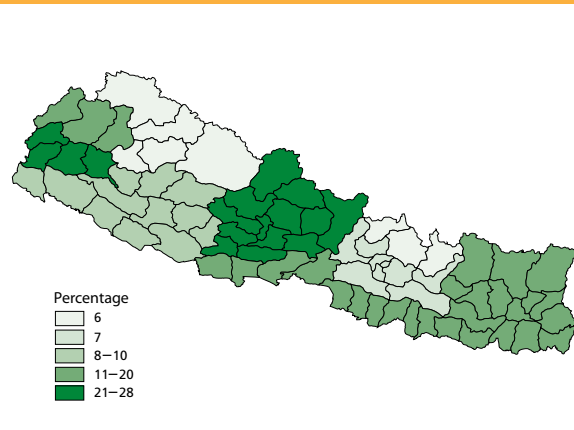
recent increase in labour migration. Rapid population and labour-force expansion combined with inadequate domestic growth has stretched the capacity of the economy to absorb workers. In the agriculture sector, arable land is limited, landlessness is pervasive and the number of landless households has been steadily increasing. In the non-agriculture sector, the slowdown in growth as a result of civil strife has further retarded the pace of employment creation. Armed conflict has also

**A** The increasing importance of out-migration: remittance trends in Nepal



Note: Data are in nominal terms. Source: Nepal Rastra Bank.

**B** Share of remittances in household income in Nepal



Source: Calculation based on data from 2003–04 Nepal Living Standards Survey.

developing countries, but the figure goes up to 6 percent for low-income countries.<sup>5</sup> Actual figures are likely to be higher because not all transfers travel through official and measurable channels.

In 2005, 75 million people from less-developed regions were classified as international migrants. At an aggregate level, both men and women have migrated to the same extent for many years: the share of female migrants was estimated at 50 percent in 2005, little changed from 47 percent in 1960.<sup>6</sup>

Global figures fail to convey the important role that migration plays for many individuals, households, nations and regions. For example, remittances tend to be the main source of capital inflow in small countries near the migration corridors of Europe, North America and the Russian Federation. World Bank figures for 2007 show that remittances in Tajikistan amount to 46 percent of GDP, with figures of 25 percent in Honduras and 24 percent in Lebanon.<sup>7</sup> In several large African countries (Egypt, Ethiopia, Morocco, Nigeria and Senegal), remittances account for between 5 and 10 percent of GDP. Within countries, remittances are often concentrated among certain geographic regions (see box on Nepal).

In many developing countries, a sizeable share of households relies on migrant remittances as a source of income. In the Philippines, for example, 17 percent of households receive remittances from abroad. Similar proportions are seen in Albania, Armenia, El Salvador and Haiti, while 25 percent of households in Peru receive some form of private transfer (largely migrant remittances). In the Dominican Republic, 40 percent of households in the Sierra, one of the country's poorer regions, report having migrant members, with about half of them sending remittances.<sup>8</sup>

Remittances flow directly to households, and in some countries and regions (e.g. South Asia; see Figure 11) they are much larger than either FDI or ODA. In many developing countries, remittances constitute a higher share of income for the wealthiest quintiles (Figure 12),<sup>9</sup> although poorer households are generally affected more by a decline in remittance flows because they are less able to cope with income loss.

As with other sources of income, remittances generate multiplier effects for the local economy. For example, when

created difficult living and security conditions, especially in rural areas. Many workers view foreign employment as their only viable option.

Increased remittances have contributed significantly to strengthening national GDP. The share of remittances in GDP increased from 10 percent in 2001–02 to 17 percent in 2007–08. The geographical proximity of India, the historical and cultural links between the two countries, and their extensive and porous border, has made India a traditional destination for Nepalese migrants, and it remains their most important destination country. In recent years, however, an increasingly larger share of remittances to Nepal has come from other countries as a result of better job opportunities and higher earnings, especially in the Near East. Indeed, remittances from the Near East now represent a larger share (33 percent) than those from India (24 percent). Malaysia and the United States of America are also important sources of remittances.

Most migrants earn wages in the non-agricultural sectors and are employed in restaurants and factories, or as domestic workers, security guards and maids (in India) and as security personnel, chauffeurs and construction workers in the Near East.<sup>2</sup>

Remittances generate many benefits for Nepal. However, their impact on household income and poverty varies substantially across different parts of the country (Figure B). Based on the 2003–04 Nepal Living Standards Survey, the share of remittances in total household

income ranged from more than 20 percent in the Western Mountains, Western Hills and Far-Western Hills to only about 6 percent in the Mid-Western Mountains and Central Mountains. This variance shows why national averages can obscure the importance of remittances in certain parts of a country.

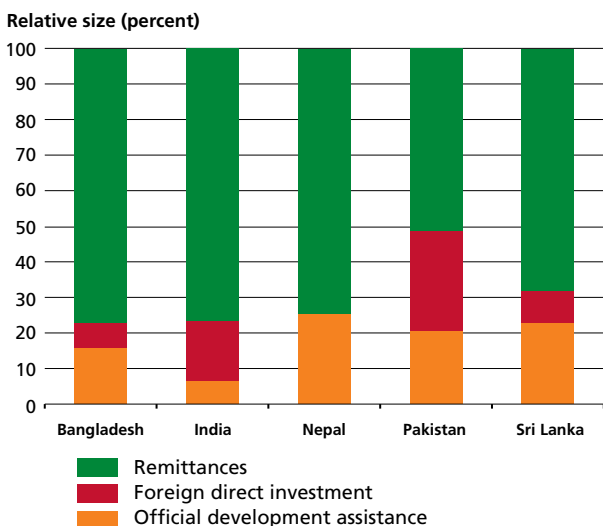
Given the importance of remittances to Nepal, any slowdown as a consequence of the economic crisis could hinder national economic growth. Because the impact of remittances on household income and poverty reduction is uneven across the country, household-level analysis is necessary if appropriate interventions are to reach the right people.

<sup>1</sup> At current exchange rates, approximately US\$623.7 million and US\$1.86 billion, respectively.

<sup>2</sup> P. Bhubanesh. 2008. *Mobilizing remittances for productive use: a policy-oriented approach*. NRB Working Paper 4. Kathmandu, Nepal Rastra Bank.

FIGURE 11

Remittances are important in South Asia



Source: World Bank.

