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FOOD SECURITY IN A CHANGING WORLD*

S. Shahid Husain**

The food and agriculture crisis of the early and mid-1970's brought the issue of food security to center stage for policy-makers and policy analysts alike. Volumes have been written by both economists and non-economists. Policy-makers have intervened in myriads of ways to provide their citizens with food security. And new institutional arrangements such as the IMF's Cereal Import Facility have been set up to provide a means of dealing with the problem.

The World Bank expects soon to publish a policy paper on this issue. In my remarks this evening I would like to provide an overview of the approach we are taking in that paper, and to share with you some of our suggestions on policy. Work on our paper started before the recent crisis in Africa. But events of this past year provide an added sense of urgency to finding ways of dealing with the food security problem, both by national governments and by international agencies.

My remarks are divided into three parts. First, I will provide a definition of food security and explain why it is important that governments do something about it. In the second part I will try to provide some notion of the scale and dimensions of the food security

*Presented at Annual Meetings of the American Agricultural Economics Association, Ames, Iowa, August 5-7, 1985.

**Vice President, Operations Policy Staff, The World Bank, Washington, DC

problem. And in the third and final part I will outline what we see as some of the proper means of dealing with the problem. At the end I will have some concluding remarks.

What is Food Security?

The world as a whole now has an abundance of food. This is in marked contrast to the situation only a decade ago, and of course in sharp contrast to the situation in Africa. Despite the unprecedented population growth of the past forty years, food production in the aggregate has grown at an even faster rate. Prices of cereals in world markets have been trending downward. Food is available so that countries that do not produce enough of their own can import it if they want to and have the resources to do so. In fact, a remarkable food and agricultural system has evolved in the post-World War II period, with the result that there has not been a major famine in that period except in those cases in which the world as a whole did not know that there was a problem until too late to respond, or in which logistic problems made it impossible to respond with sufficient speed.

Despite this global abundance, many poor countries and hundreds of millions of poor people do not share in it. They suffer from a lack of food security, caused mainly by a lack of purchasing power.

Although there are many definitions of food security in the literature, the World Bank defines it as access by all people at all times to enough food for an active, healthy life. Its essential elements are the availability of food and the ability to acquire it.

Food <u>in</u>security is of two kinds: chronic and transitory. <u>Chronic</u> food insecurity is a continuously inadequate diet due to the lack of resources to acquire food. It affects households that persistently lack the ability either to buy enough food or to produce their own. <u>Transitory</u>

food insecurity, on the other hand, is a temporary decline in a household's access to enough food. It results from instability in food production, in food prices, or in household incomes. The worst form of transitory food insecurity is famine.

The World Bank gives high priority to food security because it relates to one of the most important forms of capital in an economy - human capital. Inadequate diets result in increased vulnerability to disease and parasites, inadequate strength for tasks requiring physical effort, reduced ability to benefit from schooling and training programs, and a general lack of vigor, alertness, and vitality of those groups affected. These factors affect the productivity of human resources both in the short and long run. Reduced productivity means sacrificed output and income, and difficulties for both families and nations in extracting themselves from cycles of poverty.

Scale and Dimensions of the Food Security Problem

How many people do not eat enough? Where do they live? How have their numbers and geographical distributions changed over time? These questions are easier to answer for people suffering from chronic food insecurity than from transitory food insecurity.

Chronic Food Insecurity

In 1980 probably somewhere between 340 million and 730 million people in the developing countries (excluding China) did not have incomes which allowed them to obtain sufficient calories for an adequate diet. The estimate of 340 million is based on a combination of a caloric standard that would prevent serious health risks and stunted growth in children and the available income data. If the standard is enough calories for an

active working life, however, the estimate of the chronically deficient rises to 730 million. This higher figure is probably a better guide to the harm done to development by inadequate diets. About two-thirds of the undernourished live in South Asia and a fifth in Sub-Sahara Africa. In all, four-fifths of the undernourished live in countries with very low average incomes.

