

Food aid: a substitute for domestic production and commercial imports?

F.Z. Ahmadi-Esfahani and C.G. Locke*

Abstract

With widening food deficits in many developing countries, and growing surpluses in their developed counterparts, it is not surprising that food aid continues to be a popular form of assistance. While not questioning the humanitarian motives of this aid, resources for additional consumption may not be achieved where there is significant substitution for domestic production and displacement of commercial imports. This paper examines these two issues using theoretical models of food aid from both the donor and recipient perspectives. Different aspects of these substitutions are discussed, which are then related to empirical findings of previous studies. It appears that food aid can be either negative or positive in its impact on domestic production and commercial imports depending on the environment in which it is used. As an illustrative example, the U.S. Export Enhancement Program is used to identify some of the winners and losers from food aid. *A poor man's field may produce abundant food, but injustice sweeps it away. [Proverbs 13:23]*

Introduction

The United Nation's Food and Agriculture Organization (FAO) has repeatedly warned of catastrophic shortages of food in the 1990s. One estimate by the World Bank suggests that more than 500 million men, women and children are reported to suffer from chronic malnutrition and hunger-related diseases, with deaths numbering some 40 million each year (Dreze and Sen 1989: 36). Naturally, with this human suffering comes pressure for additional food resources from industrial nations, which have found it hard to look beyond growing commodity stockpiles in their search for an appropriate response. There would seem nothing simpler than sharing the surplus.

In 1991, world stocks of wheat were approaching 130 million t, which is around 20% of usage (ABARE 1993: 100). At the same time, over 13 million t of grain equivalents of food aid were delivered under the World Food Program (WFP). While it is not the purpose of this paper to question the humanitarian motives of this assistance, there has long been concern that the transfer of such considerable volumes of commodity could not be without side effects. Of primary concern is the likelihood that instead of providing resource for *additional* consumption, this assistance could actually become a *substitute* for domestic production and commercial

imports. The sheer weight of this concern has been sufficient for many economists to recommend less or no nonemergency aid, even in cases of severe nutritional shortages (Isenman and Singer 1977: 205). Whilst this is an extreme position, it does illustrate the controversy surrounding this aid, and raises the question of deficiencies in its theoretical and operational structure (Schuftan 1989: 149–150).

The main purpose of this paper is to examine the question of substitution of food aid for domestic production and commercial imports. After a brief profile of current levels of food aid, the theoretical foundations for this question are examined from the perspectives of an industrial country and a recipient nation. The relationships illustrated are expanded to take into account impacts of food aid on price incentives, input markets, infrastructure and the macroeconomic environment. Following this, an overview of some empirical evidence is examined prior to conclusion.

Bounds of Benevolence

The motivation for food aid has always been open to question, which could perhaps explain the turbulent history of its delivery. However, the political attractiveness of food has ensured that it remains high on the agenda of operational resources chosen to aid developing countries. Primarily from the U.S., food is distributed to diverse countries in Sub-Saharan Africa, Asia and the Pacific, and North Africa and the Middle East. Food aid is not a homogenous product, but comes in three readily distinguishable forms. According to Deardon and Ackroyd, these categories can be defined as follows (1989: 218):

- Emergency food aid. Classically this is distributed free to destitute or near destitute people facing a temporary food shortfall as a result of natural or man-made disaster.
- Project food aid. This is assistance that is either targeted (by free or subsidised distribution or food for work) to particular consumers, or it is used to promote investment in physical capital (for example, public works construction) or human capital (for example, special feeding programs for infants, mothers or schoolchildren). This is typically negotiated on a multi-year basis for specific activities.
- Non-project (or program) food aid. In its simplest form this food is provided without conditions, and substitutes or supplements regular commercial food imports. Normally this is delivered through usual market channels, rather than targeting particular consumer groups. This is typically longer-term assistance for countries in continual food deficit.