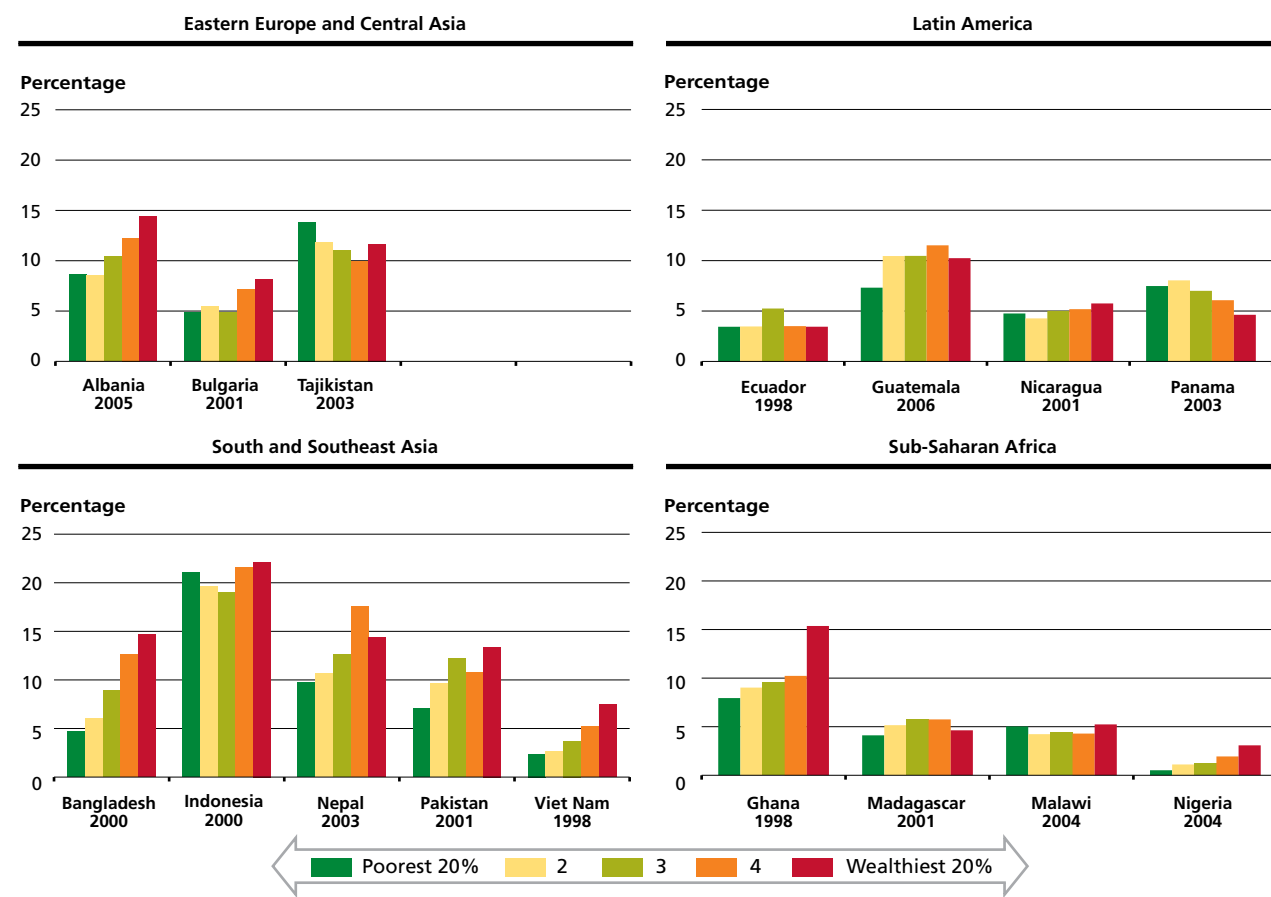
remittances are used to build a house, demand for semi-skilled labour increases, benefiting those who do not have direct access to remittances. These multiplier effects imply that the total impact of a decline in remittances will be greater than the decline in the remittances itself. Empirical studies indicate that the value of this multiplier is often between 1.5 and 2.

In Africa and Latin America, a 1 percentage-point increase in the ratio of remittances to GDP results in 0.29 percent and 0.37 percent declines, respectively, in the number of people living below the poverty line.<sup>10</sup> Remittances are also generally less volatile than FDI, and in past crises have often been counter-cyclical, meaning that they tend to increase when home-country economic growth slows down (or when the home country is hit by a disaster). However, given the global nature of the current crisis – and the fact that the crisis first struck and is most severe in host countries – the World Bank estimates that remittances will fall by 5–8 percent in 2009 after growing by 15–20 percent per year from 2005 to 2007.<sup>11</sup>

The extent of the impact of reduced remittances on different countries will also depend on exchange-rate

FIGURE 12

Remittances typically constitute a lower share of income for the poor: percentage of household income from private transfers (mostly remittances) in selected countries, by income group



Source: FAO.

movements, which will affect, first, decisions on how much money is sent home and, second, the purchasing power of the recipients when remittances are changed into local currency. Eastern Europe and Central Asia, which receive a large share of their remittances from the Russian Federation, are set to face sharp declines given the slowdown in the Russian economy and the devaluation of the Russian rouble (see box on Tajikistan).

**Trade, credit, foreign direct investment and foreign aid**

The recession in developed countries has had a severe negative impact on trade, credit, FDI and foreign aid. In 2009, global trade is predicted to fall between 5 percent<sup>12</sup> and 9 percent.<sup>13</sup> The plunge in the value of exports will be higher in developing countries than in advanced economies,<sup>14</sup> and will be especially damaging for economies that rely on exports as their main source of foreign exchange.

As the crisis evolves, developing countries face higher costs for external credit, from both private and public sources, as

the risk premium for lending money to developing countries has increased by about one-quarter of a percentage point. In many cases, credit is not available at any price as banks ration credit and lend only to those perceived as the most reliable borrowers. Microfinance institutions (MFIs) are experiencing difficulties, although most have built a solid foundation and are poised to expand further in the years ahead (see box, page 20).

