

High food prices and food security

Poor households worst hit

FAO global estimates show that high food prices have increased world hunger. While stories abound in the media about affected individuals, families and communities, it is important to understand who ultimately gains and who loses from high food prices, especially among the poor, and why. This knowledge will enable

appropriate policies and programmes to target those most in need.

FAO has examined the impact of high food prices on household welfare. The empirical analysis described in this section shows that, in the short term, the vast majority of poor urban and rural households are hit hardest by higher prices. Among the poor, it is the landless and

female-headed households that are most vulnerable to sharp rises in basic food prices. The relative impact is not uniform, even among poor households, and depends on a number of factors.

Particularly important is the extent to which households produce food for their own consumption compared with what they buy in the marketplace. A household is defined as a net food buyer when the value of food staples it produces is less than the value of food staples it consumes. Poor households tend to be net buyers of food, even in rural areas where agriculture and staple food production determine the principal livelihoods for many. According to FAO data from nine developing countries, about three-quarters of rural households and 97 percent of urban households are net food buyers (see table).

Net food buyers stand to lose from an increase in the price of food staples. The extent of the impact depends in part on dietary patterns. Households that spend a large proportion of their income on internationally traded food staples (such as wheat, rice and maize) are more likely to suffer a decline in overall welfare. These include most urban households. The extent of this decline depends on the ability of a household to shift consumption towards less-expensive foods that do not generally enter global markets, such as roots and tubers. In contrast, households with land and those that derive some income from the production and sale of food staples that are also traded internationally could benefit from higher world prices. However, high fuel and fertilizer prices are likely to offset some of these gains. In the medium term, most farmers tend to shift production towards more profitable

Philippines: rice price increasing poverty

Soaring rice prices are pushing more families in the Philippines into poverty, making it more difficult for the country to achieve MDG 1 (halving the proportion of people living on less than US\$1 per day by 2015). More than 24 percent of Philippine families were living in extreme poverty in 1991, and while that rate had declined to 13.5 percent in 2003, it has started rising again.

Inflation rose by nearly 2 percentage points to 8.3 percent from March to April 2008 and reached 9.6 percent in May, the highest level since 1999. Joel Saracho,

National Coordinator of the Global Call to Action against Poverty in Philippines, said that "income is barely enough for daily needs yet there is a decrease in [household] purchasing power". Leonardo Zafra, a security guard in Manila, said that his household's only option was to borrow from moneylenders at exorbitant interest rates: "Our debts are piling on top of each other". His wage of 260 pesos per day (about US\$6.50) was not enough to pay the bills for utilities, education and food.

Source: IRIN news service, May/June 2008.

Net buyers of staple foods

	All households			Poor households		
	Urban	Rural	All	Urban	Rural	All
	(Percentage)					
Albania, 2005	99.1	67.6	82.9	*	*	*
Bangladesh, 2000	95.9	72.0	76.8	95.5	83.4	84.2
Ghana, 1998	92.0	72.0	79.3	*	69.1	*
Guatemala, 2000	97.5	86.4	91.2	98.3	82.2	83.1
Malawi, 2004	96.6	92.8	93.3	99.0	94.8	95.0
Nicaragua, 2001	97.9	78.5	90.4	93.8	73.0	79.0
Pakistan, 2001	97.9	78.5	84.1	96.4	83.1	85.4
Tajikistan, 2003	99.4	87.0	91.2	97.1	76.6	81.4
Viet Nam, 1998	91.1	32.1	46.3	100.0	40.6	41.2
Unweighted average	96.4	74.1	81.7	97.2	87.9	78.5

* Insufficient data.

Source: FAO.



crops. This could enable them to move from being net buyers to net sellers of staple foods. Their ability to change depends on the movement in relative prices as well as their access to land, resources and

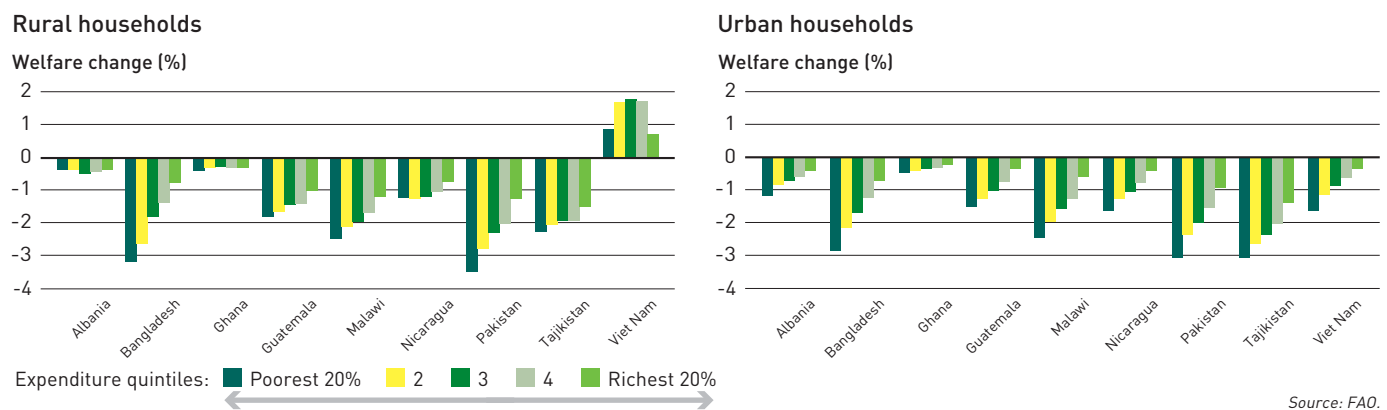
services needed to facilitate change (see pages 34–40).

