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SOCIOECONOMIC POLICIES AND FOOD SECURITY

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1. INTRODUCTION

The generally accepted definition of food security is *access of all people at all times to the food needed for a healthy life*. It is currently estimated that 800 million people today suffer from undernutrition due to insufficient energy and nutrient intake and leading to impaired development, poor health and reduced activity levels. Reducing this number is a major challenge for policymakers.

Availability of food and access to food are the two essential determinants of food security. Availability however does not ensure access. Food may be available globally (i.e. it would provide an adequate diet for everyone if everyone had an equitable access to it) but not all countries, households within countries or individuals within households that need it have access to it.

At the national level, persistent food insecurity is the result of development failures. Food deficit countries do not have the necessary means for acquiring food in the international markets. Poverty is a major source of chronic food insecurity. The poor do not have adequate means to secure their access to food even when the food is available at the local or regional markets. Poverty, in turn, may be the result of development failures and/or skewed development patterns which exclude parts of the population. It has been noted that "it is common to have 20 to 30 percent of a country's population consuming less than 80 percent of caloric requirements even though national-level food availability is at or greater than 100 percent"[2]. Although poverty may also be found in developed nations, those nations possess the means to implement interventions that minimise the risk of people becoming

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[2] The quotation is from a World Bank source as cited in Kennedy, Eileen and Howarth E. Bouis, *Linkages between Agriculture and Nutrition: Implications for Policy and Research*, Occasional Paper, Washington DC, USA, International Food Policy Research Institute, 1993.

undernourished. Thus development is critical for addressing effectively the problem of food insecurity.

At the household level, access to food (either by own production or through purchases) while a prerequisite of a proper dietary intake, is not the only determinant of the household's nutritional status. The latter, results from a combination of other determinants major clusters, which are clearly inter-related and vary according to the ecological and socio-economic context namely health and care:

- health determines the capacity of a given individual to utilise the nutrients (s)he consumes. A sick person will not be able to digest or even eat the food he/she needs. Health is in turn affected by the individual's nutritional status. This is often referred to as the malnutrition-infection circle. Health is also determined by people's environment (including access to water and sanitation and housing conditions), practices (in particular hygiene) and access to appropriate health services .

- care is needed to ensure health and appropriate food distribution to vulnerable individuals, such as infants, children, elderly people, and the sick and handicapped. Care capacity is related to social organisation, time availability and knowledge.

Food security policies aim specifically at ensuring that households have an adequate dietary intake and that the risk of households becoming food deficient is minimised. On the other hand, a wide spectrum of policies affect food security (by affecting poverty, food production, prices, foreign exchange availability, employment and wages etc.) that are not necessarily food security policies. In this paper, both sets of policies are being examined, i.e. those aiming directly at food security and nutrition and those that affect food security although their primarily aimed at other targets.

The paper begins with an examination of the importance of overall economic development for food security. In turn, it examines the effects on food security of policies that are necessary for economic growth. Given the essential role of agriculture in developing country economies, short-term policies and long term strategies "to get agriculture moving" are examined along with their effects on poverty and food security. Finally, an economic analysis of policies (targeted and untargeted) specifically aimed at food security is presented.

2. Food Security and Policy in a Changing World

As mentioned earlier, at the national level, food insecurity is primarily the result of growth failures. From the point of view of growth, the period since the last World Food Conference has seen two drastically different economic environments for developing countries: the high growth period of the early and mid 1970s, and the crisis period that includes the late 1970s and the 1980s where, with the exception of South and East Asia (and the oil producing countries), developing regions experienced declines in per caput incomes. This negative growth environment was created by a mixture of adverse exogenous factors beyond the control of developing countries (such as the second oil shock, the world recession and the drastic increase in world interest rates) but was also the result of ill-focused national policies that exacerbated the effects of exogenous shocks on economic growth.

The economic crisis caused collapse or near-collapse of the formal productive sectors, of markets and infrastructure and thus deprived the poor and the food insecure from gainful employment opportunities. Thus, for many countries especially in Sub-Saharan Africa and Latin America, poverty increased during the 1980s reversing the trends that had been achieved in the 1960s and the 1970s. Indicators of social performance although continuing to improve for the developing countries as a whole, deteriorated for several countries especially in Sub-Saharan Africa.

An examination of the proximate causes of economic decline in developing countries reveals that (a) unsustainable macroeconomic (fiscal and monetary) policies and (b) severe economic rigidities, prevented several developing countries from adjusting to the negative external shocks of the late 1970s and early 1980s.

It was to a large extent the disappointing performance of most developing countries during the late 1970s and early 1980s that prompted the abandonment of the dominant development paradigm and associated economic policies in favour of policies promoting macroeconomic equilibrium and market-determined resource allocation. Those elements were considered essential for the resumption of economic growth.

The economic policies of most developing countries are currently reflecting such a change in approach through the implementation of stabilisation and structural adjustment policy reforms.

Those reforms were either undertaken under the initiative of the countries themselves in the face of mounting economic problems, or imposed as conditions for the granting of loans by the Bretton Woods Institutions.

The changed views on development, to the extent that they are translated into policies at the national level, condition food security interventions in several ways: (a) the focus on efficiency as a necessary condition for promoting economic growth entails preference for targeted non-distorting interventions as opposed to economy-wide price-distorting policies; (b) following reductions in the role of the public sector the state may now depend less on the institutional apparatus of the past (parastatals and other state distribution channels) and more on market and non-governmental institutions; (c) as markets are liberalised and integrated, secondary market responses to food security policies may enhance or partly cancel their intended effects; (d) the choice of development strategies is dominated by efficiency considerations and the surrogate role of the state (mainly in terms of public investment) is concentrated in those sectors that have a dynamic comparative advantage in promoting overall growth; such choices have implications for the ability to alleviate food security in the long-run; (e) policies need to conform to constraints dictated by the need for developing countries to reduce macroeconomic disequilibria. Such tightness further accentuates the need for efficient use of funds earmarked for food security interventions.

Food security interventions at the national level are also conditioned by international events. At the international level the situation is characterised by tightness in the availability of development assistance to developing countries due *inter alia* to increased effective demand for aid from East European countries. In addition the outlook on food aid will also be marked by the effects of the Uruguay Round agreement especially the Agreement on Agriculture. Although there is no reason to believe a-priory that *bona fide* food aid will be adversely affected by the agreement, supply (surplus) determined aid may be reduced. The reduction in government price supports and other measures that reduce surpluses in certain developed country donors may have a negative impact on the latter type of food aid availability. The overall impact of the agreement on developing countries goes beyond its effects on food aid availability. Namely, the net impact of the agreement on developing countries (whether food aid recipients or not) will be affected by its effects on their exports, market access, compensating measures to counter higher world food prices, long-run effects of higher growth, etc.

3. Macroeconomic Reforms, Structural Adjustment and Food Security

Programmes of macroeconomic stabilisation and structural adjustment affect food security through their effects on incomes of the poor and the prices of items in their consumption bundles. The short run effects of those programmes on poverty and food security have been dominated by the effects of the stabilisation phase. During that phase, the overall entitlements of the poor have been affected by cuts in public expenditures for health, education, food subsidies, etc. A possible recession during that phase and cuts in the size of the civil service may have created a new class of poor and food insecure especially in urban areas and exacerbated further the position of those already in poverty. Devaluation, market liberalisation and streamlining of public enterprises have in most cases resulted in price increases for essential non-food items (fuel, health services, transportation, education etc.) and in reductions in the overall and food entitlements of the poor[3].

In general, the effects of stabilisation on the poor and the food insecure is a function of their sources of income, and patterns of consumption. Factors such as the ownership of or access to productive resources by the poor, their relationship to the formal and informal labour markets, degree of access to government subsidies or programmes, etc. have been important elements influencing who and to what extent has lost from cuts in public expenditures. For instance, urban dwellers close to the poverty line that depend on the public sector for employment (directly or indirectly), who buy all their food in the market, receive government subsidies (food subsidies or subsidised government services) may fall below the poverty line and become food insecure as a result reductions in the public payroll, and cuts in subsidies. For the rural poor the situation is more complex. Determining Factors such as whether they are net producers or consumers of food, producers of export crops, the strength of rural labour and/or credit markets, and the degree of access to product and input markets are important in determining the effects of adjustment programmes on this category of the poor. In the medium and long run, the effects of structural adjustment will be determined by the extent to which such programmes will be able to halt the economic decline and contribute to the resumption of growth.