Foreign direct investment tends to be highly volatile across time. In the current crisis, it has fallen sharply as private corporations in developed economies face pronounced recession. Table 2 in the technical annex shows that in countries such as Georgia, the Gambia, Jordan and Lebanon, FDI amounts on average to more than 10 percent of annual GDP. The IMF estimated in April 2009 that FDI would fall 32 percent in 2009 in developing economies as a group, with a 15 percent fall in Africa. Most FDI is for mining, industry and services, with very little directed towards agriculture (although some is related to agricultural processing), but reduced employment stemming from the decline will have economy-wide ripple effects, and will in

## The impact of declining remittances to Tajikistan

Tajikistan has the world's highest ratio of remittances to GDP, currently estimated at around 46 percent. Based on data from the 2007 Tajikistan Living Standards Survey, researchers at the World Bank have simulated the poverty impact of a decline in international migrant remittances using two different methodologies.<sup>1</sup> The study focused solely on direct remittances effects, without taking into consideration the potential economic recession in Tajikistan (i.e., worsening conditions in the local labour market) or potential second-order effects of remittances (the multiplier effect).

The first approach simulated the impact on poverty of a universal decline in remittances, applying the same percentage reduction across all households and assuming that, at least in the short term, households would not be able to compensate for the loss. The second approach simulated the poverty impact of a given percentage of migrants losing their jobs abroad and returning home to find employment in similar jobs locally, but at substantially

lower wages. In both approaches, the poverty impacts of reductions in remittances and migrant employment of 20, 30 and 50 percent, respectively, were simulated.

Under all scenarios, a decline in remittances was seen to push more people into poverty. In the worst-case scenario, a 50 percent reduction in remittances would raise the proportion of people living below the poverty line from 53.1 percent to 59.6 percent, representing a 12.2 percent increase in poverty (see Table). The impact is somewhat lower, although still substantial, when a 50 percent decline in migrant employment is simulated. In this case, absolute poverty would increase to 56.5 percent, or by 6.4 percent. The research found that rural areas would be affected more markedly than urban areas, with the impact ranging between 1.3 and 1.8 times greater, depending on the scenario.

<sup>1</sup> O. Ivaschenko and A.M. Danzer. *Simulation of the impact of reduced migrant remittances on poverty in Tajikistan*. Washington, DC, The World Bank.

### Potential impact of economic crisis on poverty in Tajikistan, under various scenarios of reduced remittances

Decline in remittances/ employment abroad  (Percentage)	Simulated poverty rates under methodology 1 (decline in remittances)  (Percentage of population)			Simulated poverty rates under methodology 2 (decline in employment abroad)  (Percentage of population)		
	Urban	Rural	Total	Urban	Rural	Total
Current (baseline)	49.3	54.4	53.1	49.3	54.4	53.1
-20	51.4	58.6	56.8	50.4	56.3	54.8
-30	52.6	59.7	57.9	51.1	57.3	55.7
-50	53.8	61.5	59.6	51.9	58.2	56.5

Note: Poverty rates are based on the absolute national poverty line derived from Tajikistan Living Standards Survey 2007.

Source: World Bank estimates based on Tajikistan Living Standards Survey 2007.

some circumstances increase back-migration from urban to rural areas.

Foreign aid is the principal source of capital inflow for some of the poorest countries. In sub-Saharan Africa, ODA often accounts for a large proportion of GDP (more than 40 percent in Burundi and Liberia, for example). In Haiti, the Lao People's Democratic Republic and Nicaragua, the share is more than 10 percent. In response to the steep rise in food prices, ODA at the global level increased substantially in 2008. However, development aid typically decreases when donor GDP decreases. Thus, with donor countries facing tougher budgetary constraints in 2009, the IMF projects that the poorest 71 countries will experience an overall drop in ODA of about 25 percent, although the new level will remain above that of 2007.

### ■ Agriculture as a macroeconomic buffer

Economic crises have different impacts on various sectors, depending on the nature of the crisis, the size of the sector in terms of employment, and the trade structure of the sector. However, patterns emerge in regard to the agriculture sector. First, for almost all of the cases listed in Table 2, agriculture sector growth rates before and after the crisis were less than that of aggregate GDP (these cases are highlighted in green in the table). Second, in all cases, the growth rate of agriculture is greater than that of GDP *during* the crisis (these cases are highlighted in orange). Thus, agricultural growth tends to be more stable than growth in other sectors.

Agricultural employment also tends to expand during a crisis, as illustrated by the example of Indonesia during the

### Impact of the economic crisis on microfinance

Microfinance is widely seen as an important intervention for fighting poverty. The current crisis has not only underscored the vital role of finance in economic growth and development, but has also seriously affected microfinance institutions (MFIs) in many developing countries. One reason is that private investors are withdrawing their funding, which forces MFIs to scale down their lending. This, in turn, can have adverse effects on poverty because the client base of MFIs is dominated by the poor, including consumers, the self-employed and smallholder farmers in rural areas.

Developing countries and emerging economies are affected in different ways and for different reasons. Microfinance institutions in more integrated economies – particularly Central Asia, Europe and Latin America – report the largest impact from the crisis. On the other hand, India-focused microfinance funds supported by foreign investors, which experienced delays in receiving funds in 2008 as investors were concerned about the impact of the financial crisis, can now expect robust fund flows in 2009. Local and regional MFIs in Africa are struggling to survive liquidity pressures as loan defaults soar as a result of higher food prices and reduced incomes. According to a recent survey conducted by the Consultative Group to Assist the Poor (CGAP – an independent microfinance policy and research centre, of which IFAD is one of 33 members), in collaboration with a group of practitioners and development agencies, two-thirds of more than 400 participating MFIs reported

declining – or at best stable – loan portfolios and an increase in their portfolio-at-risk levels, reflecting the impact of the crisis.

However, the global industry survey on the impact of the crisis on MFIs and their clients also indicated that the microfinance sector is showing great resilience, in particular where it is built on domestic funding sources (e.g. small-balance deposits). Thus, despite the increased links of MFIs with domestic and international financial markets that have created some problems during the crisis, the microfinance sector as a whole has built sound foundations. There is a broad consensus with regard to financial transparency through the use of ratings, audits and social performance standards, while partnerships with socially driven investors and development finance institutions are providing emergency liquidity funds. This strength, coupled with the potential for substantial further expansion through tapping markets of creditworthy poor clients in rural areas, will ensure that the microfinance sector will survive and help mitigate the effects of the global economic downturn on low-income households. Looking ahead, there is a need to explore the links between financial services and government social safety-net programmes by delivering grant payments into bank accounts, thereby linking social protection and financial inclusion.