FAO has simulated the short-term impact of a 10-percent increase in the price of key internationally traded staple foods on the income of

different types of households in urban and rural areas (see box for methodology). It was not possible to use actual price changes in each country as local currency prices do not always reflect world prices in a

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A 10-percent rise in the price of food staples hits poor households hardest



Welfare impacts of a price rise in basic staples

Using representative household survey data from a number of countries, the likely short-term welfare impact of rising food prices was calculated for groups of households differentiated by income, landholdings and livelihood strategies. The welfare impact in this case is the amount of income needed to restore a household to its position prior to the income shock of high prices, and therefore the real income lost to high food prices. This is illustrated in Figures 20–23 as a percentage change in total consumption expenditure. This estimate is determined by comparing how the shares of the main staple products in household consumption and income vary following a 10-percent increase in the prices of the main staple products. The methodology employed is similar to that in Deaton¹ and in Minot and Goletti.²

In each country, the main staples were chosen based on their importance in the share of total food expenditure as follows: Albania (wheat, maize and rice); Bangladesh (rice, wheat and pulses); Ghana (maize and rice); Guatemala (maize, wheat and

beans); Malawi and Nicaragua (maize, rice and beans); Pakistan and Tajikistan (wheat, rice and beans); and Viet Nam (rice, maize and beans).

The reported results refer to the short-term impact of high food prices only. Household responses that involve changes in production and consumption behaviour over time are not included. Moreover, it is possible that price increases become more generalized over time in some countries, eventually affecting staples that are not internationally traded, e.g. cassava. In this case, the results may be underestimates for those groups of households that spend substantial shares of their income on non-tradable staples. Finally, for simplicity, the simulation assumes that price changes are transmitted equally to different types of households, be they urban consumers or smallholder farmers in remote areas.

¹ A. Deaton. 1989. Rice prices and income distribution in Thailand: a non-parametric analysis. *The Economic Journal*, 99(395): 1–37.

² N. Minot and F. Goletti. 2000. *Rice market liberalization and poverty in Viet Nam*. IFPRI Research Report No. 114. Washington, DC, IFPRI.

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consistent manner (see box on page 10) and the increases in staple food prices vary among locations within countries. Using a uniform 10-percent increase illustrates how the effects are distributed among different household groups and allows more meaningful cross-country comparisons. Simulating the higher price increases occurring in many countries would yield higher impacts, but the distribution among household groups would remain the same.

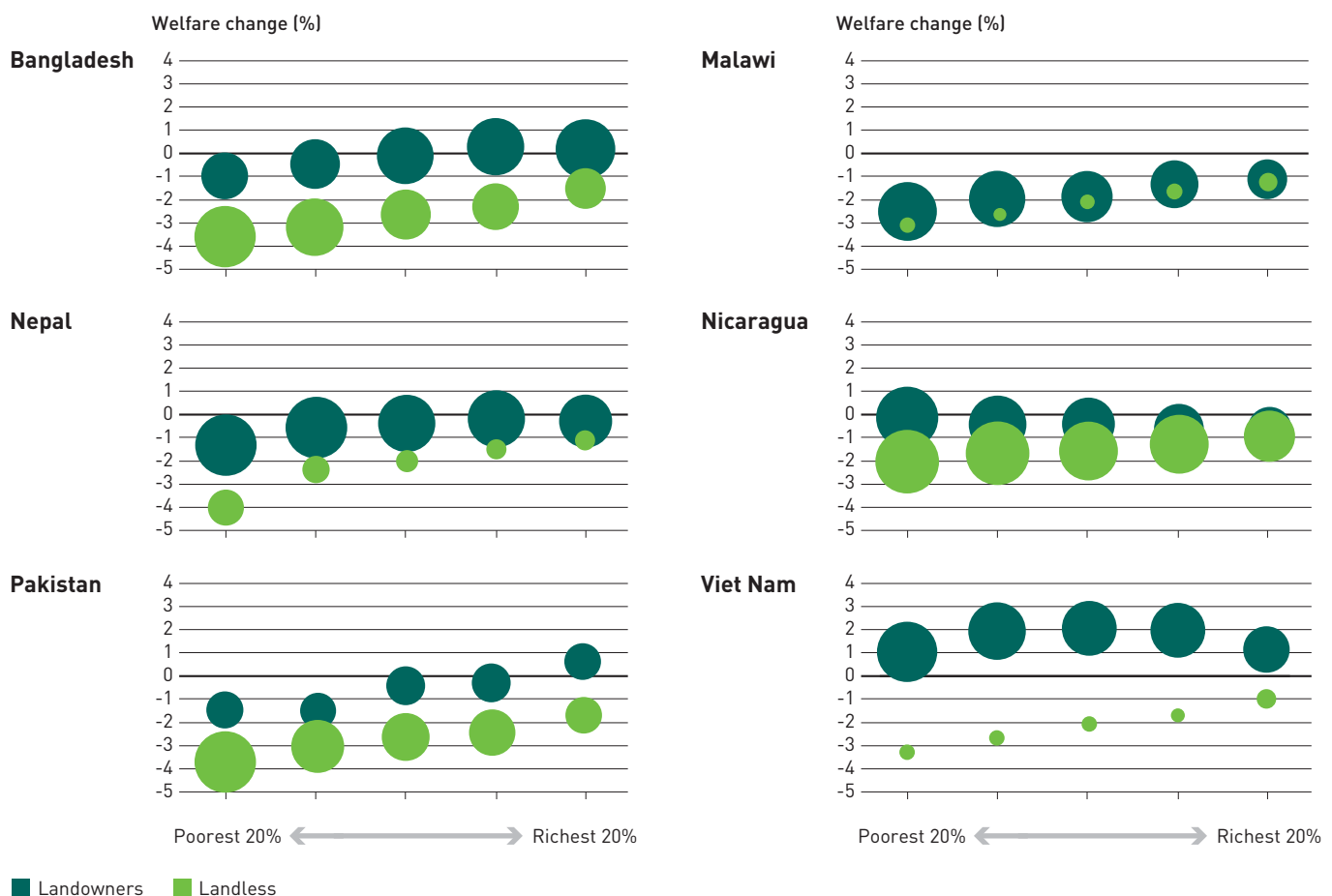
In terms of the percentage loss in income, the results show that the poorest households are hit hardest by rising food prices in both urban and rural areas. This is a cause for concern because the erosion of their real income harms not only their current ability to cover basic needs but also their prospects of escaping poverty. In order to cope with the added stress of high food prices, poor households may be forced to sell assets that would reduce their livelihood base, to reduce the