[3] See section on agricultural pricing policies for more discussion on structural adjustment and the rural poor.

The multiplicity of factors that determine the effects of policy reforms on food security, lack of sufficient data and the difficulty of separating out the effects of the reform programmes from the delayed effects of the serious crisis that preceded reform, makes it impossible to draw generalised conclusions as to their precise effects on poverty and food security. It could though be argued that in countries where a deterioration of "social" indicators has been observed during adjustment, reform programmes may have either caused such deterioration or were unable to prevent it.

Policy reforms were initiated as a response to an unsustainable economic situation and to the extent that they are necessary for countries to resume growth, there is very little scope in changing their basic elements (fiscal austerity, restoration of "right" prices, market orientation, etc.). Experience has shown that reform programmes applied half-heartedly or in an on-off manner as a result of pressures by the political process, failed to bear the expected fruits and resulted in a deterioration of conditions for the weaker parts of the population.[4] On the other hand, it may take considerable time before such programmes are successful in arresting economic decline and even more time before the fruits of eventual growth reach the poor and the food insecure. The policy implication is that close monitoring is needed of the sectors and the parts of the population at risk, with a view towards applying remedial interventions to alleviate their negative effects. Some of those interventions are discussed later in the paper.

3. Economic Growth and Food Security: Trade-offs and Complementarities

It is now widely accepted that economic growth is a necessary condition for a sustainable solution to poverty and food insecurity. Growth will raise incomes and the ability of the poor to gain access to food, health and care and deal with adversities, but will also provide governments with the necessary means to undertake anti-poverty policies and interventions that would make growth itself more equitable. Although the strength of the relationship between growth, poverty and distribution varies both overtime and across countries, the overall relationship that emerges is a positive one.

Increasing incomes of households that have malnourished members may not only improve their access to food, but also their nutritional well-being, which is influenced by multiple factors, including

[4] World Bank, *World Development Report 1990*, Oxford University Press for the World Bank, 1991.

the types and diversity of food consumption[5]. In general, increases in income, especially for poorer households, are associated with increases in caloric intake from staple foods and also an increase in non-staple food consumption, especially meats[6].

In addition to their current income flow, poor households build their *asset bases* out of incremental income. An expanded asset base reduces vulnerability of households to short-term downturns in their income; part of the asset base can be liquidated in times of adversity, an action that helps to maintain or, at least, not further degrade household-level food security.

At the same time, even in the best of circumstances, growth can never be fast or broad based enough to make a serious dent in poverty and food insecurity within an "acceptable" time period. As a result, additional specific interventions have to be undertaken in favour of the poor and the food insecure. The question is what the effects of such policies and interventions are on economic growth. The experience of countries that have undertaken wide ranging interventions to improve living standards in different time periods is rather mixed. Although several countries were able to improve social indicators through a number of programmes, not all of them were successful in achieving sustainable improvements in food security and nutrition. Countries with very low growth rates were unable to reduce poverty and sustain policies that raise standard-of-living indicators. Thus, the question is not whether there is a trade-off between poverty reduction and economic growth but rather what types of poverty-reduction policies are compatible with growth promoting ones[7] .

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[5] In three case studies from The Gambia, Guatemala, and Rwanda, a 10 percent increase in income, from a level of US$100 per capita, resulted in a 3.5 to 4.9 percent increase in household food energy consumption and a 1.1 to 2.5 percent increase in weight-for-age of children (von Braun 1990). Macro level data from a number of developing countries suggest that a doubling of per capita income from $300 to $600 results in a reduction of about 40 percent in the prevalence of below standard weight-for-age of children. See: von Braun, Joachim, and Rajul Pandya-Lorch. 1991. "Income sources of malnourished people in rural areas: A synthesis of case studies and implications for policy". In Joachim von Braun and Rajul Pandya eds. *Income sources of malnourished people in rural areas: Microlevel information and policy implications*, Lorch. Working Papers on Commercialization of Agriculture and Nutrition 5. Washington, D.C., U.S.A.: International Food Policy Research Institute.

[6] Alderman, Harold, 1986. *The effect of food price and income changes on the acquisition of food by low-income households*. Washington, D.C., U.S.A.: International Food Policy Research Institute.

[7] In the literature on poverty and famines, a broad distinction has been made between a strategy of "growth-mediated security" and one of "support-led security". The first approach is "to promote economic growth and take the best possible advantage of the potentialities released by greater general affluence, including not only an expansion of private incomes but also an improved basis for public support". The second approach, one of targeted programs, is "to resort

One way of looking at this issue, is that of focusing on the redistribution of wealth that may accompany economic growth. Two stylised competing strategies are sometimes referred to in the literature as "trickle down" versus "growth with redistribution"[8]. The former implies reliance on the idea that economic growth per se will eventually eliminate poverty and vulnerability to food insecurity by providing better income opportunities for the poor. The major objection to such a strategy (i.e. that it would be extremely slow in achieving such goals, while not reducing the potential exposure of the poor and food insecure to external shocks in the short term) can be partly mitigated if this strategy is accompanied by public actions to stabilise food markets and target assistance to the vulnerable (the Indian experience). The greater the inequality within an economy, the lower the expected benefits that such a strategy can bear for the poorest deciles of the population.

The latter strategy aims at a faster reduction in poverty and vulnerability to hunger, by pursuing a redistributive growth path along which the poor gain in relation to the rich. This can be achieved mainly through a development strategy that emphasises the role of small farmers and the rural sector as a whole, by raising its productivity and income. The problem with this strategy is that it needs consistent price incentives to the rural sector (not to cause macroeconomic imbalances), that in turn may require actions to protect poor food consumers from the possible adverse effects of high food prices in the short term (the "food price dilemma"), as well as investments in infrastructures, education, and research to support the development of the rural sector.

Unfortunately, economic growth is not a policy instrument. The experience of countries that managed to grow is too wide to permit the isolation of a few policies or characteristics having universal validity. We may know more about what retards or inhibits growth. The experience with growth declines and collapses especially of the late 1970s and early 1980s points to unsustainable macroeconomic equilibria and severe economic distortions at the root of the economic crises. The implication then for policies aiming at poverty reduction is that they should not aggravate

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directly to wide-ranging public support in domains such as employment provision, income redistribution, health care, education, and social assistance in order to remove destitution without waiting for a transformation in the level of general affluence". (See Drèze, J. and A. Sen " *Hunger and Public Action*". Oxford: Clarendon Press, 1989). The following discussion shows that the two may not be necessarily mutually exclusive.

[8] For a fuller discussion and references see Timmer, P. C. "Food security strategies. The Asian experience", FAO Agricultural Policy and Economic Development Series, No. 3, FAO, Rome, 1997, on which this paragraph and the following draw heavily.

macroeconomic disequilibria and should avoid market distortions. In that sense, policies that improve the human capital of the poor (such as in Malaysia and Colombia), or which remove obstacles to increasing labour productivity (Colombia) are more growth oriented than policies that improve living standards through wide-ranging subsidisation (such as in Sri Lanka)[9].

But not all policies that would simultaneously promote growth and reduce poverty and food insecurity are applicable to all countries at all times. In some cases the nature of the political process, or information and managerial-administrative constraints of governments may render such policies inapplicable. In others, the urgency of the problem may restrict the choice of policies and interventions that can be undertaken. Thus countries facing large "pockets" of poverty, destitution and food insecurity may have to take public policy measures that yield results in short time periods, but which have secondary implications that compromise growth. For instance, schemes involving large transfers and/or subsidies may be necessary in the short-run to face those problems. Such programmes require either raising funds through taxation which in turn reduces savings and investment, or diversion of funds from other public activities with higher long-term growth potentials.

How Food Security Affects Economic Growth

In addition to human suffering, food insecurity and malnutrition may have serious negative implications for labour productivity, lower cognitive ability and school performance.

Nutritional status and labour productivity, as measured by wages and/or own-farm output, appear to be positively related[10]. High levels of morbidity, due in part to insufficient nutrient intake, can reduce

[9] For a discussion of various experiences with growth and poverty alleviation and for the particular time periods which the examples refer to, see World Bank, *World Development Report, 1990*, Oxford University Press for the World Bank, 1991.