*This box was contributed by Michael Hamp, Senior Rural Finance Advisor, International Fund for Agricultural Development (IFAD).*

economic crisis of 1997–98. Although employment in the Indonesian industrial and electricity sectors fell by 13 and 27 percent, respectively, during the economic crisis of 1997–98, employment expansion in agriculture (at 15.2 percent), more than made up for the reduction in other sectors.<sup>15</sup> A similar pattern emerged in other Asian countries affected by the 1997–98 crisis: agricultural employment rose by 9.1 percent in Malaysia and 5.4 percent in the Republic of Korea, while it fell in the manufacturing sector in both countries.

Why would agricultural growth be less affected than growth in other sectors? First, as income drops, demand for agricultural products, especially food, does not decrease proportionately – people will sacrifice other goods, such as industrial products and services, to make sure they can buy enough food (or as much as their income allows). On the supply side, other sectors may use credit more intensively, while agriculture, especially if it is dominated by

smallholders, is more self-financed and thus less affected by sudden credit shortages. This latter argument would be less relevant for large and commercial farms where credit is a key input. Further, the supply of credit might be augmented by migrants who return from urban areas.

In many cases, crises may be accompanied by a depreciation of the exchange rate (e.g. Mexico in 1995, Indonesia and Thailand in 1997–98). This will tend to benefit agriculture because agricultural products are often considered to be relatively more tradable than output from the service sector. But not all economic crises are the same. In the current crisis, the beneficial effects of exchange-rate depreciation on agriculture will be mitigated by the global nature of the economic slowdown and attendant reductions in world commodity prices. Moreover, the global nature of the crisis also makes it less likely that depreciation of any one currency could be an effective boost to that country's exports.

TABLE 2

## Growth rates by major sector for selected countries before, during and after an economic crisis

COUNTRY	PERIOD	Annual average growth rate by sector				
		(Percentage)				
		Agriculture	Industry	Manufacturing	Services	GDP
Indonesia	5 years pre-crisis	2.5	9.2	10.3	8.5	7.1
	1998	-1.3	-14.0	-11.4	-16.5	-13.1
	5 years post-crisis	3.0	4.1	4.9	5.8	3.7
Malaysia	5 years pre-crisis	0.5	11.1	12.7	10.2	9.2
	1998	-2.8	-10.7	-13.4	-5.0	-7.4
	5 years post-crisis	3.4	6.1	7.5	5.2	5.0
Republic of Korea	5 years pre-crisis	1.4	8.0	7.7	7.2	6.9
	1998	-6.4	-8.2	-7.9	-3.9	-6.9
	5 years post-crisis	1.0	7.4	9.7	4.6	6.4
Thailand	5 years pre-crisis	0.7	9.8	10.6	7.2	6.5
	1998	-1.5	-13.0	-10.9	-10.0	-10.5
	5 years post-crisis	3.3	6.3	6.8	4.0	4.8
Argentina	5 years pre-crisis	1.8	2.0	1.1	3.4	2.7
	2001	1.1	-6.5	-7.4	-4.0	-4.4
	5 years post-crisis	3.4	7.1	6.7	3.7	4.9
Brazil	5 years pre-crisis	4.1	3.1	2.2	3.9	3.0
	1999	6.5	-1.9	-1.9	1.4	0.3
	5 years post-crisis	4.1	3.0	3.4	4.1	3.0
Mexico	5 years pre-crisis	2.2	3.9	3.6	4.0	3.9
	1995	0.9	-7.8	-4.9	-6.2	-6.2
	5 years post-crisis	2.0	3.9	3.9	3.8	5.5
Cameroon	5 years pre-crisis	1.9	-6.1	-1.8	-7.5	-3.6
	1994	3.1	-14.4	-3.3	13.1	-2.5
	5 years post-crisis	7.5	4.7	4.3	0.2	4.6
Ghana	5 years pre-crisis	0.2	-1.5	-0.2	2.6	0.3
	1979–1983 <sup>1</sup>	-1.8	-11.7	-13.8	-1.8	-3.4
	5 years post-crisis	3.5	10.6	12.6	7.7	5.9
Mali	5 years pre-crisis	4.2	5.0	4.8	2.5	3.5
	1994	6.6	-4.0	-3.6	-0.6	0.9
	5 years post-crisis	4.4	8.8	-3.4	4.2	5.8

<sup>1</sup> The year when the crisis began and ended in Ghana is not as clear-cut as in other cases but the nadir fell within the years chosen.

Source: FAO calculations based on data from World Development Indicators, World Bank.



## Quantifying the food security impacts of the economic crisis<sup>16</sup>

The impact of the economic crisis on the poor and food-insecure is likely to be substantial, especially in light of the negative impact of soaring food and fuel prices already experienced by the most vulnerable population groups during 2006–08. The more difficult global economic environment has a significant influence on national food security in a number of poorer countries, many of which have become increasingly dependent on grain imports over the past decade (Figure 13). This reliance on food imports was spurred by trade liberalization policies and the expansion and improvement of the global transportation system. Increased reliance on grain imports has helped keep prices more affordable for consumers, but the lack of domestic agricultural growth that drove the imports has exposed many countries to volatility on international markets.

Imported foods, including basic staples such as grains and vegetable oils, now constitute an important component of diets in most countries. From 1970 to 2003, import dependency grew most among the least-developed countries compared with higher-income country groups. In 2003, least-developed countries relied on imports for 17 percent of their grain consumption (compared with 8 percent in 1970),

45 percent for sugar and sweeteners (18 percent in 1970), and 55 percent for vegetable oils (9 percent in 1970). At individual country level, the situation varies significantly. For example, imports accounted for more than half of grain supplies in 11 countries in sub-Saharan Africa (Angola, Cape Verde, Eritrea, the Gambia, Lesotho, Liberia, Mauritania, Senegal, Somalia, Swaziland and Zimbabwe) in 2005–06. In another seven countries (Benin, Cameroon, Côte d'Ivoire, the Democratic Republic of the Congo, Ghana, Guinea-Bissau and Mozambique), this share ranged from 30 to 50 percent.