My colleagues have also attempted to evaluate the changes over time in those suffering from inadequate diets. Estimates of these changes can be made if one is willing to assume there were no changes in the distribution of income from one period to the next. Making this rather strong assumption, we found that for developing countries as a group, the share of people with inadequate diets declined between 1970 and 1980 - by six percentage points using the high standard and by two percentage points using the low standard. Because of high population growth, however, the number of people with energy-deficient diets appear to have increased by both standards of the energy-intake requirement (an increase of 10 percent by the high standard and 14 percent by the low standard). Hence, although progress is being made in relative terms, there is no cause for complacency.

On a regional basis, the greatest progress - both in shares and numbers - were in East Asia and the Middle East - regions that enjoyed rapid economic growth during this period. South Asia and Sub-Sahara Africa, on the other hand, had slight increases in the share of the population with energy-deficient diets, but large increases in absolute numbers.

As we look to the decade ahead, chronic food insecurity will probably continue to fall as a share of the populations of developing

countries, but continue to rise in absolute terms. The fall in the share will probably be smaller in the 1980's than it was in the 1970's, however, primarily because average incomes are expected to grow less rapidly in this decade. Growth of incomes was the largest single influence on dietary improvement between 1970 and 1980. Even the modest improvements projected for the 1980's may not be realized, however, as governments in low income countries are forced to reduce food subsidies and other programs for the poor in response to rising balance of payments and budget deficits - the plague of so many countries so far this decade.

It is interesting and insightful to relate these data on the population experiencing dietary deficiencies to data on food supplies. What this comparison shows is that although many people in the world have too little food to sustain an active, productive, and healthy life, the deficiency in their diets is only a small fraction of the food supply in most countries. For example, in a country where 20 percent of the people eat 200 fewer calories than the daily requirement, the average deficit for the whole population is only 40 calories. If national average consumption is 2,000 calories per day, the total energy deficiency of the undernourished is only two percent of the national food supply. Generally what we find is that the deficiency is less than five percent of the available national food supply, though it may approach 10 percent under the higher standard of adequacy.

In considering these data, however, one should not conclude that merely increasing food supplies by five percent would eliminate malnutrition. Such an increase might not benefit the poor at all, unless their purchasing power were also increased. The data merely shows that in

most countries the supply of food is not a major obstacle to achieving food security.

Transitory Food Insecurity

The lack of data on short-term fluctuations in food consumption make it impossible to estimate directly the number of people affected by transitory food insecurity. The best that can be done is to examine what has been happening to variables that typically influence food consumption. These data are insightful in their own right.

First, consider the fluctuations in world prices. The period 1968-78 was a period of considerable instability in international commodity markets and illustrate well the vulnerability of developing countries to conditions in world food markets. For example, the coefficients of variation in prices ranged from about 20 percent for maize to 35 percent for rice. This significant price instability contrasts sharply with the relative stability of global production of these cereals.

Production in individual countries is a great deal more unstable than is global production. On average, for example, coefficients of variations for production in selected developing countries were 18 percent for wheat, 14 percent for maize, and 8 percent for rice in the 1968-78 period. Globally, the respective coefficients were only five percent, four percent and three percent for the same period.

These data suggest that individual countries could deal with their transitory food insecurity problems at least in part by means of international trade. The problem, of course, is that they are often constrained by a shortage of foreign exchange caused by a simultaneous fall in the price of their exports, unsatisfactory export performance, or a rise

in other claims on their export earnings, such as the need to service their foreign debt. Here the contrast between the developing and industrialized countries is significant. During the volatile 1968-78 period, for example, the average coefficient of variation in export earnings for developing countries was about 15 percent, compared with about 10 percent for industrialized countries.