[10] Strauss, J. 1986. "Does better nutrition raise farm productivity?" *Journal of Political Economy* 94 (2): 297-320 ; Sahn, David E., and Harold Alderman. 1988. "The effects of human capital on wages and the determinants of labor supply in a developing country". *Journal of Development Economics* 29 (2): 157-184 ; Haddad, Lawrence J., and Howarth E. Bouis. 1991. "The impact of nutritional status on agricultural productivity: Wage evidence from the Philippines". *Oxford Bulletin of Economics and Statistics* 53 (1): 45-68.

work time directly as well as indirectly through the need to take care of sick family members[11]. High levels of morbidity can also divert household resources away from farm or nonfarm investments towards medical care. Cognitive development and schooling performance are impaired by poor nutrition and health, with consequent losses in productivity during adulthood[12].

Although, a lot is still to be learned from the data, and more concrete evidence is needed on the overall growth implications of food insecurity and malnutrition, available evidence points to a large marginal effect of health improvements on productivity especially in developing countries. In developing low-income economies, health problems are predominantly a result of malnutrition and infectious diseases, which results in an age distribution of ill-health tilted towards infants and pre-school children. Undernutrition in early ages, in turn, tends to have negative impacts on work productivity throughout the life cycle including the years in which adults are expected to be most productive . As a result, overall productivity and growth may be negatively affected.[13]

In the absence of well-functioning risk or credit markets food insecure households are prone to making income earning decisions focusing on hedging against the risk of large and unexpected falls in food availability. Such decisions may deviate substantially from those undertaken with pure efficiency criteria thus causing misallocation of resources and compromising growth.

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[11] Surveys from The Gambia and Rwanda find that preschoolers are ill 10 to 17 percent of the time, and women are ill 16 to 29 percent of the time; see von Braun, J. D. Puetz, and P. Webb, *Irrigation technology and commercialization of rice in The Gambia: Effects on income and nutrition*, Research Report 75, Washington, D.C.: International Food Policy Research Institute, 1989, and von Braun, J., H. de Haen, and J. Blanken, *Commercialization of agriculture under population pressure: Effects on production, consumption, and nutrition in Rwanda*, Research Report, no. 85, Washington, D.C.: International Food Policy Research Institute, 1991.

[12] An innovative study in Guatemala tracked down after 14 years most of the schoolchildren who had received supplemental feeding in a study project and found that, in spite of no further feeding interventions, those children who had received the supplements maintained their height advantage and performed better on achievement tests (Martorell, R., J. Rivera, H. Kaplowitz, and E. Pollitt, "Long-term consequences of growth retardation during early childhood", paper presented at the 6th International Congress of Auxology, Madrid, Spain, 1991).

[13] For a discussion and references see: Strauss, John and D. Thomas "Health , Nutrition and Economic Development" *Journal of Economic Literature*, Vol. XXXVI (June 1998) pp. 766-817, and World Bank: *World Development Report, 1993*.

4. Agriculture and Food Security: Implications for Short-Term Policies and Long-Term Strategies.

For many developing countries, overall economic growth is inconceivable without growth in the agricultural sector. The importance of agricultural growth for overall growth, poverty alleviation and food security becomes transparent when the following are taken into consideration: (a) with few exceptions (such as countries with large endowment of mineral resources or oil, or the newly industrialised countries) agriculture is the most important economic sector in developing countries both in terms of its share in GDP and especially its share in employment; (b) the prevalence of poverty and food insecurity is higher in the rural that in urban areas; (c) production processes in agriculture and the rural areas are heavily intensive in labour --a resource owned abundantly by the poor (d) agriculture is the main source of income of the world's poor and food insecure (their income being linked directly or indirectly to farming).

For countries with the above characteristics, growth in the agricultural sector may both promote overall growth and will have in principle beneficial effects on a large part of the poor and the food insecure. Increases in agricultural production will increase incomes of producers directly and (depending on the nature of growth, the underlying technology and rural institutions) has the potential to increase employment opportunities and incomes of rural labourers and semi-subsistence farmers.

Furthermore, agriculture in developing countries is often characterised by strong input and output linkages (production of implements, mixing of fertilisers , processing of agricultural output) to other sectors especially the non-farm rural sector. Non-farm rural activities offer additional employment and income earning opportunities to the rural poor whether landless or near landless[14]. Women are generally a significant part of total rural non-farm employment (food preparation and processing, tailoring etc.).

[14] Data show that rural non-farm employment (excluding earnings from seasonal and part-time activity), accounts for 19, 36 and 47 percent of rural employment for Africa, Asia and Latin America respectively, when rural towns are included. Respective income shares are range from 25-30 percent for rural Africa to 30-40 percent for rural Asia and Latin America (including part-time and seasonal employment but excluding rural towns). See Hazell and Haggblade, *Farm-Nonfarm Growth Linkages and the Welfare of the Poor,* Unpublished Paper (1992).

Thus, agricultural growth may have positive indirect effects on poverty reduction, income distribution and hence food security and, and may stem "premature" rural to urban migration through its effects on the rural non-agricultural sector.

Policies to Reverse Agricultural Decline: Impacts on Food Security.

Despite the potential benefits of agricultural growth for addressing poverty and food insecurity, agriculture as a sector has for a long period been relatively neglected or outright taxed in many developing countries both directly and indirectly in favour of development programmes focusing on other sectors (mainly manufacturing). Such discrimination against agriculture took the form of direct taxation (taxes on exports for instance) lower prices to producers (export bans, low buying prices by parastatals) and indirect forms of discrimination such as overvalued exchange rates and protection of non-agricultural tradable commodities. Both forms of taxation resulted in a bias in the terms of trade against the agricultural sector. In several cases agriculture was not a priority in public investment allocations.

Current macroeconomic and agricultural policies in developing countries tend to reverse past price-based anti-agricultural biases. Given world prices, real devaluations increase the border prices of agricultural tradable (exportables and import substitutes) directly, while the prices of non-tradable items (such as non-tradable foods) may also increase due to substitution effects (consumers shifting away from higher priced staples). The abolition of price controls and marketing restrictions for agricultural commodities, and the reform of agricultural parastatals may have mixed effects on the level of food prices (often depending on whether the area was net producer of consumer of food), but, in general tend to improve the efficiency of the agricultural marketing and distribution system and increase the share of the price going to the producer.

The food security implications of food price increases will again vary by the particular category of food insecure, their income sources and consumption bundles[15]. It is conceivable that food price increases (especially if accompanied by reductions in food subsidies) will hurt the urban poor, the

[15] It will also vary by the type of real food price increases. Namely the implications of increases in relative food prices occurring as a result of increases in the nominal food prices (i.e. due to devaluation) are different than if nominal food prices stay constant (or decline less) than prices of non-food items. The present text considers increases of the first type.

rural smallholders that are and remain net food buyers, while they are expected to benefit net food producers. The extent to which food price increases will cause rural wage and/or employment rates to increase depends on how well rural labour markets function. As most rural labour markets respond gradually to supply and demand conditions, it is unlikely that food price changes will be fully reflected in wage rates in the short run, so rural labourers are expected to be worse off.

Sudden price increases may hit poor households more than richer ones as the latter are able to buy food at low prices (e.g. immediately after harvest), while the former are obliged to buy the food according to the patterns of their income flows. Savings of poorer households are usually small and insufficient for buffering the effects of bad harvests and higher prices[16].

The net effects of food price increases on real incomes of food buyers will depend on the magnitude and speed of food supply response to prices and on labour intensity of the agricultural production process. If food production is highly price elastic and labour intensive, resulting increases in production and demand for labour will spread some of the benefits of higher prices to the rural poor through increased employment opportunities and/or increased wages (see above). Under policy reforms, food price increases are likely to be a part of an overall increase in agricultural prices, so what is relevant is the price elasticity of the agricultural sector as a whole. Despite significant variations, empirical results show a low short term price elasticity for the agricultural sector (as opposed to the one for individual commodities). Long-run elasticities can be quite substantial as inter-sectoral resource movements (capital, labour) take place[17]. Therefore the beneficial effects of agricultural growth based on price incentives alone are likely to take a long time to materialise while the short run effects may be detrimental for some categories of the food insecure.

[16] For a review see Gaiha, R. *Does Agricultural Growth Matter in Poverty Alleviation?* Unpublished Paper, Faculty of Management Studies, University of Delhi, August 1994.

[17] Binswanger, H. (1989). "The Policy Response of Agriculture" in *Proceedings of the World Bank Conference on Development Economics*. ; Bond, M.E. (1983). "Agricultural Responses to Prices in Sub-Saharan Africa". *International Monetary Fund Staff Papers*, Vol. 40 (4), 703-726; Platteau, J.-Ph. (1993). "Sub-Saharan Africa as a Special Case: The Crucial Role of (Infra)Structural Constraints", *Série Recherche-N° 128-1993/6 of the Cahiers de La Faculté Des Sciences Economiques et Sociales de Namur*, Namur, August (originally written for FAO).