The emergency category of aid is predominantly short term in nature and is generally not subject to the same criticism as the latter two, which are seen to have longer-term structural impacts on the recipient. There is little doubt that crisis food aid has resulted in the saving of millions of lives, even in cases where food shortages were not the primary cause of starvation (see, for example, Locke and Ahmadi-Esfahani 1993: 372). In practice, however, most food aid is delivered in project or program forms (Fitzpatrick and Storey 1989: 241).

* Department of Agricultural Economics, University of Sydney, New South Wales 2006, Australia.

After declining in the early 1970s, food aid recovered strongly in volume and value terms at around 15% of net overseas development assistance (ODA) (Maxwell and Singer 1979: 225). After short dips in this value in the early 1980s, the value of food aid was down to 5.8% of ODA in 1990 (WFP 1992: Table 19). Over 90% of this aid is cereals, the majority being nonproject aid (WFP 1992: Table 12). The breakdown of this aid appears in Table 1.

Most of this aid comes from the U.S. (51%), the WFP (22.3%), and the European Community (16%), with smaller donations from Canada (4.8%), Australia (0.6%), nongovernment organisations (0.5%) and other multilateral agencies (2%). The WFP aid comes from contributions from member countries, again predominantly U.S., then European Community donors (WFP 1992: Tables 7 and 10).

Sub-Saharan Africa is unique in that it is the only recipient of cereal aid where the emergency category dominates (Table 1). This reflects the severity of the food problems being experienced in this region. Of the many attempts made to project future food aid requirements, the common conclusion is that the basic food shortages of Sub-Saharan African low income food deficit countries will widen, even if they adopt vigorous agricultural policy reform (Deardon and Ackroyd 1989: 222; Owusu 1989: 207–213). Even though the avenues through which these countries achieved this growing aid dependence are varied (for example, compare Nepal in Khadka 1989: 156; with Somalia in Farzin 1991: 262), it would seem that the problems of food deficits, and the response of food aid, will be continue into the future. This being the case, insights into long-term repercussions of food aid become essential to sound policy formulation.

Theoretical Perspectives

The actors in the stage of food aid are not simple ones. Donors, whilst favourable to philanthropy, are not singularly motivated. Recipients, whilst suffering shortages, may not be accepting the gifts simply to obtain food. Consumers, whilst feeling hunger, may not see the gifts as homogenous as their providers, and politicians, whilst claiming their actions are constrained by lack of food, may be trying to use food aid to perpetuate lack of action. Into this complexity, it becomes difficult to establish motives and determine the success of meeting objectives. In this section, some of the theoretical observations on these actions are made; firstly, looking from the perspective of a donor, and secondly from the viewpoint of a recipient. In order that we focus on the issue of substitution, not all the pros and cons of food aid, which have already been sufficiently expounded in the literature, will be reiterated here.¹

The origins of the current world food aid programs are often traced back to the desire to remove unwanted surpluses. The U.S. was pre-eminent here with its 1954 PL480 surplus disposal program, which later had its name changed to the 'less honest'—as Singer termed it—title of 'food for peace' (1988: 80). Virtue aside, surplus disposal has been prominent in international trade for many years, as whilst there are humane reasons for responding to dearth, there are also two key commercial motivations. The first is to enhance market share, in that disposal of surpluses will undercut competitors and allow the supplier to capture a larger slice of the market. Whilst it could be argued that this is actually an issue of increasing the size of the market, as the countries were previously excluded from this arena by virtue of their low incomes, there is a possibility of enhancing future shares through import dependence and bilateral concessions. The second commercial motivation is that aid provides a special export outlet for surplus domestic production which would have otherwise depressed domestic and international prices and provided a burden on storage facilities. Assuming a price elastic demand for food, the donor will be able to more than compensate for the cost of aid, implying that food aid, in effect, constitutes a demand inducing scheme for international surplus production.

The way domestic support and delivery of aid can be achieved simultaneously, can be seen in Figure 1 (based on Houck 1986: Figure 10.7). The left hand side represents the domestic market for a particular grain in the donor country, which is a net exporter, given by the excess supply curve (ES) in the international market on the right. The excess demand curve is that of either the recipient, or the rest of the world.