Household Purchasing Power

An important dimension to the food security problem is that the incomes of individual households fluctuate a great deal more from one year to another than do total incomes, production, or prices. Consider the data from a rather large sample of households in India. In 1968-70, aggregate income, food production, and food consumption were fairly stable for that country. Yet the survey data on some 4,000 households scattered throughout the country showed considerable year-to-year variability in per capita incomes and spending. Nearly half the households experienced at least one year in which their per capita income fell below 70 percent of their own three-year average. In about 40 percent of the households, total spending and spending on food showed similar deviations from the average.

Famine

Famines are the most severe form of transitory food insecurity. They can have several causes, including wars, floods, crop failure, the loss of purchasing power by groups of households, and - sometimes, but not always - high food prices.

It is interesting that the true etiology of famines is so poorly understood. The popular belief is that famines are caused by the unavailability of food, with a clear implication that the price of food

skyrockets at the time. In point of fact, a decline in the general availability of food is not necessarily a primary cause of famine, as research on four notorious famine episodes has clearly shown. Indeed, by paying too much attention to changes in food availability, governments and relief organizations have sometimes erroneously diagnosed famines. As a result, famine relief has been belated and ineffective.

Famines and who is hurt by them is better explained by losses of real income. Typically, victims belong to one or several of the following groups:

- Small farmers or tenants whose crops have failed and who cannot then find other employment (for example, the Wollo famine of Ethiopia in 1973).
- Landless agricultural workers who lose their jobs when agricultural production declines (as in Bangladesh in 1974) or who face a rapid rise in food prices when their wages are stagnant or falling (as during the Great Bengal famine of 1943).
- Other rural workers (including professional beggars) affected by a drop in real income in the famine regions. (This is true of almost all famines.)
- Pastoralists who normally get most of their food by selling their animals. Their herds may be ravaged by the drought itself, or animal prices may collapse relative to foodgrain prices (for example, the Harerghe drought of 1974).

Famines can occur during economic booms or slumps. In Bengal in 1943, for example, the increase in food demand, fueled by gains in urban

income, inflated food prices faster than rural wages grew. In Ethiopia, by contrast, an economic slump (caused partly by the 1974 drought) reduced the demand for food even as food supplies declined, so prices barely rose.

Supply problems such as those in times of war can aggrevate a famine. But famines happen even when foodgrain markets are working very well. In several famines, local food prices barely rose, and food was continuously available at those prices. But the natives could not buy it; they didn't have the income.

Suggestions for Improving Food Security

In the interest of time, I will limit myself to suggested policy measures national governments might implement to improve food security, thus ignoring the important opportunities for international cooperation. National governments appear to put high priority on addressing both chronic and transitory food security problems. This is exemplified by persistent over-valuation of national currencies with the objective of keeping food prices low for urban consumers, by the expenditure of large sums on consumer food subsidies, and by the construction of costly storage facilities to carry stocks of grain. Unfortunately, these measures are often counter-productive in the sense that they result in significant economic wastage, draw resources away from more productive activities, result in slower economic growth, and thus aggravate the food insecurity problem rather than to alleviate it.

The experience of the industrialized countries shows that economic growth is what ultimately provides most households with the income to acquire enough food. Thus efficient growth policies are the key to dealing with the food security problem over the long term. The problem, of

course, is that dealing with it only by this means takes a long time. Nevertheless, any policies that raise the incomes of the poor while increasing overall economic growth should obviously be given high priority.

The challenge to policy-makers is to find cost-effective means of dealing with the problem when there are important tradeoffs. Consider the following alternatives for enhancing chronic food security in the medium term:

Change the Supply of Food

A country can increase its food supply and lower food prices fairly easily by importing more food or by restricting exports. However, increasing total food supplies does not necessarily strengthen food security in a particular country. It depends on whether poor people are net buyers or net sellers of food. If the latter, such policies will be counter-productive.

Similarly, increasing food production does not necessarily improve food security. It will do so only if it increases total food supplies and thus lowers prices; if it raises the income of poor farmers who are themselves food insecure; or if it increases food supplies to other food insecure groups. The problem is that additional food production will often substitute food imports or increase exports of food without affecting the price of food. In such cases, increased production does not strengthen food security unless the additional food leads to increased incomes for the poor, or is produced by them on a subsistance basis. On the other hand, increasing production of nontraded foods will lower their prices and increase food security to the extent that such foods are consumed by the poor.