The possible adverse effects of price increases on some categories of the food insecure does not support a case against agricultural price reforms. Two decades of anti-agricultural price policies in many developing countries, led their agricultural economies to virtual collapse and disintegration. Thus, while agricultural price increases are necessary to stimulate investment and production in agriculture, they have to be supplemented by additional policies that enhance supply response and with policies to cushion the effects of higher prices on the poor. Such policies are analysed in the following sections.

Price-based measures, privatisation of agricultural activities and services and liberalisation of markets, are not sufficient to make agriculture a motive force for overall growth, employment generation, poverty alleviation and food security. An active role of government is needed in production and dissemination of knowledge (research, education extension), building of infrastructure, support of input supply systems.

Development of marketing, processing and transportation infrastructure is essential if the overall productivity of the agricultural system is to increase. If the benefits of agricultural growth are to spread to e.g. non-agricultural rural activities, the linkages of agriculture with those sectors have to be strengthened. Therefore, in addition to promoting growth in the agricultural sector, policies to strengthen the ability of the non-farm rural sector to respond to the demands of a growing farm economy have to be considered (e.g. training programmes on small business management, accounting etc).

Given the critical role of labour, credit and land markets in agricultural activities, a clear legislative framework should be established governing labour relations, land ownership and transfers, while rural credit systems need to be strengthened. Well-functioning credit markets enhance the undertaking by the private sector of marketing, transport and processing activities which constitute essential links between agriculture and the rest of the economy.

A strategy centered on agricultural growth should not be confused with a "food first" or food self sufficiency strategy i.e. the quest of increasing food production at all cost and at the exclusion of cash crops. Such a strategy is not necessarily desirable or helpful in alleviating food insecurity. Furthermore it may be unsustainable in agroecological and/or economic terms as it may result in serious resource degradation and/or misallocation of resources. The experience in Africa has shown

that in the years after the 1973-74 drought massive investment in food production financed mainly by the donor community and some multilateral donors, led to the neglect of export crop development. A lot of those investments were proven to be uneconomic and the neglect of export crops reduced the food and overall import capacity of countries threatening food security at both the national and household levels.

While in e.g. densely populated drought-prone areas policies that result in increased food production by poor smallholders will be the only way in the medium run to improve their food security, no conclusive evidence exists which shows that the poor are better off in areas under subsistence production than areas under cash crops. Such evidence is nevertheless difficult to obtain due to differences in agroclimatic and resource quality conditions between areas under cash and subsistence crops.[18]

Clearly, an agricultural-based development strategy does not imply the perpetual dependence of developing country economies on the agricultural sector. Given the characteristics of demand for agricultural commodities, and the effects of rapid technical change on commodity prices, the transformation of the economies of developing countries from mainly agricultural to industrial is inevitable. What is important, is that for economies with a large agricultural sector such transformation has to be lead by increases in agricultural productivity, the progressive decline of agriculture's dependence on resources (capital, labour), and the transfer of those resources to other sectors.

Finally like any long-term strategy, an agriculture-based strategy such as the one above, takes time to bear fruits, which implies that special interventions have to be taken for alleviation of poverty and food insecurity.

5. Technological Change, Commercialisation of Agriculture and Food Security

[18] For a discussion see: Binswanger H.P and J. Von Braun: " Technological Change and Commercialization in Agriculture: The Effect on the Poor"; World Bank Research Observer, 16 (1), January 1991, pp. 57-80.

The failure of a number of post-war development strategies (industrialisation, import-substitution, basic needs, export-led growth) to produce sustainable economic growth and make a serious dent on poverty, has been largely attributed to the relative neglect of agriculture in development strategies[19]. As was mentioned above, a critical element for agriculture to play a central role in development, is technological change and dissemination geared mainly towards small farmers, of which a large part are food producers.

In the past, the "green revolution", the irrigation, seed, fertiliser, and pest control package for rice and wheat, in particular, has expanded farm and nonfarm output, employment, and wages, and stimulated migration, and, hence, has contributed to both household and regional food security, especially in high-potential production areas, such as the Punjab of India (Bhalla, 1983), the Muda Irrigation Scheme in Malaysia (Bell, Hazell, and Slade 1982), and the Laguna Province in the Philippines (Herdt and Ranade 1976)[20].

There are nevertheless instances in which the poor may fail to reap the benefits of technological change or may even be worse off following such a change[21]. For instance, in the presence of an inelastic domestic demand and high transfer costs that prevent exports, technological change will be associated with lower prices, with consumers reaping most of the gains from increases in productivity, and possible worsening in income distribution (the agricultural treadmill). Caution

[19] For a discussion see Stamoulis, K.G. (1993) "Perspectives on Agricultural development and Adjustment in developing Countries" Unpublished Paper, FAO Policy Analysis Division; Staatz, J.M. and Eicher, C.K. (1990). "Agricultural Development Ideas in Historical Perspective", in Eicher, C.K. and Staatz, J.M. (Eds.), *Agricultural Development in the Third World*, Baltimore: The Johns Hopkins University Press; Mellor, J.W. (1986). "Agriculture on the Road to Industrialization" in Lewis, J. and Kallab, V. eds. *Development Strategies Reconsidered*, New Brunswick: Transactions Books, (p. 68). Mellor points out that development practice has often been more ingenious than development theory giving agriculture a central place in development. Examples include "...the post-Meiji restoration period in Japan, as well as the developmental thrusts in Taiwan, Thailand, Ivory Coast, Malaysia, the Punjabs of India and Pakistan, and to some extent other parts of South Asia" (Mellor 1986, op. cit p. 68).

[20] Bhalla, G. S. 1983. *The green revolution and the small peasant: A study of income distribution among Punjab cultivators*. New Delhi: Concept Publishing; Bell, Clive, Peter Hazell, and Roger Slade. 1982. *Project evaluation in regional perspective*. Baltimore, MD, U.S.A., and London: Johns Hopkins University Press; Herdt, R. W., and C. G. Ranade. 1976. *The impact of new rice technology on the shares of farm earnings, Laguna and Central Luzon, Philippines*. Paper 76-1. Los Banos, Philippines: International Rice Research Institute.

[21] For details and case study references see: Binswanger, H., and J. von Braun, "Technological change and commercialization in agriculture: The effects on the poor". *The World Bank Research Observer* 6 (1), 1991, pp. 57-80.

should be exercised though in interpreting such conclusions. Considering the effects of technological change on only one market (the food market) may be misleading. Instead, other market-based responses should also be taken into account such as (a) substitutions in production and diversification in the face of changing relative prices (b) the effects of lower prices on real incomes of the poor and (c) effects on wages and on the demand for labour. Analysis of results for India show that despite the fact that the "treadmill" effect was in operation following technical change, no rural group lost in absolute terms and the poorest groups experienced an income increase[22].

The "treadmill" may have detrimental effects on small poor farmers who are usually late adopters due to risks associated with new technologies. Drastic price decreases may severely reduce or even eliminate the benefits of the new technologies to small farmers and may prevent them from adopting them altogether. Other adverse effects on the poor that have been associated with new technologies (tenant eviction, coerced production or forced procurement) are usually the result of adverse institutional settings (such as tenancy and land allocation laws) rather than the effects of technological change per se.[23]

In case of institutional environments causing adverse effects of technological improvement on the poor, the appropriate policy response is to remove them. The treadmill effect can in some cases be avoided by abolishing restrictions to trade and/or reducing transfer costs through improvements in export infrastructure. In cases where the treadmill effects are combined with late adoption of the technology by small poor farmers due to risk aversion, programmes to facilitate access to credit, as well as well-targeted extension programmes can help speed up adoption of new technologies by poor smallholders.

It is possible that, even in the presence of correcting interventions such as the ones mentioned above, technological improvements cause deterioration of the position of the poor, especially rural poor. As the proposition of decelerating or reversing technological change on those grounds is absurd, the

[22] Binswanger and von Braun (1991) op. cit.

[23] See Binswanger and von Braun 1991 (op.cit); Also, Bouis, Howarth E., and Lawrence J. Haddad, *"Agricultural commercialization, nutrition, and the rural poor: A study of Philippine farm households*". Boulder, CO, U.S.A.: Lynne Rienner Publishers, 1990.

question is if research could be targeted to address the need of the poor either as producers or as consumers of commodities (targeting by agro-ecological zone, gender, commodities consumed by the poor, nutrients and dietary components etc.). The results with such experiments so far are not very encouraging although some successful cases can be found with this form of "social engineering"[24]. In addition, benefits of technological development aimed at enterprises in which the poor specialise, may end up benefiting well off farmers who are better placed to take advantage of profitable opportunities due to their easier access to credit, land and other services [25].