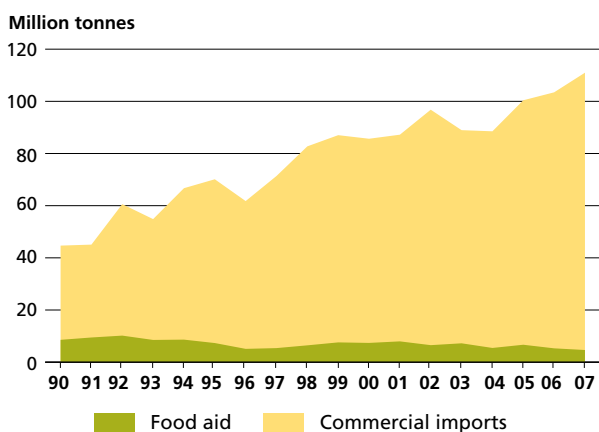
### Financial and economic crisis set to deepen food insecurity in 2009

In spite of declines in international food commodity prices during the latter part of 2008, deteriorating purchasing power and higher levels of food insecurity are expected in 2009. Based on historical trends in production in the 70 countries considered by the USDA Economic Research Service model (see box, page 24), the number of food-insecure people will increase by at least 2 percent, which is consistent with FAO's data showing that undernourishment was increasing even before the crises (see page 8). The economic crisis will exacerbate this problem substantially. For countries that are dependent on food imports, and assuming no major domestic production shortfalls, two critical determinants of food import capacity are export earnings and capital inflow (FDI, remittances and foreign aid). When a decline in exports or capital inflows occurs, this is likely to force a reduction in imports, including food imports (unless the country is able to borrow internationally, which is not an option for many poor countries). Thus, even if aggregate world food availability remains unchanged, the access of poor countries to that food will be reduced, compromising their food security. The USDA model examined quantitatively the changes in import capacity of the low-income countries in the face of various external shocks and the resulting implications for food security.

Three scenarios were developed to evaluate the probable impact of the economic crisis on the food security of low-income countries. In the first scenario, export growth of the countries in 2009 is reduced relative to the baseline estimation (i.e., export growth in the absence of economic crisis). This reduction is in the same proportion as the estimated decline in the countries' economic growth for

**FIGURE 13**

Developing countries have become increasingly dependent on food imports: grain imports in 70 countries



Note: Data refer to 70 developing countries comprising the model used by the USDA Economic Research Service for its Food Security Assessments.

Source: FAO.

## Are food imports necessarily bad?

The global food crisis of 2006–08 prompted many countries to reconsider the virtues of relying on imports for a significant share of their food consumption. Given the high and volatile prices and market turbulence during this period, it is obvious that countries become concerned about excessive reliance on world food markets. But what constitutes “excessive” reliance, and what are the advantages and disadvantages of reducing this reliance?

First, it is important to realize that domestic food prices in many exporting countries also increased sharply during the crisis, e.g. rice prices in Pakistan, Thailand and Viet Nam, and maize prices in South Africa. In other words, importers are not the only countries that are vulnerable to higher prices on world markets; any country that is open to trade can be affected. Second, price surges can also originate from shocks to domestic agricultural production: a simple policy of insulation from world markets (self-sufficiency) exposes the country to substantial weather-related risks. Thus, there is no easy way to eliminate price instability on domestic markets.

Domestic price stabilization in the face of world price surges is easier if the quantity of imports or exports is a relatively small share of consumption or production, because it can be buffered more easily by reasonable levels of stockholdings. If imports account for 50 percent of consumption, it will be difficult to implement an effective stabilization policy that protects against world price surges. The same is true if exports account for half of production.

The merits of reducing the share of trade in consumption or production depend on comparative advantage. If a country has a strong comparative advantage in producing a particular food commodity,

reducing production to reduce the importance of trade (exports) will be counterproductive and harm many farmers. Similarly, reducing the quantity of imports when a country does not have a comparative advantage in production will hurt consumers. Moreover, it is often the poorest who are affected most by such a policy, as was shown in *The State of Food Insecurity in the World 2008*. Analysis of household survey data can help determine which groups are hurt most severely with respect to a specific country and specific commodity.

Of course, comparative advantage is not a static concept. If a country lacks comparative advantage in producing a specific commodity, it may be because of underinvestment in agricultural research, rural infrastructure, roads or other public goods. In such cases, the most appropriate solution would be to increase investment in agriculture, not impose trade restrictions. Even in the short term, before the investment can bear fruit, trade restrictions are likely to be damaging if they increase domestic prices to levels well above world prices on a medium-term basis because the high prices will typically hurt most the poorest of the poor. Further, while it may be sensible to allow domestic prices to deviate from world prices in the short run, pursuing such a strategy over several years can be dangerous. Trade restrictions, once implemented, are often difficult to remove, and can fail to provide sufficient market discipline to ensure that governments and the private sector invest their money wisely. Thus, restricting imports simply to avoid reliance on the world market may lead to domestic food prices remaining high all the time, not only when world prices are high. A more effective and lasting solution would be to invest more in agriculture to enhance productivity growth.

2009, resulting in estimated 50 percent declines in export growth in North Africa and sub-Saharan Africa, a 40 percent decline in Asia (60 percent in Central Asia) and a 60 percent decline in Latin America and the Caribbean. For example, an Asian country with previously forecast export growth of 10 percent would see this growth reduced by 40 percent, that is, to 6 percent. This scenario assumes constant financial inflow (including FDI, remittances and foreign aid) to finance trade deficits. The second, or middle, scenario takes the assumption of the first scenario and, in addition, reduces capital inflow in 2009 by 25 percent (because of cuts in FDI, remittances and, possibly, ODA). The third scenario takes the assumption of the first scenario and reduces capital inflow in 2009 by 50 percent.

Under the first scenario, the reduction in export earnings growth and the subsequent cut in import capacity are projected to result in a decline in food consumption that equates to a 7.3 percent rise, over the baseline estimate, in the number of food-insecure people. The impact will not be uniform across all regions and countries as the results vary according to individual countries’ dependence on food imports, export earnings relative to overall foreign exchange availability, and initial position with respect to food security.

Under the second scenario, when a 25 percent cutback in capital inflows is added to the reduced growth of export earnings, the food security situation of the countries is projected to deteriorate to a larger extent because of an even greater decline in food imports. Under this scenario, 9.2 percent more people are projected to become food-



insecure relative to the baseline estimates for 2009. This scenario has been used to generate the undernourishment estimates provided earlier in this report (see page 11). Finally, the third scenario results in an 11.6 percent increase in the number of food-insecure. All three scenarios are, of course, hypothetical: the actual impact will vary depending on national and international responses to the economic downturn.