number and/or the diversity of meals they consume, or to reduce expenditure on essential non-food items, such as health care and education.

Households tend to be less affected in countries where the diet consists largely of food staples that are not internationally traded. For example, Ghanaian households appear to be relatively insulated from swings in international food markets because a large share of their diet is based on local staples

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Welfare effects of a 10-percent rise in staple food prices on rural households, by landownership



Source: FAO.



such as cassava and sorghum. Should the price of these local staples also increase as demand for them grows, rising food prices would have a much stronger impact.

The effects of rising food prices may also vary substantially among countries that have similar dietary patterns but differ in terms of land distribution and productivity levels. In Bangladesh and Viet Nam, rice is the major food staple and also the main food crop grown by small farmers. Viet Nam has a fairly

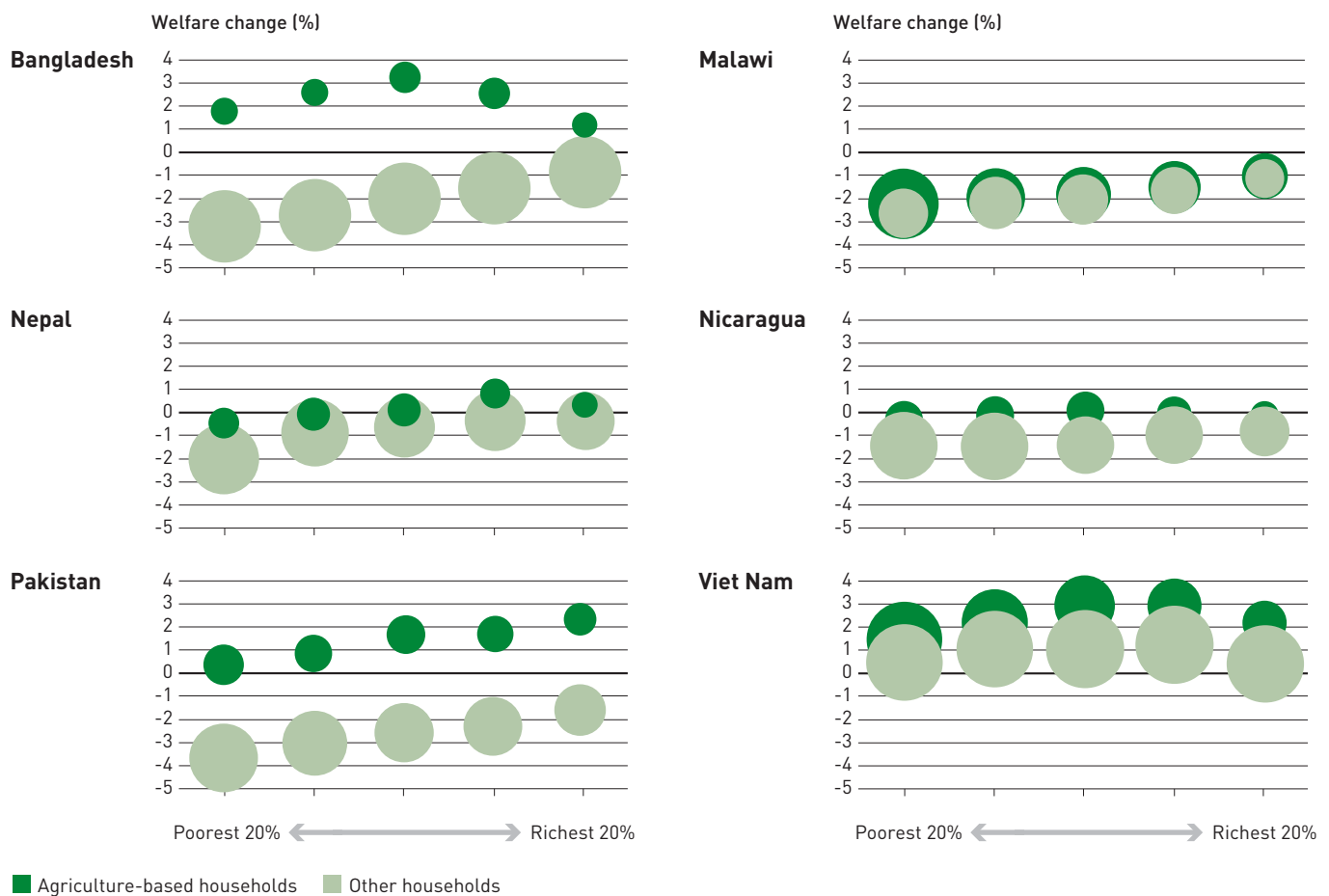
egalitarian distribution of land, with most farmers participating in the production and sale of rice. With impressive gains in smallholder productivity in recent decades, the country has become one of the world's leading rice exporters. In contrast, most farmers in Bangladesh have limited access to land, often only through tenure arrangements such as sharecropping. Given the different land tenure arrangements and, thus, the importance of agriculture in