There is possibly an opportunity cost associated with targeted research programmes. Resources (including human resources) for targeted research are drawn from "growth oriented" unrestricted research programmes. While in principle the costs and benefits of targeted programmes should be compared to the combined costs and benefits of undertaking unrestricted programmes that promote growth plus those of additional targeted interventions to help the target groups (credit, extension, income-based targeted programmes etc.) this is easier said than done, especially in countries where institutional mechanisms for other forms of anti-poverty programmes are lacking or are underdeveloped.

6. SPECIFIC INTERVENTIONS TO ALLEVIATE FOOD INSECURITY

Income and Employment Generation Policies and Programmes

Besides agricultural production-oriented programmes and policies, other programmes for generation and stabilisation of employment and income can reduce risks for food-insecure households. These programmes differ from food production-oriented programmes in that they stimulate or stabilise demand for food by generating and stabilising income at the household level, but may not at the same time directly expand the supply of food. Below, the most important of such policies, rural public

[24] Binswanger and von Braun (1991, op.cit.) mention some successes in targeting by agroclimatic potential. Namely successes have been reported with breeding sorghum, ragi, and perhaps millet in India as well as hybrid maize in East Africa. On the other hand, efforts to replicate the green revolution in low potential areas in the Sahel, the semi-arid zones in India and the humid tropics in Africa have not had "very powerful effects" (p. 72).

[25] See Jodha, N.S " Population Growth and the Decline of Common Property Resources in India" *Population and Development Review* 2(2) pp. 247-264.

works programmes is examined. Other potentially important income generation programmes, such as credit schemes, promotion of home gardening and backyard livestock production, are not discussed here.

Labour-intensive public works[26]

Labour-intensive public works programmes can address simultaneously, three central problems facing many low-income countries: poverty-induced food insecurity, unemployment, and poor infrastructure. Food aid can be a component of the financing of such schemes, either monetized or through wage payments in kind (see section on food aid).

Given the difficulty of targeting poverty interventions, a strong case can be made in favour of public works schemes. The rationale for such schemes as an instrument for poverty alleviation rests partly on the "screening" argument i.e. that a work requirement (at an appropriate wage rate) constitutes an automatic screening mechanism to secure targeting of assistance to the poor since the opportunity cost of time of the poor tends to be low[27].

In principle, public works schemes can provide two types of benefits - transfer benefits and stabilisation benefits - both of which are important in poverty alleviation. Direct transfer benefits constitute the gross benefits to participants less the costs incurred in participating, ideally including the value of forfeited agricultural or other activity (social opportunity cost). Even non-participants may benefit to the extent that the bargaining power of labourers vis-à-vis their employers increases. The general issue is whether the creation of extra jobs under public works schemes has a significant effect on wages and employment in other activities by exerting upward pressure on wages. Indirect transfer benefits include the share of the poor in the extra income generated by the scheme's output, and any other second-round effects or income from any other source.

[26] For a detailed review of the issues involved in rural public works schemes for poverty alleviation, see Gaiha, R., *Design of poverty alleviation strategies in rural areas*, Chapter 7, FAO Economic and Social Development Paper 115, FAO, Rome 1993.

[27] Besley and Coate provide a formal exposition of the screening and deterrent arguments. Besley, T. and S. Coate, *Workfare versus welfare: incentive arguments for work requirements in poverty alleviation programmes*, New Jersey, Woodrow Wilson School, Princeton University, 1990 (mimeo).

Benefits arising from household income stabilisation derive mainly from the scheme's effect on the risk of a drop in consumption faced by the poor. An issue requiring attention is whether the concentration of public works activity in lean periods or during local crop failures would displace existing private and non-governmental social insurance arrangements.

Recently, many developing countries have incorporated public works schemes as regular elements in their anti-poverty strategies. Experience with such schemes has shown that they can significantly reduce the risk of transitory poverty and food insecurity, by stabilising incomes over time or across seasons. Also the self-selection and automatic targeting of the poor is corroborated in recent studies on the effects of rural public works. A problem though that arises when relying on work requirement as a screening mechanism is the exclusion of specific subsets of the poor such as the disabled, the elderly and the infirm.

Important choices are involved when establishing wage rates to apply in the schemes. Thus (at fixed outlays) there is a trade-off between wide coverage and a high wage rate. A predetermined wage rate may also imply the impossibility of guaranteeing employment without violating existing budget constraints. Another choice which can affect a scheme's effectiveness is that between piece or time rates. Indeed the application of piece rates when time rates are applied elsewhere may attract the most productive workers from other activities, thereby adding to the social opportunity cost of the scheme.

Finally, careful attention must be paid to the effect on food prices of increased demand generated by public works schemes. If local supply is price inelastic, the impact on prices may be significant to the detriment also of non-participating households. Food aid can play a role in mitigating such effects if it enables food supply to be expanded according to the effective demand generated by public works programmes.

Food Income Transfers: Targeted Distribution and Food Subsidies

General

The need for macroeconomic adjustment and budgetary discipline in most developing countries, has brought to the fore the issue of food subsidies, which, for several countries were (and for some still are) an important source of budgetary exposure. In an effort to reduce macroeconomic imbalances, multilateral donor agencies often require drastic reforms and/or reductions in food subsidies. In several cases, such pressures by donors have been supported by arguments questioning their effectiveness (success in reaching the target groups, etc.) relative to their costs, including efficiency costs on resource allocation.

This is not to deny the several favourable characteristics of food subsidy programmes: In countries and regions that are frequently subject to serious food shortages, (subsidised) public distribution helps to move emergency supplies into them and improve the food security of the poorest groups. Food subsidies increase the real incomes of households with access to the subsidies. In a number of programs surveyed, food subsidies accounted for 15 to 25 percent of the total real incomes of low-income households that received subsidies.[28] Food price subsidies generally increase household food consumption[29]. Furthermore, subsidy programs have a positive and significant effect on food consumption of pre-schoolers, although they may result in decreased consumption of other foods and leakage to other household members [30]. The problem is that such benefits may have been achieved at high costs [31],[32].

[28] Pinstrup-Andersen, Per, and Harold Alderman. 1988. "The effectiveness of consumer-oriented food subsidies in reaching rationing and income transfer goals". In *Food subsidies in developing countries: Costs, benefits, and policy options*, ed. Per Pinstrup-Andersen. Baltimore, MD, U.S.A., and London: The Johns Hopkins University Press for the International Food Policy Research Institute.

[29] Daily energy consumption increased by 115 calories among the poorest decile in Sri Lanka as a result of the subsidized ration-shop scheme (Gavan, James. D. and Indrani Sri Chandrasekera, *The impact of public foodgrain distribution on food consumption and welfare in Sri Lanka*, IFPRI Research Report 13, Washington, D.C.: International Food Policy Research Institute, 1979). In a pilot food subsidy scheme in the Philippines, average daily calorie consumption increased by 130 calories (Garcia, Marito, and Per Pinstrup-Andersen, *The pilot food price subsidy scheme in the Philippines: Its impact on income, food consumption, and nutritional status*, IFPRI Research Report 61, Washington, D.C.: International Food Policy Research Institute, 1987).

[30] Lustig, Nora, "Fiscal cost and welfare effects of the maize subsidy in Mexico". In Per Pinstrup-Andersen, ed., *Food subsidies in developing countries: Costs, benefits, and policy options,* Baltimore, MD, U.S.A., and London: The Johns Hopkins University Press for the International Food Policy Research Institute, 1988; Garcia, Marito, and Per Pinstrup-Andersen, 1987 (op. cit.).

[31] A distinction is made between programme effectiveness, specificity, sensitivity and efficiency: Effectiveness has to do with the ability of the programme in reaching the target groups; specificity has to do with the ability of the

Food Price Subsidies and Rationing

Generalised food price subsidies given to a commodity or group of commodities benefit all consumers. Targeted subsidies provide limited (rationed) access to a commodity by some or all members of the community at prices lower than market prices.