The number of food-insecure people in sub-Saharan Africa is projected to increase by 6 percent under the second scenario (Figure 14), compared with 3 percent and 9 percent under the first and third scenarios, respectively. Sub-Saharan Africa is the world's most food-insecure region. Average calorie intake in the region barely exceeds the daily requirement of 2 100 kcal, and is by far the lowest in the world. Many countries in this region do not have an adequate supply of food, and income inequality exacerbates the problem. The countries that will be hardest hit by the economic crisis are those with high levels of balance-of-payments deficits and high food-import dependency.

The impact of the second scenario relative to the baseline is projected to be an 8 percent increase in the number of food-insecure people in Latin America and the Caribbean (compared with 4 percent and 20 percent under the first and third scenarios). As in sub-Saharan Africa, the share of food imports has grown over time, as domestic food production has failed to keep pace with rising food demand. Trade liberalization policies and income growth have been the main forces behind the increase in consumption. High levels of income inequality increase vulnerability to food insecurity in this region also. A key concern in the region is the decline in remittances, which in many countries exceed the sum of FDI, ODA, and

### How is food security assessed by the USDA Economic Research Service?

The Economic Research Service food security model projects food consumption and access in 70 low-income developing countries: 37 in sub-Saharan Africa, 4 in North Africa, 18 in Asia (including 8 in Central Asia) and 11 in Latin America and the Caribbean. Because of the focus on lower-income developing countries, several large developing countries are not included (e.g. Argentina, Brazil, China, Mexico, South Africa). Commodities included in the model are grains, root crops and a group called "other" that encompasses all other foods. The three commodity groups in total account for 100 percent of calories consumed. The population of each country is divided into five equal groups (quintiles) according to per capita income. Food consumption varies across these groups, with the poorest consuming the least amount of food. Based on the food consumption of each quintile and the total population, the model estimates the number of people who are unable to meet their nutritional requirements of 2 100 kcal per day.

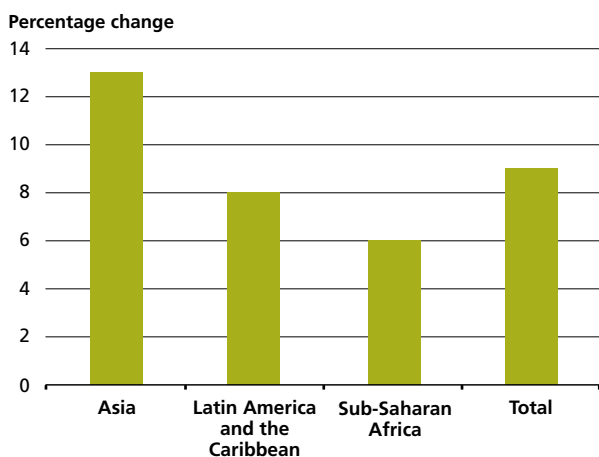
government and private borrowing. Remittances often provide income for the poorest segment of society and are spent on basic necessities such as food (see *Migration and remittances* on page 15).

The number of food-insecure people in Asia (including Central Asia) under the second scenario is estimated to increase by 13 percent from the 2009 baseline, compared with increases of 11 percent and 13 percent, respectively, under the first and third scenarios. The impact is generally larger than in sub-Saharan Africa and Latin America and the Caribbean, driven by the importance of foreign trade to Asian economies. The importance of trade in goods and services also means that the incremental impact of a further decline in capital inflows is relatively small, as evidenced by the similar decline across the three scenarios. Asia's increasing links with the international economic environment, particularly the performance and policies of the major developed countries, means that the weakening of the global economy directly affects the food security situation of countries in this region, many of which suffer from persistent and extreme poverty. India will be less affected than many other Asian countries because its cautious financial policies have reduced the country's exposure to external financial shocks. In addition, continuing government support to the agriculture sector has transformed India from a net importer of grains to a net exporter.

Overall, the magnitude of changes in food-insecurity indicators under the various scenarios described above

FIGURE 14

The disturbing impact of the economic crisis on undernourishment in 2009



Note: Data refer to USDA Economic Research Service scenario 2 relative to the baseline. Source: USDA.

### Impact of higher prices on African producers

A recent USDA Economic Research Service project examined the impact of higher food prices in Africa. One aim of the study was to determine whether higher prices are being passed on to local farmers, who might then increase production and compete effectively with imports in regional markets. In most cases, producers' ability to respond to the higher prices was constrained by a lack of access to capital, poor infrastructure, limited technology, limited information, few inputs and poor-quality seeds. These obstacles translate into poorly integrated markets where prices vary significantly between producers and consumers as well as from one area to another.

In Ghana, for example, at the peak of global grain prices in mid-2008, the government provided subsidies for fertilizer and tractors. These subsidies were targeted principally towards poorer maize farmers, but even at the subsidized prices, many farmers were unable to afford fertilizer, let alone tractors. Fertilizer prices in Ghana increased by around 50 percent between April 2007 and August 2008. Marked price variations existed among different local markets to the extent that the difference in maize prices in two different towns – only 65 miles (105 km) apart – was almost threefold.

Similar issues were reported in Kenya, which is vulnerable to increases in world fertilizer and energy prices because all its fuel and fertilizer are imported. Flat farmgate prices (despite rising consumer prices) and the increased costs of agricultural inputs (fertilizer prices tripled in six months) and transportation reduced food-production incentives. This situation, coupled with domestic political unrest, meant that about half of the agricultural land in the northern Rift Valley (the key maize-

producing area) was not prepared for the 2008 planting season.

In Mozambique, the recent high food prices were felt strongly at the consumer level but the country's size and geography limited price transmission to farmers. With a fractured agricultural market and poor infrastructure hindering trade, opportunities for agricultural producers to capitalize on the relatively high and growing incomes in the urban areas are limited. The study found that at the market in Maputo, imported Argentinian maize was available for the same price as maize transported internally from the northern part of the country. This means that domestic production is more likely to be traded within rural communities or to rural areas of neighbouring countries, such as Malawi or Zambia, that face similar market infrastructure constraints.