household income, high rice prices have a substantially different impact on rural welfare in the two countries. In Viet Nam, even the poorer rural households gain from rising prices. In Bangladesh, the impact is largely negative across income groups, and it is particularly high for the poorest and landless households.

Access to key productive assets, especially land, influences the extent to which households, even at similar levels of income, are affected positively or negatively by higher

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Welfare effects of a 10-percent rise in staple food prices on rural households, by livelihood



Note: Bubble size represents the relative portion of that category of the rural population specializing in agriculture or non-agricultural activities.

Source: FAO.

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Can high food prices help the poor?

By their very nature, poor households seldom produce enough to feed themselves, let alone produce a surplus for sale, thus making them net food buyers. In the short run, high food prices usually hurt net food buyers, rich or poor; but the impact can be devastating for the poorest of the poor. That said, in certain circumstances, high food prices can help the poor even in the short run. If the poorest of the poor are net food sellers, as is the case for rice in Viet Nam, higher prices will help reduce poverty (the fact that Viet Nam exports a large share of its production also helps). However, available evidence suggests that this situation does not occur in many countries. In general, although there may be some exceptions, higher food prices do hurt the poor.

In the medium term, higher food prices provide an incentive to increase production. Increased food production implies higher demand for agricultural labour and an increase in agricultural wages. Agricultural wages are an important source of income for the rural poor. Wage rises may more than offset

the welfare losses of the poor caused by higher food prices. However, the speed and extent of agricultural wage growth is important. Research suggests that higher wages eventually did compensate for higher food prices in Bangladesh in the 1950s and 1960s, but only after a lag of several years.¹ The matter warrants further research.

Finally, there is strong evidence that productivity-based agricultural growth, especially by small producers, has an overall positive economic impact on rural areas. Higher agricultural productivity and incomes translate into increased demand for non-agricultural goods and services produced in rural areas. This in turn leads to higher employment, wages and rural incomes. The issue, then, is the extent to which the incentives related to high food prices translate into production and productivity increases, and the time lag before agricultural growth translates into overall rural development.

¹ M. Ravallion. 1990. Rural welfare effects of food price changes under induced wage responses: theory and evidence for Bangladesh. *Oxford Economic Papers*, 42(3): 574–585.

food prices. Across the board, high food prices hit landless households hardest. Landowners, especially the wealthier ones, are in a favourable position to gain from price increases in internationally traded staple foods.

Household livelihood strategies are another important factor in determining the impact of increased food prices on household welfare. Agriculture-based households (those

The Horn of Africa: poor urban population hurt

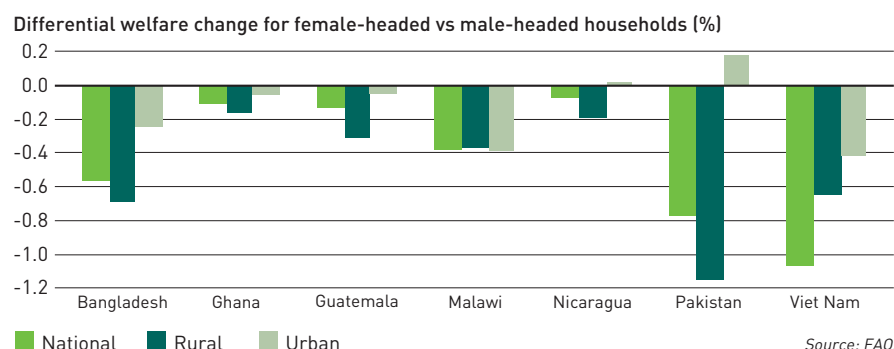
The urban poor in the Horn of Africa are the new face of hunger in a region where up to 14.6 million people now require humanitarian assistance owing to poor rains, high food and fuel prices, conflict, animal disease, inflation and poverty. According to the World Food Programme, the situation of the urban poor has worsened, as they continue to be adversely affected by rising food prices. Others have called for immediate action to prevent hunger from spiralling out of control in the region, while emphasizing that the urban poor are among those at greatest risk.

As of today, some 20 million people live in slums across the Horn of Africa, and they are at the mercy of huge fluctuations in the price of basic family foodstuffs that strip their purchasing power and deplete their savings. Bellatu Bakane, a 38-year-old mother of three living in Addis Ababa, can't help but feel frustrated: "I get angry because every time I go [to the market] food prices are higher" ... "because food prices are increasing, we are eating less". Many Ethiopians are skipping meals and cutting out "luxuries" such as vegetables and eggs.

Source: IRIN news service, June/July 2008.