Although targeted subsidies tend in principle to minimise price distortions and resource misallocation, they are not always "easier" on the budget than generalised ones. On one hand, generalised subsidies may have a strong element of self-targeting as when they apply to certain products (including lower grades of the same product) consumed mostly or exclusively by the poor[33]. On the other hand, targeting is not without its costs. Namely, the finer the targeting, the higher the administrative costs of identifying and reaching the target populations, monitoring the programmes, and implementing frequent "means testing" to screen out those that become ineligible, and to include those that become eligible. Close supervision and tight management to avoid corruption add to the costs of limited access programmes.

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programme to exclude non-targeted groups while a programme is sensitive if it does not exclude those that belong to the targeted group; efficiency has to do with the ability of the programme to achieve its objectives at the minimum possible cost. In targeted programmes specificity comes at the cost of losing sensitivity and vice-versa. See Alderman, H. "Food Subsidies and the Poor" in G. Psacharopoulos, ed. *Essays in Poverty, Equity and Growth*, Oxford Pergamon Press, 1991.

[32] Ideally, a full evaluation of food subsidy programmes should examine (a) their distributional impacts also from the point of view of the sources of financing such programmes (indirect taxation, deficit financing etc) and (b) the consequences of subsidy on total demand and price which, in turn, will vary depending on the trade regime and trade policies. Evidence on how distributional effects of subsidies vary with the trade regime and modes of financing can be found in : Binswanger, H. and J. Quizon "Distributional Consequences of Alternative Food Policies in India" in Pinstrup-Andersen, Per, ed. *Consumer-Oriented Food Subsidies: Costs, benefits and policy Options for Developing Countries*. Johns Hopkins University Press, Baltimore, MD. 1988.

[33] The targeting effectiveness of generalized price subsidies is related to the relative share of the commodity in the budgets of different groups. If the income elasticity for the commodity is positive but less than unity then the poor get more benefits from the subsidy relative to their incomes. If greater than unity then the rich get more of the subsidy both in absolute terms and relative to their income. If the income elasticity is negative, then the poor will obtain more of the subsidy in absolute terms. See Reutlinger S., and M. Selowsky, *Malnutrition and Poverty: Magnitude and Policy Options*, Baltimore, M.D. Johns Hopkins University Press for the World Bank (1986)

Targeted subsidy or targeted distribution programmes may be associated with disincentive effects on the supply of labour by beneficiaries. This may be a problem with programmes where the maximum income of beneficiaries is the basis for targeting. Namely, when the household increases its income through own efforts and crosses the threshold of eligibility, the incentive to work towards further income increases falls. Such disincentives can be potentially significant. Empirical work has shown that the rice subsidies in Sri Lanka caused a significant reduction in the supply of labour by the beneficiaries of the programme[34].

In reality generalised subsidies are rarely un-rationed as governments are not able to supply the amount of commodity demanded at subsidised prices (i.e. maintain a horizontal supply curve). A two-tier price system is thus created with prices at the secondary open market higher than the subsidised price[35]. Administrative quotas (by neighbourhood or depot) are used to ration the item(s). The ones that can obtain the commodity (usually at the cost of waiting in lines) can obtain rents by re-selling it. If neighbourhood distribution is subject to the ability of groups to influence the process, then the poor may find themselves relying mostly on the parallel and more expensive market.

The existence of a parallel market for the rationed subsidised items means that quotas can be converted to currency and rationing resembles an income transfer. In general, since rationing changes the consumer behaviour also towards other foods, it should not be assumed that the consumption of the rationed item by the target population changes by the amount of the quota.

Quotas can be made self-targeting if the quota amounts vary with the income elasticity of the items supplied (larger amounts of the lower "class" commodity). In some cases some of the very poor have unintentionally been left out of the ration system. In Bangladesh, migratory workers were unable to obtain ration booklets due to their lack of permanent abode. In Burkina Faso the inability of some of

[34] For a theoretical discussion see: Kanbur, R, M. Keen and M. Tuomala, " Labor Supply and Targeting in Poverty Alleviation Programs" *The World Bank Economic Review*, Vol 8(2) May 1991; for the case of the Sri Lankan food subsidies see: Sahn D., and H. Alderman " The effects of Food Subsidies on Labor Supply in Sri Lanka", presented in the World Bank Conference on Public Expenditure and the Poor: Incidence and Targeting, Washington, D.C 1992.

[35] Alderman, 1991 (op. cit.).

the very poor to provide the necessary documentation and to purchase the minimum requirements (especially as they were unable to secure credit) left them out of the system.[36]

Food Stamps constitute an alternative system of food subsidisation. They differ from the rationing system in that with food stamps no direct handling of the commodity by government bodies takes place. Rather, the existing marketing and distribution system is used. In principle, that means that governments can use the additional resources to improve targeting. Food stamps can be considered as a parallel currency which retailers must be willing to accept and governments should be prompt to cash.

Interest in food stamp programmes as a means of providing a food-mediated income transfer to low-income households and as an alternative to food subsidies has increased in recent years. In principle, if a minimum purchase is attached to the food stamp programme as a condition for eligibility (a minimum amount of stamps purchased) households can be encouraged to shift their budget allocations towards food. On the other hand, such a requirement may discourage the very poor from participating, as it actually happened in the U.S. where the requirement had to be eventually abandoned [37].

Despite the appeal of the food stamp programme, administrative difficulties associated with it have resulted in a limited application. Four multi-commodity food stamp programmes have been applied (U.S. Jamaica, Sri-Lanka, Colombia) of which one (Colombia) never implemented beyond the pilot stage. Mexico has a single commodity (tortillas) programme identical to a ration coupon programme, while food stamps were planned but never implemented in Egypt, Peru, Venezuela and the Mariana Islands[38].

Experience with food stamp programs is *mixed*; A basic problem is that they have not been easy to administer. In Zambia, large-scale counterfeiting of food coupons has led to the virtual elimination of

[36] For details and references see Alderman, 1991 (op. cit).

[37] Ranney, Christine and J. Kushman, "Cash Equivalence, Welfare Stigma and Food Stamps", *Southern Economic Journal* Vol. 13, April 1985.

[38] See Alderman 1991 (op. cit pp. 184-187) for more details and references on those programmes.

such programs. In Sri Lanka, the income-verification procedure for food stamps has excluded wage-earning workers on tea plantations, although they appear to be a nutritionally needy group [39]. These problems are not unique to food stamps, but are also encountered with in-kind transfers. It is common knowledge that even the largest and most successful experience with food stamps, that of the United States, still misses a large proportion of eligible households [40]. However, little empirical information is available on food stamp programs in the developing world, even from Sri Lanka, which in 1979 replaced its decades-old food subsidy scheme with food stamps. When the food stamp subsidy scheme began in 1979 in Sri Lanka, its benefits constituted 83 percent of the benefits from the price subsidies, but by 1981/82, this share had been reduced to 43 percent by diminishing real value of the stamps due to inflation [41]. The food stamp scheme was not successful in helping the bottom 20 percent of households whose per capita calorie consumption declined by about 8 percent between 1978/79 and 1981/82. The drawback to fixed, nominal-value food stamps is that they do not protect the consumer from short-term price fluctuations, even when periodically adjusted for inflation [42].

Targeting using non-income criteria

Given the difficulties and shortcomings in establishing income-based means testing, other criteria may be used that correlate with poverty indicators, deprivation and food insecurity. Such criteria can be location (geographical targeting), age, gender, etc. Programmes could be based on perceived needs (programmes for pregnant and lactating women, school feeding programmes).

Targeting by geographical area will be an effective policy if prevalence of food insecurity has been identified in a particular area. The identification criteria should however be carefully assessed. In urban areas, targeting interventions aimed at improving food security geographically by observed

[39] Kennedy, E.T., and H.H. Alderman. *Comparative analyses of nutritional effectiveness of food subsidies and other food-related interventions*. Washington, D.C.: International Food Policy Research Institute, 1987.

[40] Davis, C.G., and B. Senauer. "Needed directions in domestic food assistance policies and programs". *American Journal of Agricultural Economics*, 68 (5): 1253-1257, 1986; Coe, R.D. "Nonparticipation in welfare programs by eligible households: The case of the food stamp program". *Journal of Economic Issues*, 17: 1035-1056, 1983.

[41] Edirisinghe, Neville. *The food stamp scheme in Sri Lanka: Costs, benefits, and options for modification.* Research Report 58. Washington, D.C. USA: International Food Policy Research Institute, 1987.