The donor government's commitment to provide noncommercial shipments of food aid is analogous to a shift in the quantity that is demanded within the donor country, as it is purchased domestically. The hatched area represents the cost of the government's purchases. In the international market, the excess supply is reduced (shifts up to ES*), causing an increase in world price from p1 to p2. As a result of this price rise domestic consumption falls from c to d, production increases from a to b, and exports expand from ca to db, with de going to the aid recipient. From this analysis, two observations emerge: firstly, the gain in price depends on the slope or elasticity of the ES and ED curves in the international market. The greater the exporter's ability to influence the world price, the steeper the ED curve, and hence the greater the change in

¹ Numerous studies detail the pros and cons of food aid. For example Maxwell's three 1986 studies, Deardon and Ackroyd (1989), Fitzpatrick and Storey (1989), Isenman and Singer (1977) and Singer (1988). The seminal work is the famous survey of Maxwell and Singer (1979).

Table 1. Food aid deliveries by category, 1991.

Recipient region	Cereals (in grain equivalents)				Non-cereals			
	Total '000 t	Non-project (%)	Emergency (%)	Project (%)	Total '000 t	Non-project (%)	Emergency (%)	Project (%)
Sub-Saharan Africa	4024	22.2	62.9	14.9	419.3	6.7	70.7	22.6
Asia and Pacific	3073	27.7	23.8	48.5	190.6	37.8	15.6	46.6
Latin America and Caribbean	1852	72.2	1.8	26.0	186.2	26.9	6.1	66.9
North America and Middle East	3215	81.2	10.4	8.4	158.8	34.0	40.2	25.8
East Europe and the former USSR	990.4	99.7	0.3	—	182.2	95.5	4.5	—
World total	13155	50.8	27.6	21.6	1137	33.3	36.0	30.7

Source: WFP 1992, Table 12.

price. Secondly, the analysis assumes that the ED curve does not shift in response to the supply of aid.

If commercial displacement does occur, the ED curve will shift down, mitigating the price rise. Maxwell (1986b: 7) argues that the commercial displacement can occur through four different avenues. Firstly, a government marketing board which has a fixed demand will necessarily buy less; secondly, marketing organisation inputs which are fixed; thirdly, through displacement of private sector food imports by public sector food aid, and finally, via incentives on domestic production. In the event of aid substituting for commercial imports, donors may no longer achieve their domestic policy goals, although they may be providing development assistance by relieving constraints on foreign exchange. It is perhaps for this reason, that many researchers single out conflicting objectives as one of the major problems associated with food aid (Fitzpatrick and Storey 1989: 243).

Looking next to the theoretical insights into recipient impacts of food aid, we continue to follow Houck (1986: 108) who suggests 'what is done with the quantity of [aid] is another story with its own economic and political consequences in the recipient nation'. This other story is the one most often told by critics of food aid programs, and tells of displacement of production through price incentives, input markets, infrastructure and the macroeconomic environment. Looking firstly at the price effect, this can be explained in terms of the analogies that are drawn between aid and a sophisticated form of dumping or a bumper harvest (Sen 1960: 1032; Maxwell 1986b; Schultz 1987; Deardon and Ackroyd 1989). Using a similar diagram to Figure 1, Figure 2 represents the situation of a net importer recipient nation, with their domestic market shown on the left.

Under these circumstances, the arrival of aid is equivalent to a large increase in excess supply in the international market. Domestic prices fall from p_1 to p_2 , consumption increases from c to d , and domestic supply falls from b to a . The volume of food shipped into the country, including aid, increases from bc to ad . It is assumed in the above diagram that the arrival of aid does not alter the domestic demand curve; however, many authors would argue that because food aid implicitly targets the poor or those with a higher marginal propensity to consume out of new income, then arrival of aid will cause this demand curve to shift out in an income effect (in Deardon and Ackroyd 1989: 226; Isenman and Singer 1977: 209–211; Fitzpatrick and Storey 1989: 243–244). If this is the case, the price depression would be somewhat mitigated. As a counterargument to this, dumping of nontraditional foods could lead to a change in tastes away from historical consumption patterns, which would appear as an expansion of the demand curve above, and again a depression of producer prices (Maxwell 1986b: 6; Fitzpatrick and Storey 1989: 241).