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Rising food prices hit female-headed households harder





deriving more than 75 percent of their income from farming) stand to gain from the price increase, or at least lose less, depending on the extent of staple crop production. In Pakistan and Viet Nam, and even in Bangladesh, agricultural households gain substantially from higher food prices, with benefits accruing even to some of the poorer households. More surprisingly perhaps, wealthier agriculture-based households may not always gain most from price increases in staple foods as they may be producing other commodities whose prices may not necessarily be rising, such as high-value or non-food crops (e.g. tobacco in Malawi), or livestock.

The welfare impact of a 10-percent rise in staple food prices also varies by gender. Among urban households (which are primarily net buyers of food), female-headed households suffer a larger proportional drop in welfare than male-headed households. The most important exception found in the countries analysed is in Pakistan, where female-headed households represent a larger proportion among the wealthier income groups. Among rural households, female-headed households face considerably higher welfare losses in all countries.

Overall, at the national level, female-headed households are more vulnerable to food price shocks for two reasons. First, they tend to spend proportionally more on food than male-headed households; hence, they are hit harder by higher food prices. Second, they face a variety of gender-specific obstacles that limit their ability to produce more food and, thus, to benefit from an increase in food prices. Chief among these constraints are differences in access to inputs and services, particularly land and credit.

High prices and undernourishment – household-level analysis

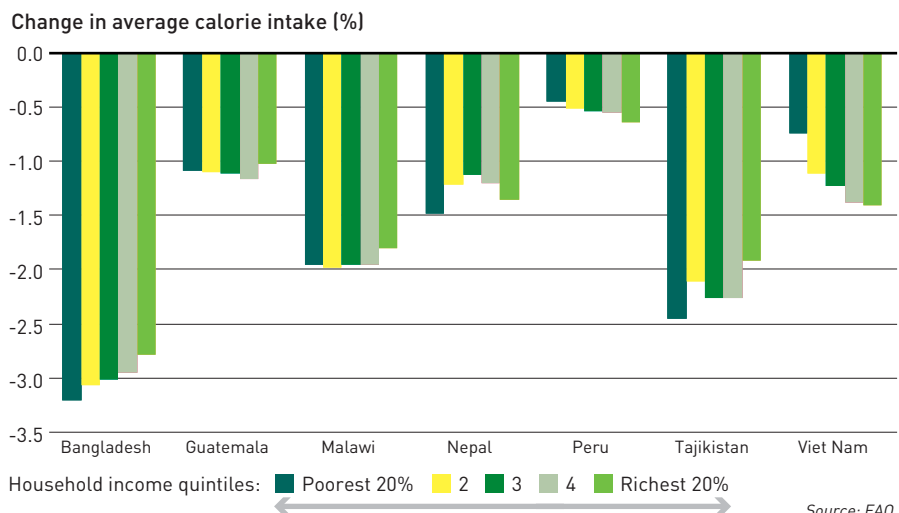
Going beyond the household welfare effects, it is important to understand how price changes translate into calorie intake and, eventually, into country-level undernourishment estimates. To this end, the effect of a 10-percent increase in the price of the main staple cereal on dietary energy intake was analysed using household information from seven different countries. The staples considered were rice in Bangladesh, Nepal and Viet Nam; maize in Guatemala and Malawi; and wheat in Peru and Tajikistan. While small in number, this group of countries offers great variety in terms of patterns of food consumption, income sources and food production.

Identifying households that are most vulnerable to increased undernourishment as a result of food price shocks is not straightforward. This is because dietary energy intake is determined by factors that vary substantially within and across countries. First, the drop in purchasing power is greater for those households that spend

more on food, which are typically the poorest households. However, rising food prices also increase the incomes of those households that produce food, which could be overrepresented either among poorer or richer households. Preferences are also important as they determine food substitution patterns and how food consumption responds to income changes.

Compared with the welfare analysis, the results are not as clear-cut. Looking at urban and rural households together, those countries with a large share of the main staple in total dietary energy (Bangladesh, Malawi and Tajikistan) suffer the greatest impact and the drop in calorie consumption is relatively higher among the poor. However, in Viet Nam, where the primary staple provides 60 percent of total dietary energy, the effect of increased income from rice production mitigates the negative impact of higher food prices and the impact of the increased income is relatively higher among poorer households.

Change in dietary energy intake, by income group



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Coping and nutritional outcomes

The previous section described how rising staple food prices could reduce household welfare, which is important in determining access to food, especially for the poorest. In the short term, households have few choices or none as to how to cope with high food prices, which often leads to a reduction in daily diets. However, in the medium-to-longer term, households may employ different strategies to cope with the drop in purchasing power caused by higher food prices.

Depending on the severity, frequency and duration of food price increases, household coping strategies could be food-based, non-