In Uganda, despite growing demand, production response was low for various reasons. The primary factor underlying low productivity is land fragmentation – food production is dominated by smallholders with 1–2 hectares of land. These producers do not have access to credit markets and cannot afford fertilizer or high-quality seed varieties. This situation has led to a decline in both land fertility and crop quality. Moreover, the food market (with the exception of sugar) is fully liberalized, meaning that there are no input or production subsidies and no tariffs on exports and imports. Government expenditures on agriculture accounted for about 1.5 percent of total expenditures in 2006 and 2007. With no farm organizations to enhance producers' bargaining power, cash-strapped farmers tend to sell their crops soon after harvest rather than store their crop and wait for higher prices.

highlights the vulnerability of millions of poor people whose food consumption is equal or close to the daily nutritional requirement. Each year, 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 growing role of food imports in many low-income countries (see box on page 23). Where domestic production accounts for most of a country's food supplies, a reduction in imports will probably have a negligible effect on food security. However, for countries that have become increasingly dependent on imports, a decline could exacerbate their vulnerability. Regionally, import dependency for grain, the main staple food consumed by the poor, is

lowest in Asia, followed by sub-Saharan Africa, Latin America and the Caribbean, and North Africa. Most of the countries in Latin America and the Caribbean and in North Africa included in the USDA study import almost half of their grain supplies. Some countries can forgo imports of other commodities and allocate a much larger share of their import budget to food during the crisis period, but for those that were highly food-insecure at the outset, including many in sub-Saharan Africa, a decline in economic growth and import capacity can have severe adverse implications and amplify food insecurity.

Performance in food production clearly plays a crucial role in national food security. Since 1990, sub-Saharan Africa has demonstrated the highest growth in grain production – 2.8 percent per year – but this growth has been almost negated by the region's high population growth of

2.7 percent per year (compared with less than 1.5 percent in the other regions). Nearly 90 percent of the production growth in sub-Saharan Africa over the last two decades is attributable to area expansion; the region's yields are the lowest in the world, at about one-third of the global average. This means that most countries are far from their maximum technical potential for growing crops. The recent high grain prices have improved production incentives for countries that have relatively productive resources and market economies that are efficient enough to take

advantage of the higher prices. However, in most sub-Saharan African countries, producers' responses to price changes are small because of poor market infrastructure, high input costs and limited access to new technologies. A USDA Economic Research Service study of four sub-Saharan African countries (Ghana, Kenya, Mozambique and Uganda) showed that a variety of factors constrained a local supply response to the higher prices, including rising costs of imported inputs and transportation and infrastructure constraints (see box, page 25).



## Coping mechanisms of the poor and food-insecure

### ■ How do households cope with declines in income?

When families are faced with increased unemployment, declining wages and reduced demand for their work, they will attempt to maintain income through migration or participation in new types of economic activity. Alternatively, they will try to smooth consumption through selling assets, such as livestock, or borrowing when access to credit markets is feasible. They will also alter their spending patterns by decreasing expenditures on durable goods the most and on food the least. Food expenditures also shift towards calorie-rich, energy-dense foods (e.g. grains) and away from more expensive protein- and nutrient-rich foods (Figure 15).

All the above coping strategies draw down the assets of the poor. For example, migration may reduce community cohesion, increased female employment may reduce visits to health-care providers, asset sales reduce the stock of physical or financial resources, and switching from more-nutritious foods (such as meat, dairy products, fruit and vegetables) towards less-nutritious grains may increase malnutrition and reduce children's cognitive potential. When facing a crisis, households must choose which type of assets to draw down. In many cases, there will be a gender dimension to this decision, for example boys' or girls' education, husband's or wife's assets.<sup>17</sup>

Poorer households, faced with tighter budget constraints, are of course hit harder than wealthier households. During the 1997–98 Asian economic crisis, for example, school enrolment in Indonesia declined more among the poor.

In Cameroon's economic crisis in the 1990s, the prevalence of underweight children under three years of age increased substantially more for the poorest half of the population (7–8 percentage points) than it did for the wealthiest half of the population (2–3 percentage points). During Zimbabwe's drought in the mid-1990s (not an economic crisis, but it resulted in a loss of income), young children living in the poorest households suffered a substantial reduction in growth rate, and these children remained shorter than would otherwise be expected several years later. These effects are particularly worrisome because there exists a large body of literature that suggests that stunting is associated with reduced cognitive skills and slower progress in school as a child, as well as reduced earnings as an adult.<sup>18</sup>

There is an important gender component to these coping mechanisms in terms of women's work participation. Women in developing countries tend to work more when per capita GDP declines (Figure 16), but the relationship varies among women of different educational levels. In most regions, with the exception of sub-Saharan Africa, women with less education tend to increase work participation more in times of economic crisis than do women with more education.

Because working mothers in developing countries are less likely to seek health care for themselves or their children, health outcomes often deteriorate for the poor during times of crisis, while they actually improve in developed countries. During Mexico's 1995 crisis, infant mortality rates increased most in the areas where women's work participation increased. In addition, economic crises have a significant impact on infant mortality: a 4 percent decline in per capita

FIGURE 15

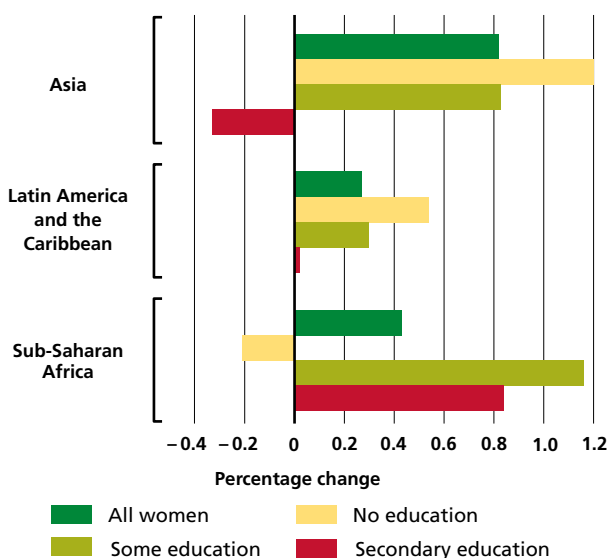
Coping mechanisms in times of crisis: how households respond to declines in income

	ACTIONS	COSTS
<b>New economic activities</b>	<ul style="list-style-type: none"> <li>Increased participation in income-generating activities (especially women)</li> <li>Migration to areas where there are job opportunities</li> <li>Return migration to village/country of origin</li> </ul>	<ul style="list-style-type: none"> <li>Reduced leisure or other activities; maternal care, nutrition, education may suffer</li> <li>Loss of community cohesion, break-up of family</li> <li>Reduced wages in local labour markets</li> </ul>
<b>Consumption smoothing</b>	<ul style="list-style-type: none"> <li>Sale of assets</li> <li>Borrowing from formal/informal markets</li> </ul>	<ul style="list-style-type: none"> <li>Loss of future earning potential, possible poverty trap</li> <li>Reduced future earning potential, increased risks</li> </ul>
<b>Change in consumption patterns</b>	<ul style="list-style-type: none"> <li>Shifting dietary patterns towards cheaper (starchy) foods and away from micronutrient-rich foods such as milk, meat, fruits and vegetables</li> <li>Reduced expenditures on health, education, durable and semi-durable goods to maintain expenditure on food</li> </ul>	<ul style="list-style-type: none"> <li>May cause malnutrition and micronutrient deficiencies with serious health consequences</li> <li>May negatively affect health of household members and jeopardize future earning potential</li> </ul>

Source: FAO.