Although these are not problems in themselves, they may become so when they encourage import dependence.

Of primary concern in the above situation is the degree to which this price change alters domestic production. This can be seen as being related to the proposition that the more inelastic (steep) the supply curve, the less price responsive the producers are, and hence the lower the drop in production. Reported measurements of the elasticity of supply, the percentage change in output in response to a percentage change in price, are consistently low, around 0.2, indicating that the price decline would have little influence on production. Whilst the World Bank argues, quite correctly, that this figure is higher in the long run, the estimates still reflect a low degree of price responsiveness among producers (Fitzpatrick and Storey 1989: 245–246). Khadka (1989: 162) argues that the elasticity of small farmers who are trying to provide food for their families will always be low, especially one would suppose, for downward movements in price, thus explaining the low or zero estimates from more aggregate figures. Isenman and Singer (1977: 210) argue that this low estimate is a result of relatively inelastic supply of land and consequent diminishing returns to other inputs. However, the most likely reason for this low magnitude of elasticity is the fact that prices in these countries are often administered and do not reflect the interplay of supply and demand, especially in the short run (Singer 1988: 81; Sen 1960: 1034). More importantly, structural rigidities such as limited resources, poor climate, soil erosion, drought, and social and economic structures mitigate higher supply response from risk-averse farmers.

Aside from direct price effects, food aid can affect the supply curve through disruption of the input markets. Proponents would argue that food aid can act as budgetary support to free resources to purchase imports of intermediaries such as fertiliser; however, negative impacts on inputs, which would cause a shift up in the supply curve in Figure 2, are possible. Although food aid can potentially influence the capital market in an inflationary manner, and the land market by moving productive land to nonfood production which may have higher risks, it is perhaps labour markets which have received the greatest attention (Deardon and Ackroyd 1989: 225). Projects may compete with local agricultural production for labour, bidding up wages and reducing agricultural employment and output (Maxwell 1986b: 6). This competition is not only as it induces labour to move to projects, but encourages workers not to work, and farmers to leave food production and move into food for work projects (Fitzpatrick et al. 1989: 241). The counterargument to this is that the displacement of labour does not occur in practice due to the fixity of human capital, and that even if this does occur, the displacement will be minimised by the high levels of disguised unemployment (see, for example, Khadka 1989: 162).

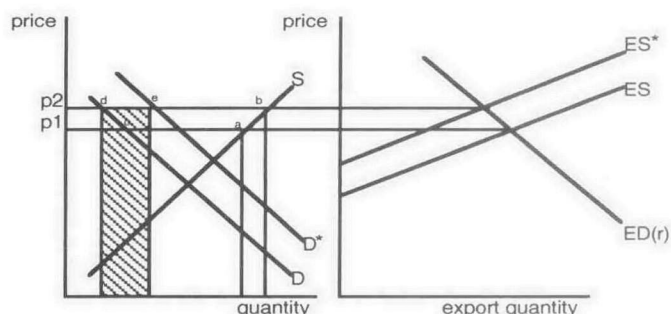


Fig. 1. Impact of food aid on donor nation.

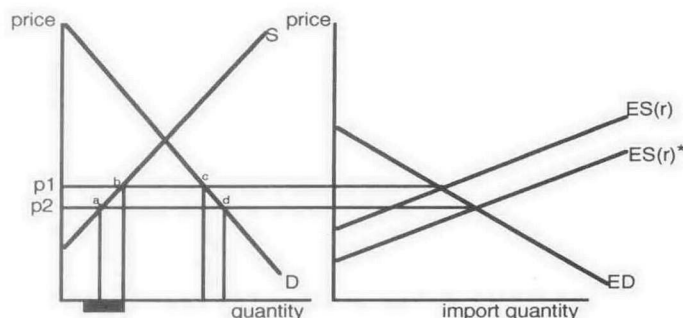


Fig. 2. Impact of food aid on recipient nation.