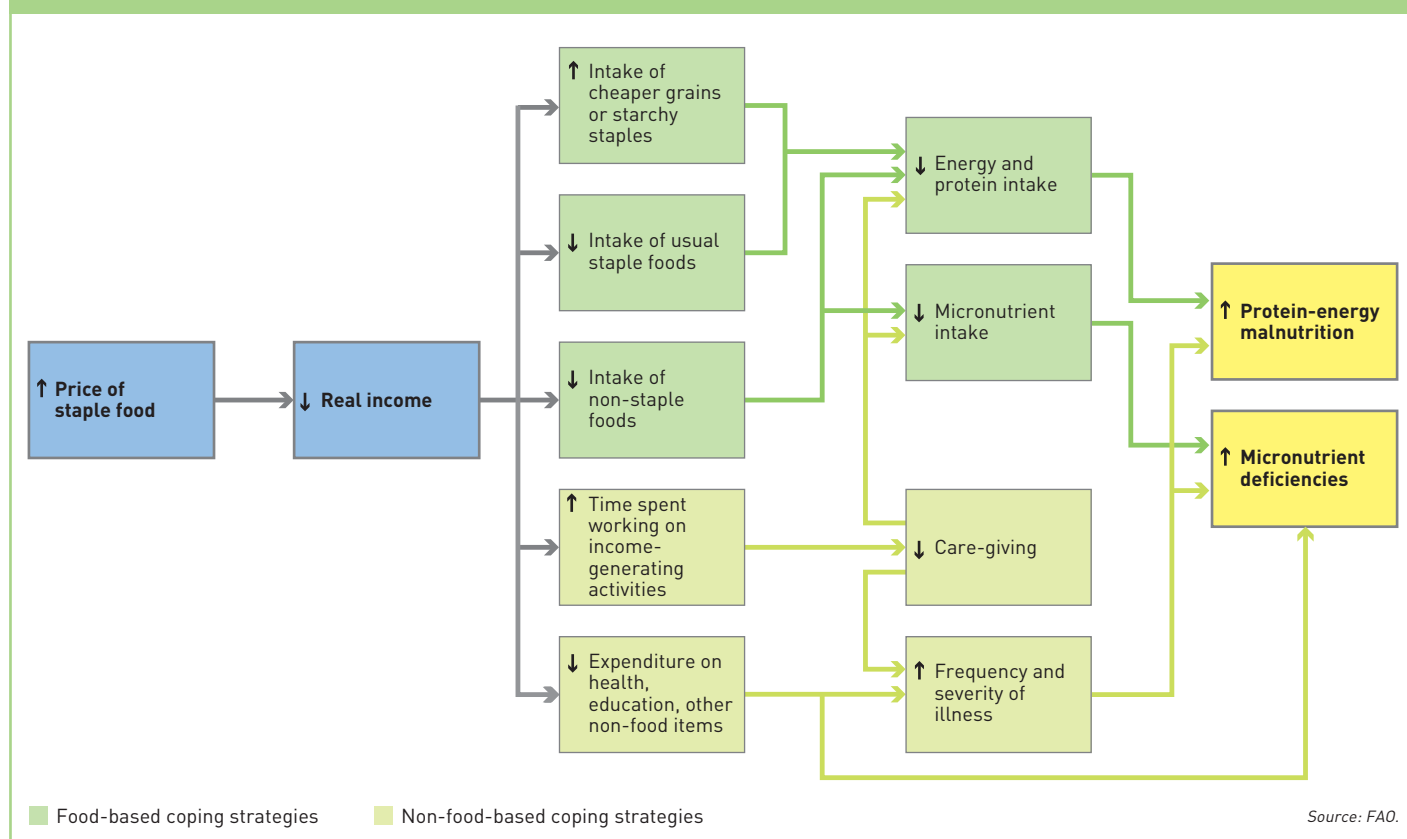
food-based or a combination of both. In countries where people have access to a more diversified diet, households will respond to a sudden and dramatic increase in food prices by first reducing the number of foods consumed from different food groups while leaving overall consumption of staples unchanged.

High prices of internationally traded commodities, such as staple grains and vegetable oils, are expected to increase the prevalence of malnutrition among both urban and rural households, with a greater impact in countries with already low levels of dietary diversity. The links between high staple food prices and nutritional outcomes are complex

and subject to contextual factors, including the geographical distribution of the food price increases, the number of commodities affected in any one country and the choices made at the household level that affect food, health and care practices. Figure 24 illustrates possible household response options and the impact that various coping strategies may have on the nutritional status of individuals.

In general, in analysing the possible nutrition impacts of household and individual behaviour in response to high food prices, coping strategies can be classified as being either food-based or non-food-based. Among the food-based coping

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Household coping behaviours and nutrition impacts following a sudden rise in food prices





strategies, a sudden loss in purchasing power may result in changes in the quantity, quality and/or diversity of food items consumed. For example, an increase in the price of imported rice in West Africa might force households to switch to cheaper domestic rice or other starchy staples, such as locally produced sorghum or millet. Low-income households with little or no choice to reduce the diversity of their diets will respond by simply eating fewer meals per day and by reducing non-food expenditure. Non-food-based coping strategies may involve a reduction in expenditure on health care and education, in addition to seeking other sources of income to offset the loss in purchasing power. Importantly, the extent to which households and individuals are affected depends considerably on their consumption behaviour and income status *before* the price shock took place.

Nutrition impacts vary

The proportion of income spent on food in any one country tends to decrease with higher levels of per capita income. On average, this proportion may range from about 60 percent for some of the lowest-income countries to 15 percent or less for high-income countries. Households in low-income countries generally derive a larger share of total energy intake from cereals. Therefore, the relative impact of high food prices, particularly of high cereal prices, will be largest in low-income countries. This effect is magnified in countries where a large share of the population is already undernourished and where diets among the poor are less diversified. In these countries, households have little choice but to reduce the

number of meals and/or the portion size, resulting in reduced energy intake and increased levels of undernourishment. In countries where people have access to a more diversified diet, the nutritional concern associated with a price shock centres on increased risk of deficiencies in essential micronutrients, such as iron and vitamin A, as households are forced to consume fewer foods.