FIGURE 16

Increase in female work participation rates in response to a 10 percent decline in per capita GDP, by education level



Source: See notes on p. 56.

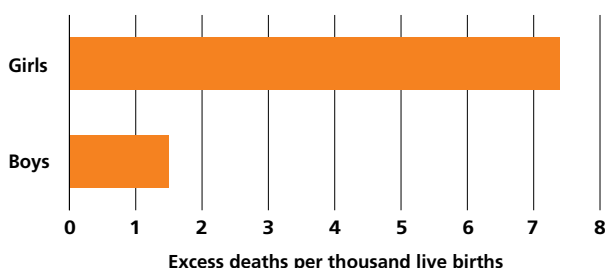
GDP is associated with a 2 percent increase in infant mortality. Furthermore, the effect of negative shocks to GDP on infant mortality is five times larger for girls than for boys (Figure 17).<sup>19</sup>

**Internal return migration: agriculture as a household-level crisis buffer<sup>20</sup>**

In addition to its macroeconomic buffering function as discussed earlier, agriculture can also serve as a household-level buffer by providing inexpensive shelter, food and employment for unemployed labourers from urban areas in times of crisis. In Ghana, agriculture acted as a safety net for retrenched workers and others during the economic crisis of the 1980s.<sup>21</sup> It also acted as a safety net for many of the 1.2 million Ghanaians who were repatriated from Nigeria in 1983 in response to the economic crisis in that country. This process was eased by the relatively abundant supply of land in some regions of Ghana. During the current crisis, agriculture has served this function in many Asian countries, including China, and even in some developed countries, such as Spain. Non-farm activities in rural areas can also help to absorb labourers who had to leave urban areas. Indeed, such activities may be more

FIGURE 17

Girls are more affected by economic crises: increase in infant mortality above non-crisis baseline



Note: Data are based on 122 cases of major declines in per capita GDP in developing countries. Source: See notes on p. 56.

appropriate for people who have not worked on a farm in many years.

**How large are the back-migration flows? Are they permanent or temporary?**

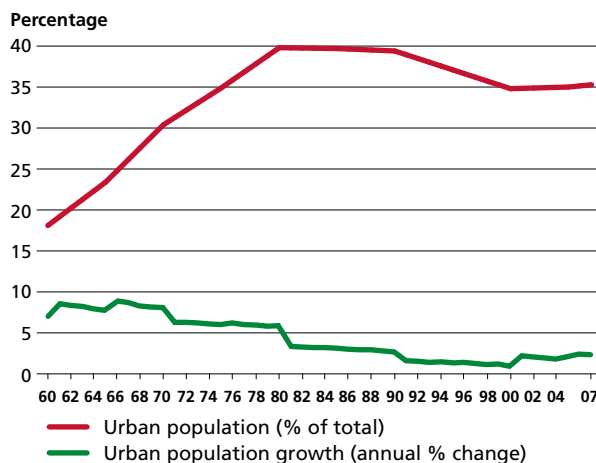
Not surprisingly, back-migration flows from urban to rural areas in times of crisis are greater in poorer countries where the agriculture sector is larger. For example, in Indonesia during the 1997–98 Asian crisis, 6 percent of all prime-age adults moved from urban to rural areas in just one year – this is equivalent to 11 percent of total agricultural employment. In contrast, return migration in Thailand was equal to just 1 percent of total agricultural employment in 1997, and 2–3 percent in 1998, with much of the back-migration going to the impoverished northeast of the country.<sup>22</sup> The reduced absorptive capacity of Thai agriculture was probably a result of investments in labour-saving technology in the early 1990s that were made in response to rising real wages.

For the urban unemployed, return migration is probably a temporary coping strategy in most cases. Agricultural work holds little attraction: the work is hard, the pay is poor and many urban returnees have lost their farming skills, in particular those needed in the cash-crop sector.<sup>23</sup> Thus, while there was urban-to-rural migration in Thailand in the wake of the 1997–98 crisis, that back-migration was quickly reversed by out-migration from rural areas of just over 5 percent of total agricultural employment in 1999, in continuation of the previous longer-term trend.

Nevertheless, in some cases back-migration to rural areas may be more permanent. In China, for example, about 38 percent of all migrants over the past decade have returned home.<sup>24</sup> In part this was due to the *hukou* system, where migration to urban areas is restricted and households need to register their residence. Although now less stringent than in the past, the *hukou* system still influences the job security that rural migrants face in urban areas. A chronic crisis in Zambia's ailing copper industry (located in

FIGURE 18

The decline of Zambia's copper industry has contributed to a reduction in the urbanization rate



Source: FAO.

Copperbelt Province, an urbanized area) may also help explain the gradual fall of the country's urbanization rate (Figure 18).

**Buffer role comes at a cost**

Some policy-makers encourage return migration as it lessens the burden on cities and makes unemployment less visible, may reduce political instability, and relieves the pressure on a government's already strained budget at a time of crisis. But there are also costs involved. Rural households will need to cope with reduced levels of remittances, and at the same time will have to deal with increased food demand following the arrival of return migrants.

The impact on rural households depends on whether the people returning can be employed productively. If this is not the case, households will be burdened with extra mouths to feed without any attendant increase in resources. Unfortunately, there is little empirical evidence on this issue. There is evidence from China that out-migration has a negative impact on agricultural productivity (implying that return migration will have a positive impact), but evidence from Thailand suggests that the smallholder sector could not absorb the low-skilled urban labour dislocated by the 1997–98 economic crisis.<sup>25</sup>