Production is also strongly influenced by the infrastructure of the country, which is determined primarily by the policy environment. Many authors have speculated that food aid encourages governments to neglect agriculture by acting as a policy disincentive (Maxwell 1986b: 6; Fitzpatrick and Storey 1989: 241; Farzin 1991: 262). As Bardhan (1990: 4) notes, the quality of government intervention differs from state to state, so it is difficult to ascribe inactivity in policy to food aid alone. In an a priori sense, there would seem no justification for assuming that food aid cannot be just as easily used to support a bias against agriculture as one in its favour (Isenman and Singer 1977: 213–215). However, given the widespread evidence of urban bias in developing countries, and the prevalence of weak governments, food aid could potentially be responsible for reducing long-run production through this avenue.

A final way that food aid can influence domestic supply is through macroeconomic linkages, principally through the exchange rate and inflation. Counterpart funds that are generated from the sale of food aid can lead to adverse inflationary effects as a result of expansionary and indiscriminate fiscal policies (Farzin 1991: 269). Under this scenario, food aid effectively becomes new money supply, and inflation erodes real prices received by producers. Alternatively, food aid can help a government support an overvalued exchange rate, itself implicitly taxing agriculture (by shifting the $ES(r)^*$ curve in Figure 2 right), stimulating imports and further lowering domestic prices resulting in deflation.

Thus, the theoretical analysis, both from the perspective of the donor and recipient, lends itself to hypothesis that substitution for both domestic production and commercial imports is quite likely. The next section examines some of the empirical evidence that has been obtained to test this hypothesis.

Empirical Observations

Since T.W. Schultz first raised these concerns in 1960, there has been a continual appeal for more empirical research into the problem. As Maxwell (1986b: 21) notes, there is a traditional dichotomy between empirical and checklist analysis, with many analysts preferring the latter due to the problems inherent in applying econometrics to developing countries. Due to the fact that some of the independent variables affecting food production and consumption also affect one another over time, many researchers have recommended the most appropriate form of estimation is through a multi-equation econometric model. This estimation was first carried out by Mann in 1967, and later with modification by Rogers et al. in 1972, on food aid to India.

The use of this approach is fraught with difficulties. The first and most obvious problem relates to data, or more accurately the lack of reliable data, in economies where pastoralism is important and where much of agriculture is nonmonetised (Thomson 1988: 209; Isenman and Singer 1977: 230). Often the length of time series may be insufficient to allow specification of appropriate regressions, and simpler forms have to be chosen (as in Maxwell 1986b). Even when data are available, changes in government policies or in technology may render conclusions from the past data useless. Given these limitations, it is almost impossible to isolate the impact of food aid from those factors which result in the food aid being delivered, such as drought, refugees, and government intervention in the price mechanism (Thomson 1988: 209; Khadka 1989: 164). There is also much debate over which variables should be included in the model. For example, Maxwell (1986b) argues that, ideally, price impact should be measured as deviations from optimal prices, as just focusing on lower prices ignores

the beneficial impacts that might arise from suppressing inflation.

Looking first at the issue of depression of production, as was indicated previously, production is believed to be rather unresponsive to prices in developing countries. The more *ad hoc* studies of Khadka in Nepal (1989), and Maxwell in Senegal (1986a) and Ethiopia (1986c) have produced little evidence of price disincentives happening in these countries. Khadka (1989: 164) claimed that her analysis was limited by ignoring state intervention and cross border trade with India. Mann (1967) found that the decline in production as a result of food aid was around 33%, and therefore only two-thirds of this aid was additional. The analysis by Rogers et al. (1972) included an equation which allowed for government intervention in pricing through 'fair price shops', which offered subsidised returns to producers, and cut Mann's estimate of the production disincentive in India to around 10%. Subsequent simpler studies (see, for example, Isenman and Singer 1977) were supportive of these earlier findings. If we take the model with market differentiation to be more accurate, we can conclude that the production impact is low, at least for India. However, given the positive nature of India's agricultural planning and their firm stance when food aid was first introduced, it is possible to speculate that in other countries the disincentive effect may be much higher. More recent studies undertaken formally by Hall (1980) and Bezuneh et al. (1988), however, are more positive. The former suggests that Brazil's wheat production tripled over the period 1952–71 as a result of revenues gained from PL480 wheat imports (Hall 1980: 27). The latter study looks at the impact of food for work in Kenya and finds that food aid increased agricultural production, income, capital investment, employment and marketable surplus (Bezuneh et al. 1988: 190).