Dietary diversity and nutrition

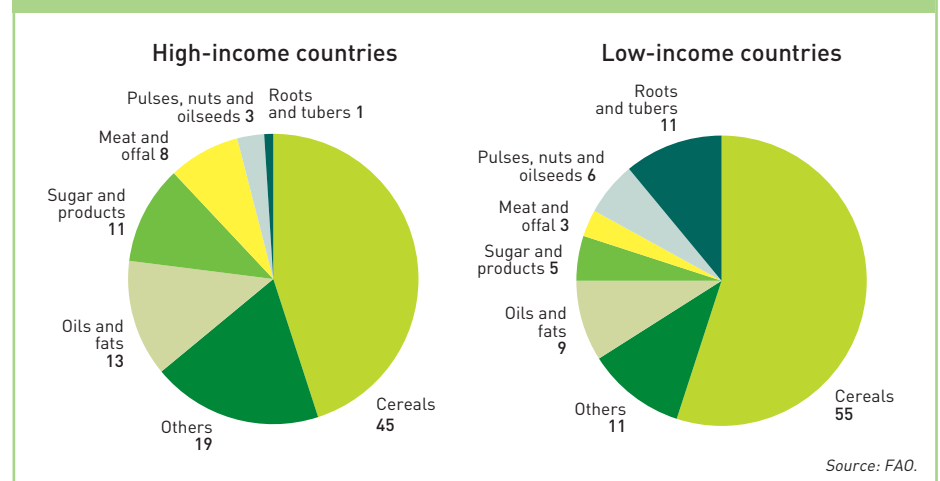
The strong influence that income exerts on food choices can be seen in country-level data from food balance sheets. The share of dietary energy from animal foods, vegetable oils, sugar, fruits and vegetables increases with higher per capita income levels, while that from roots, tubers and pulses tends to decrease. As a result, diets in low-income countries are typically rich in cereals, roots and tubers, while the poor consume less meat and fewer dairy products, smaller amounts of

oils and fats, and fewer fruits and vegetables (included in "Others" in Figure 25). These foods are usually the most expensive, but they are also the most concentrated sources of many nutrients. Meat and dairy products are rich in high-quality proteins and micronutrients, such as iron, zinc and vitamin A. Fruits and vegetables contain vitamin A precursors. Oils are rich in dietary energy. Thus, the poor in developing countries usually suffer disproportionately from malnutrition in part because diverse, nutritionally well-balanced diets are unaffordable.

Households first respond to high food prices by buying less food or switching to relatively cheaper foods. After the African Financial Community franc (CFA franc) was devalued in 1994, the price of imported rice increased, but many urban households in Côte d'Ivoire, Mali and Senegal continued to consume the same amounts of rice. The strain on food budgets resulted in less diverse diets for the poorest households in these areas. In Dakar (Senegal) and

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Dietary diversity by source of dietary energy (percentage)



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Indonesia: price rises mean greater malnutrition

Although the Indonesian economy is growing at about 6 percent a year, some 100 million Indonesians live on less than US\$1 a day. UNICEF data show that child malnutrition is rising. Dozens of children under five died of malnutrition in the first six months of 2008. In the same period, the cost of staple soybean-based products such as tofu and tempe, a source of vital protein, rose by about 50 percent owing to soaring commodity prices on the international markets.

Source: IRIN news service, June 2008.

Brazzaville (the Congo), fats and vegetables became even less prominent in the daily diet.⁹

Women and children are particularly vulnerable to the nutritional effects of high food prices, as they are more likely to suffer from micronutrient deficiencies when driven to consume less diversified daily diets. Figure 26 shows that on average only 40–50 percent of children under two years of age have an appropriately diversified diet in sub-Saharan Africa, with particularly low values of only 10 percent in the Niger and Togo. Following a drought-induced increase in maize prices in Zambia in 2001, the rate of stunting increased

among rural infants whose mothers had been pregnant at the time of the price increases.

During the drought and financial crisis of 1997/98 in Indonesia, mothers of poor families responded by reducing their own dietary energy intake in order to feed their children better, resulting in increased maternal undernutrition.¹⁰ Children were also at greater risk of being given up for adoption by their families in order to reduce the number of mouths to feed. Household purchases of more nutritious protein-rich foods were reduced in order to afford the main staple (rice), leading to an increased prevalence of anaemia in both mothers and children. The effects were particularly severe for infants conceived and weaned during the crisis. These examples demonstrate the long-term and intergenerational effects of rising food prices on the growth and development of children.

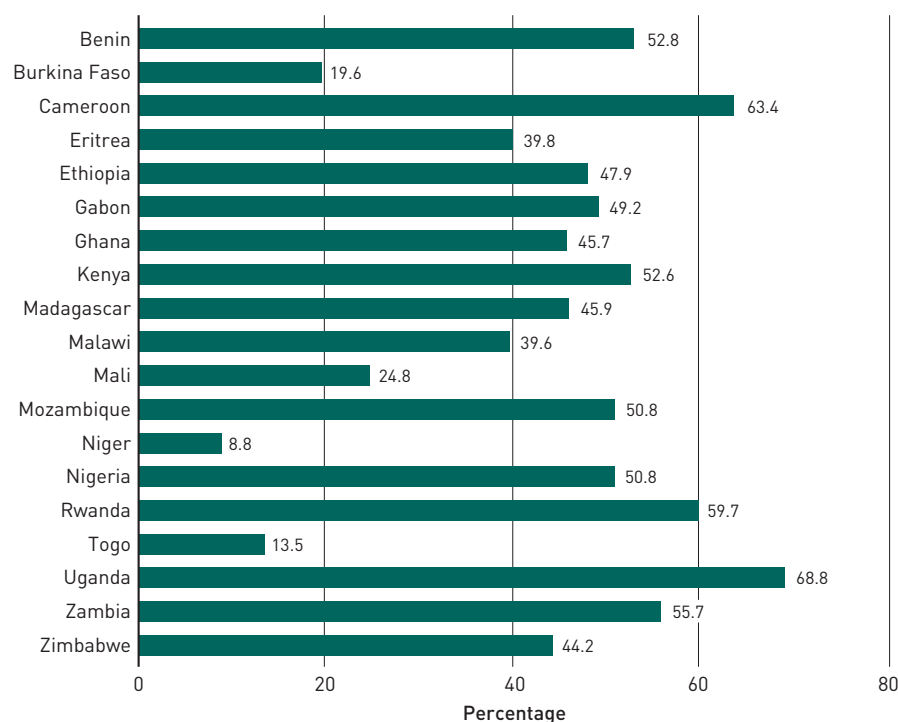
As explained in an earlier section, the actual impact of high staple food prices, in particular of tradable cereals, also depends on prevailing cultural food norms and habits in different countries.