[42] Per Pinstrup-Andersen, 1988 (op. cit).

characteristics of neighbourhoods may seem a natural approach. Recent research based on data for two large African cities (Abidjan and Accra) however, points to evidence that such an approach may actually lead to "dramatic under-coverage of those in need ... and significant leakage" (Morris et al., 1999)[43]. Housing conditions and the provision of services may in fact be significantly clustered, with the presence of undernutrition being much more evenly distributed across neighbourhoods.

Targeted feeding programmes for school-age children, and pregnant or lactating women are usually administered by the ministries of health instead of those in agriculture and , while they resemble food ration programmes, they usually have nutritional objectives. The extent of leakages associated with those programmes depends on the prevalence of the poor in the particular group (e.g. pregnant women). Programmes may have a limited coverage (size of the targeted group) but the administrative costs per head may appear high due to the fact that some of those programmes (e.g. programmes for undernourished children or pregnant women administered by health centres) provide other services such as health information, health education, growth monitoring, etc. [44]. Feeding programmes may exclude the food insecure that live in isolated rural areas or small rural communities that do not have access to schools or to health clinics.

Feeding programs rarely increase food intake of targeted persons by 100 percent of the food given, due to sharing of food with household members or substitution with home-produced and purchased food. They are, however, a politically and socially more acceptable means of operating a targeted income transfer program, and have been shown to have the potential to increase food intake by a greater extent than comparable cash income transfers could achieve. Secondary beneficial effects include increased school attendance and higher use of health clinics by pregnant and lactating women, malnourished children etc.

Food Security Policies for the Household or the Individual?

[43] Morris, Saul S., Carol Levin, Margaret Armar-Klemesu, Daniel Maxwell, and Marie T. Ruel, *Does Geographic Targeting of Nutrition Interventions Make Sense in Cities? Evidence from Abidjan and Accra*, FCND Discussion Paper 61, Washington, IFPRI, 1999.

[44] For review of several case studies see Aldermman, 1991, (op. cit.).

Food security policies, and their targeting, if designed at the household level may not be fully effective at improving the welfare of the more disadvantaged individuals in a given community. The implicit assumption that household income will be 'fairly' shared within the family or household according to each member's needs is clearly not supported by much of the available empirical evidence. Women, children, and the elderly are sometimes discriminated against in the distribution of family resources, including food. More generally, policies targeted at certain individuals within a household may achieve their objectives more effectively.

The extent of the mentioned discrimination, which is however highly location specific, should not be overestimated (for instance, differences in food distribution tend to disappear in most cases if control for nutritional requirements and body mass is introduced in the analysis). Omitting to consider intrahousehold allocation mechanism can nevertheless seriously impair policy design in that "it may result in the non adoption of beneficial policies, in policies having unintended consequences, and in the loss of policy handles"[45].

The state of our knowledge on intrahousehold allocation mechanisms is at present quite limited, albeit growing, so that it is difficult to make any generalisation, especially with regard to policy recommendations. A recent study shows how different methodologies applied to the same data set, resulted in very different and often contradictory policy implications, concluding that an hypothetical policymaker "presented with the results of these five studies ... would be right to be intervention-adverse"[46]. In addition, the evidence on intrahousehold allocation behaviour is extremely difficult and is most often based on indirect observations. Nevertheless, these cannot be valid justifications for overlooking what we know, no matter how little, when designing or implementing policies.

Examples of cases in which the impact of policies may be reduced or even offset by failures to look inside the 'black box' of the household are plentiful. Schoolmeals programmes may be neutralised by a reallocation of food consumed within the family away from children participating in the

[45] Haddad, L., J. Hoddinott, and H. Alderman eds., *Intrahousehold Resource Allocation in Developing Countries. Models, Methods, and Policy*, Baltimore and London: The Johns Hopkins University Press for the International Food Policy Research Institute 1997.

[46] Harriss-White, B. "Gender Bias in Intrahousehold Nutrition in South India: Unpacking Households and the Policy Process", in Haddad, Hoddinott, and Alderman (1997, op.cit.).

programme. Targeting policies to women may be more effective in improving the family nutritional status insofar as the targeting contributes to shifting the household expenditure pattern toward food item (women are generally found to give higher priority to food as compared to men). Food-for-work programmes may work differently according to the wage level chosen: high wage levels may exclude women, while below-market price wages may favour higher women participation (because men would opt out). Projects designed to target women by fostering production in 'female crops' may obtain opposite results if they activate mechanisms that incentivate men to take control over those activities[47].

Food Security Interventions: The Role of Food Aid

One development assistance resource clearly distinct from the rest in terms of both its availability and its link to food security objectives is food aid. The historical origin of food aid lies in the agricultural surpluses in the donor countries and its humanitarian objectives are to a large extent responsible for its additionality as a resource transfer. At the same time, however, these factors have obscured its role as an effective resource transfer. Although the situation is currently changing, in the past, the provision and use of food aid has not in general been subjected to the cost -benefit criteria that financial transfers are normally subjected to and consequently efficiency of resource transfer has often been compromised.

In general, three types of food aid can be distinguished on the basis of the purpose and the modalities of distribution to the recipient country : (a) programme food aid, supplied as a resource transfer for balance of payments or budgetary support to the recipient country which, in turn, sells the commodity (or commodities) in the open market (b) project food aid, distributed to target groups to support specific development objectives and supplied on a grant basis (c) emergency food aid to mitigate the negative effects of man-made or natural disasters.

[47] For a thoughtful literature review of intrahousehold allocation mechanisms and their bearing on food security see Haddad, L., C. Peña, C. Nishida, A. Quisumbing, and A. Slack, *Food Security and Nutrition Implication of Intrahousehold Bias: A Review of the Literature*, FCND Discussion Paper No. 19, International Food Policy Research Institute, Washington DC, 1996.

In terms of the above categories, drastic changes have occurred in the composition of food aid in the last 10 years. Programme food aid has declined drastically during the period, while emergency food aid has increased and project food aid remained fairly constant.

Traditionally, food aid has been used to support different types of food subsidies, an action that has been viewed as a mixed blessing. Food aid has been perceived as inhibiting domestic food production growth and as creating dependency on externally subsidised food. Empirical evidence does not support such a general conclusion. Many countries, such as India, South Korea, and Taiwan, that used to be major food aid recipients, no longer depend on it. The so-called disincentive effects of food aid on domestic agriculture have been exaggerated and many countries receiving high levels of food aid have subsequently achieved above-average agricultural growth. The actual effects of food aid are very much a function of recipient countries' food and agricultural policies[48]. In order to utilise food aid effectively for improving household food security and contributing to development, *governments need to protect their producers from the potential disincentive effects of food aid*.

Food aid, and food security interventions in general, demand that attention be given to the nutritional requirements of the target populations and to the actual dietary intakes as they are affected by the intervention. The observed bias of some food security policies toward selected food items (food aid rations are usually composed of cereals, oil and beans) may fail to exploit the high nutritional contents of traditional food products, and may have inadequate protein and energy content and lack variety. The poor nutritional quality of rations may in fact cause outbreaks of a variety of diseases among target groups[49]. In designing interventions, it is therefore necessary to gain a clear understanding of the food system, farming practices, nutrition requirements, and of how households obtain their food.

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[48] Singer, Hans, and Simon Maxwell. 1979. "Food aid to the developing countries: A survey". *World Development* 7 (3)): 225-246 ; von Braun, Joachim, and Barbara Huddleston. 1988. "Implications of food aid for price policy in recipient countries". In John W. Mellor and Raisuddin Ahmed, eds. *Agricultural price policy for developing countries*, Baltimore, MD, U.S.A., and London: The Johns Hopkins University Press for the International Food Policy Research Institute.

[49] Evidence on poor quality of food rations contributing to outbreaks of scurvy in Ethiopia, Somalia and Sudan and to pellagra affecting refugees in Malawi in the 1980s is reported in Toole, M.J., 1992, "Micronutrient deficiencies in refugees", *Lancet*, 339:1214, as cited in Muehlhoff, E. and M. Herens, 1997, "Household food security and nutrition in agricultural relief and rehabilitation programmes", *Food, Nutrition and Agriculture*, No. 19, Rome, FAO.