An important implication here is that the widely-touted goal of food self-sufficing may have very little effect on overall food security, despite what the proponents of such policies may believe. Whether attaining this goal improves food security depends on its effect on food prices, on the incomes of the poor, and on the availability of food to disadvantaged groups.

Subsidizing Food Prices to Consumers

A two-price policy - one for consumers and one for producers - can improve food security while at the same time sustaining incentives to producers. Such subsidies usually are feasible only if the foods are consumed in processed form and can be centrally processed, such as flour, bread, and tortillas. Otherwise, opportunists will purchase the food at the low subsidized price and resell it at the higher producer price.

The problem with such subsidies is that they generally have a high fiscal cost relative to the income transferred to the intended target group. This is because they transfer income to the advantaged as well as to the disadvantaged. Consequently, to the extent possible, subsidy programs of this kind should be restricted to geographically isolated areas where the poor are heavily concentrated. The effectiveness of such programs also depends on identifying foods on which the poor spend a large share of their budgets.

Transferring Income in Cash and In Kind

Food stamp programs such as the United States uses are one such program. Not many developing countries have the administrative capability to manage such programs, however. Fair-price shops tend to be more prevalent in such countries, with the food rationed to the target group at

below-market prices. A difficulty with this form of intervention is that it is difficult to avoid "leakage" of the transfer payments to other then the intended beneficiaries. These leakages can be reduced by proper administrative procedures.

Public employment programs for the poor are a more direct means of raising the income of disadvantaged groups. Such programs can be more cost-effective if used during periods of seasonal food insecurity, when the opportunity wage in the affected regions is very low. And it may often be more effective to subsidize private employment than to initiate public employment schemes.

Turning now to measures for dealing with transitory food insecurity, there are again three sets of policy alternatives:

Stabilizing Prices and Supplies

In most countries, the surest and probably the cheapest way to achieve price stability is through international trade. Imports or exports can offset instability in domestic production in a reasonably automatic way. Variable levies on externally traded goods are another means to isolate domestic food prices from changing international prices. But such policies may destablize the government's budget and the balance of payments. Other alternatives include the carrying of larger foreign exchange reserves, the use of food aid, and the expanded Compensatory Financing Facility of the IMF.

Quantitative controls on trade, on the other hand, tend to be a poor choice of policy since policy-makers seldom have sufficient information to satisfy the needs of such a program. Buffer stocks are another widely advocated measure, but they tend to be very costly.

Carrying extra foreign exchange is probably a more cost-effective solution.

Preparing for Precipitous Declines in Supply

There is a role for storage, however. In some countries it is difficult to get food to certain places where it is needed and when it is needed. In such cases, small emergency resources can be placed at strategic locations. The objective of such stocks is to improve the response time to changing conditions.

Assisting Vulnerable Groups Directly

Even if markets are working perfectly, the most severely affected groups can still lack the purchasing power to buy food. Such groups include the rural landless whose employment and wages are severely depressed, the small farmer or herder whose marketable surplus has been destroyed, and the artisan or urban worker whose opportunities for work have collapsed. These groups must be quickly identified and provided with payments in cash or in kind.

Concluding Comments

I would like to close on two cautionary notes. First, the level of food security to be achieved is a decision to be made by individual countries. Richer countries will not find it too difficult to reach a large proportion of their population at risk. Poorer countries face more difficult choices.

Second, cost-effective food security interventions can accelerate the rate of human capital formation required for economic growth. But attempting to reach the entire population at risk too rapidly may incur such large costs and losses in resource efficiency that the expected benefits do not outweigh their costs. Unless the human capital formed by

the food security interventions compensate for the increased costs, long-term growth will be slowed and food security may deteriorate rather than be enhanced.