Impact on undernutrition

It has been shown above that higher staple food prices are likely to lead to increased undernourishment (following reduced dietary energy intake). A general association between levels of undernourishment and prevalence of undernutrition in children under five years of age is apparent in Figure 27. Thus, it is reasonable to conclude that when levels of undernourishment in the total population increase, child undernutrition increases as well. Particularly critical levels of undernutrition occur when

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Children aged 6–23 months in sub-Saharan Africa receiving appropriate* number of food groups



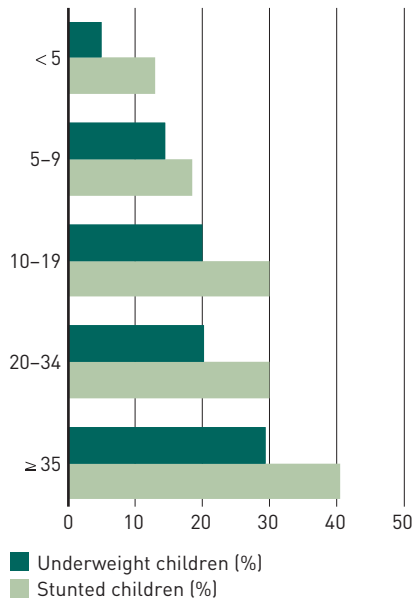
* The appropriate number of food groups is defined as three for breastfed children, and four for non-breastfed children.
Source: A.G. Mukuria, M.T. Kothari and N. Abderrahim. 2006. Infant and young child feeding updates. Calverton, United States of America, ORC Macro.



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Undernutrition in children under five years of age

Undernourished in total population (%)



Source: FAO.

undernourishment exceeds 10 percent in the total population. Based on this association, it is expected that undernutrition in children under five years of age will increase, especially if prices remain high and no preventive measures are taken.

Non-food coping strategies

Having examined the short-term impacts of high food prices on undernourishment levels, it is also necessary to consider the longer-term negative effects on nutritional levels and their consequences as households attempt to cope by decreasing non-food expenditure and/or by increasing their income. Reduced expenditure on health, already often low among poor

Côte d'Ivoire: high prices cut health spending

With the increase in food prices in Côte d'Ivoire, poorer urban people are seeking to cut down on essential non-food items, such as medicines. An example is Drissa Kone, a man with a severe respiratory infection and a prescription for medicines that would cost CFA franc 35 000 (US\$83) at official prices. Drissa Kone has no hope of raising enough money to buy the medicines. His solution is to buy counterfeit medicines at Abidjan's Adjame market, where he can find an illegal reproduction of the original drug at a fraction of the price. He said "I can buy the same medicines at the market by the individual tablet not the packet, and pay just CFA franc 150 [US\$0.35] per pill. For CFA franc 500 [US\$1.19], I can get enough medicine to last me three days!" The downside, however, concerns the

quality of the medicines as they are usually less effective than the originals – a serious problem when treating potentially deadly illnesses like malaria. Fake medicines sometimes contain a mix of chemicals that further harms health.

Dr Ambroise Kouadio, a doctor in Abidjan, says that, although the risks of using counterfeit medicines are fairly well understood, the number of people like Kone who are turning to them is increasing. "The state has built many more health centres and hospitals, but the people are still poor. They have to choose between health care and eating, and they usually choose to eat," said Dr Kouadio.

Source: IRIN news service, July 2008.

populations, and education means that health conditions deteriorate and children will have less schooling, thus adversely affecting their future income-earning opportunities and overall development prospects.

Households may attempt to engage in new income-generating activities. Time constraints among women with small children may have negative health and nutrition-related consequences for children. Disease and malnutrition are closely related. Infections increase the likelihood of various types of malnutrition due to reduced utilization by the body of essential nutrients. For example, routine health activities, such as child growth monitoring and immunizations, declined in Brazzaville after the 1994 CFA franc devaluation, partly because of mothers' decreased capacity or

willingness to take their children to health centres. The prevalence of child stunting and wasting rose and the nutritional quality of infant complementary foods declined.¹¹

Increased female employment may lead to less or lower-quality child care at home. It may interfere with breastfeeding, home-based food preparation, sanitation practices and seeking medical assistance when children are sick. Older siblings may have to take over from mothers in providing child care, while being less equipped to do so. Increased child labour at home or outside may have further negative nutritional consequences for children and interfere with their education.