The modalities by which food aid for development purposes is handled will determine its efficiency as a tool for promoting development. Direct in-kind distribution of food aid for food-for-work programmes attempts to attain both an improvement in the nutritional status of the target population, while at the same time creating employment and promoting development. Due to the multiplicity of objectives of food-for-work programmes, it is difficult to evaluate its overall performance. Literature on the subject is mainly focused on project planning, logistics and management matters. Making payments-in-kind often requires the creation of separate bureaucracies to monitor the movement and use of food aid. Often, food-for-work projects are de facto relief projects. The major problem of food-for-work programmes is that food is not generally accepted as payment by able-bodied individuals which means that, in many instances, food-for-work projects are characterised by low productivity and low rate of return. Studies indicate that poor results with food-for-work programmes in Sub-Saharan-Africa were attributable to the low work capacity of people attracted to those programmes, inadequate supervision and lack of auxiliary equipment.[50] In-kind transfers of food should be restricted only to cases where in addition to lack of economic access to food, physical access is also a problem. In such cases, in-kind food aid may be a better value than income transfers through other means.

The evidence points to a wider use of monetization of food aid for support of development projects that also aim at poverty alleviation and food security [51]. Food aid is currently undergoing more screening for two major reasons: On the supply side, availability of food aid may not grow if policy reforms in the donor countries are successful in reducing structural surpluses in food commodities. On the demand side, in all likelihood the needs of recipients are likely to increase in view of projected growing gaps between requirements and domestic production. The implications of these two forces is that food aid will be a much more scarce resource in the future than it has been in the past, a trend which is likely to demand better justification in the provision of food aid and more effective

[50] Stevens, C. *Food Aid in the Developing World: Four African Case Studies*, ODI, Croom helm, 1979. For a discussion on the different aspects of food aid see: *Prospects For Food Aid and Its Role in the 1990s* Paper Prepared for the Committee On World Food Security, Sixteenth Session, Rome, 11-15 March 1991.

[51] Monetization to the extent of a country's absorptive capacity and use of the funds to support development projects, will avoid the inefficiencies and high distribution costs of direct delivery of food aid and the risk of providing population with food items of low value to them. Cash transfers will increase the overall instead of only the food entitlements of the poor.

(efficient) ways in its use. The broad elements of the emerging discipline on food aid include, inter alia: providing commodities for which there is absorptive capacity in the recipient countries so as to avoid disincentives to domestic production; ensuring a higher transfer value to the final beneficiaries which often implies a de-linking between the commodities provided as food aid and the kind of assistance received by the beneficiaries; undertaking time-bound direct food distribution programmes may be required in cases of emergencies where there is a local scarcity and the market is unable to respond in the short term.

Policies for Stabilisation of Food Supplies and Prices

Assuming that at the international level adequacy in food supplies is not a problem, large declines in food supplies at the national level may be the result of (a) shortfalls in production combined with a temporary inability of the country to import food due to shortages in foreign exchange and/or with increases in world food prices (b) temporary breakdown in the transport system especially for landlocked countries that prevents imports (b) shortfalls in production due to agroclimatic or other reasons (e.g. war or civil strife) in the case of non-tradable items, or in the case of tradable foods subject to quantitative trade restrictions; (d) some combination of the above.

At the local and household levels falls in food supplies may be present even if national availability is at normal levels. These are cases of production shortfalls combined with inability to transport food in the affected areas from other producing regions within the country or from import points.

In all cases above (as well as in the case of fluctuating world prices) and in the absence of other measures, the domestic price of food (at the national or local level) will be subjected to wide fluctuations resulting in fluctuations in real incomes of both producers and consumers of food. The poor will experience large variations in their ability to access food.[52]

[52] From the standpoint of income fluctuations, is not only variability in food production that matters but also that of non-food production and prices to the extent that they determine incomes of smallholder producers of non-food commodities as well as of farm labourers. For a discussion see: A. Siamwalla and A. Valdés, "Food Insecurity in Developing Countries" *Food Policy* , Vol. 5 (4) November 1980.

The case in favour of stabilisation of food supplies and prices, derives from the realisation that significant and abrupt disruptions in supplies, and declines in real incomes, causes human suffering especially among the very poor, disrupts productive activity, causes poor households to sell or consume their assets (land, livestock, food stocks) and become destitute, and may have negative long term developmental implications through changes in the patterns of resource allocation in order to face uncertainties.[53] At the national level, excessive variability in food production creates serious problems for countries having to spend a large part of their foreign exchange on food imports. Large and unpredictable surges in food import requirements compromise the acquisition of other necessary imports (either through direct foreign exchange allocations or higher foreign exchange prices) and causes havoc in the trade balance of the country. Food price instability constitutes a disincentive to food production especially in the case of small farmers with limited assets and access to credit.

The situation is worsened by ill-functioning rural credit and storage markets in developing economies. In such case lending, borrowing, and private asset accumulation and de-cumulation (grain, land or money) cannot be used to smooth out food consumption patterns . Such markets work imperfectly even in normal periods due to transactions costs, incomplete and asymmetric information and other imperfections, and they tend to over-react or completely break down during periods of crises. An example would be private storage under conditions of famine[54]. Thus, some government action is needed.

Stabilising domestic food production may be a by-product of the overall effort to increase agricultural production namely the result of investments in irrigation, drainage, introduction of drought resistant varieties, etc. The question is if such investments are worth undertaking for the sole purpose of stabilisation of production while other investments may be preferable from a benefit-cost viewpoint. In some cases (such as for non-tradable perishable goods for which storage cannot be undertaken) domestic production stabilisation may be the only option available [55].

[53] See discussion on consequences of food insecurity in an earlier section.

[54] For a review of such issues (especially the behaviour of markets under famine conditions) see: Ravallion, M "Market Responses to Anti-Hunger Policies", Ch. 5 in Drèze and Sen *The Political Economy of Hunger* Oxford University Press, 1990. Also Ravallion, M., *Markets and Famines* Oxford University Press, New York 1987.

[55] For a discussion see: *Poverty and Hunger: Issues and Options for Food Security in developing Countries*. The World Bank, Washington D.C, 1986.

Policies for dealing with instability in food supplies and prices often concentrate on quantitative controls on trade of food commodities. The use of such controls on imports (inherently market distorting and inefficient) have become limited as countries adhere to the restrictions placed by the World Trade Organisation. During the 1995-1996 surge of cereals prices in the world markets (an average of 27% for wheat, maize and rice) , governments tried to reduce the impact on domestic wholesale and retail prices using instruments such as lowering of tariffs on imports, lowering of domestic taxes and other levies, and imposition or increases in export taxes on the affected commodities.

Other policies that affect international trade can be an important vehicle for stabilisation of food supplies and prices. For instance, policies that reverse past anti-export biases will improve countries' access to foreign exchange and enable them to increase food imports in periods of crises. Price bands (i.e. permitting the domestic price to fluctuate within pre-specified limits) can be a more efficient price stabilisation instrument in "truncating" the extreme parts of world price distribution especially if the band is made sufficiently wide. Price bands have been tried in some Latin American countries.

Using large buffer stocks under public control to stabilise food supplies and prices has been proven to be an expensive proposition, becoming more so the larger the degree of stabilisation desired. Large buffer stocks are usually characterised by large storage losses, high administrative costs, and high opportunity cost of the tied capital. Although the benefits of stabilisation (if successful) can also be significant given the detrimental effects of instability, the benefits of greater stability have to be weighed against the costs of displacement of private storage activities, and the destabilising effects of government storage in cases where government stocking and de-stocking behaviour is erratic and information on it scarce [56].

Increased evidence on the performance of stabilisation schemes points to a "minimalist" approach to price stabilisation. A number of "guidelines" should be followed to minimise the costs associated

[56] Ravallion, 1987 (op. cit)

with price instability [57]: First, domestic price stabilisation schemes should seek to distinguish between price support and purely stabilisation objectives and thus aim for the latter by maintaining as far as possible a firm link with international price movements. Second, government intervention should aim at counterbalancing only the extreme points of price variability and not attempt to smooth out price fluctuations within too narrow a range, since the latter requires frequent and often distorting interventions on the market and is potentially very costly. Third, governments should weigh carefully the costs of schemes that require the public sector to perform such activities as procuring, storing and distributing stocks. They should examine whether these functions could be better contracted out to the private sector. Fourth, stabilisation schemes should be administratively simple and transparent. Fifth, other mechanisms such as crop insurance schemes and forward and future markets could be explored before putting in place fully fledged price stabilisation schemes. Finally, sharing of crop production risks among neighbouring countries through regional stockholding schemes have been found to provide cost-effective protection against production variability.

[57] See, for example, Knudsen, O. and J. Nash, "Domestic Price Stabilization Schemes in Developing Countries", *Economic Development and Cultural Change*, Vol. 38, No. 3, 1990. Also: *Food Security Problems and Issues in Africa South of the Sahara and Priority Action*. Unpublished Paper, FAO Commodities and Trade Division, 1994.