On the other hand, Farzin (1991: 266–267) has argued informally that food aid resulted in the fixity of domestic prices below free market levels in Somalia and was significant in altering consumption habits in a way not directly attributable to income effects. This is in contrast to the earlier findings by an informal analysis of Senegal, where Maxwell found no evidence of labour or policy disincentives (1986a: 15,17). Again this is inconsistent with Farzin (1991: 274) who found significant evidence of undisciplined policy as a result of food aid receipts. Due to the casual nature of these analyses, inter-country differences, and the subjective nature of observations, it is impossible to determine the source of many of these conflicts. However, it may be argued that changes in prices and/or consumption habits depend heavily on both the volume of food aid and its resulting real income effect.

Looking now at the issue of substitution for commercial imports, empirical evidence is very thin. There is certainly scope for leakage of aid back into the market, with Thomson (1988: 216) suggesting that 25–30% of Somalia's food aid earmarked for refugee camps ends up here via corruption and reselling. Deardon and Ackroyd (1989: 223) argue that over half of all food aid displaces commercial imports; however, others are less confident of this. From Mann's 1967 results for India, it can be concluded that food aid does have a negative impact on imports, but that this is only marginally significant. More recent results seem to support this observation, although due to the way the models are constructed it is impossible to broaden the scope of Mann's findings beyond identifying a disincentive on prices from food aid which will, *ceteris paribus*, have a negative impact on commercial imports (see, for example, Rogers et al. 1972). Hall (1980: 27) supports this finding using the data for Brazil. More casual regressions by Maxwell (1986a: 20–21) in Senegal indicate that commercial imports have fluctuated much less than food aid, giving no significant statistical relationship between the two. In another

study (Maxwell 1986b), the import of grains is shown to be more dependent on foreign exchange than food aid. It appears that some effect is apparent in the empirical studies, but less convincing in the *ad hoc* assessments.

The reconciliation of the various views and findings seems to be that food aid can be either negative or positive in its impact on domestic production and commercial imports depending on the environment in which it is used.

Conclusion

The analysis suggests that, like many other economic ventures, food aid yields both costs and benefits. Whether costs exceed benefits or vice versa is an empirical question, the answer to which is constrained by a paucity of data. However, useful insights into this central question may be provided by identifying losers and gainers of the new versions of food aid in international agricultural trade. A major program amalgamating various components of traditional food aid in addition to other strategic considerations is that of the U.S. Export Enhancement Program (EEP).

The introduction of EEP in 1986 was the result of a complex set of events including the cumulative impact of the loss of foreign markets, continued high production in the U.S. and expiration of the 1981 *Farm Act* which provided an opportunity to re-evaluate U.S. farm programs. Prior to 1986, the U.S. program was not flexible enough to respond immediately to price cutting by competitors, increased sales by other wheat exporters coming at the expense of U.S. market share. EEP was chosen as the most effective response to these shortfalls.

EEP has intensified foreign competition in various markets and placed added pressure on the European Community and all other competing wheat exporting nations. For example, the Australian government has decided to maintain the single desk selling status of the Australian Wheat Board (AWB) and to extend the guarantee on AWB borrowing until the end of this decade. In a more aggressive move, Canada has recently introduced two multi-billion dollar income support programs. These are the Gross Revenue Insurance Program and the Net Income Stabilisation Account which are effectively used as implicit export subsidies for grain farmers. Although both these exporters have been able to maintain market share, the cost of the EEP has been expressed through the changing of the price profile. For instance, analysis of the payment for quality in Australian wheat has exhibited a significant downward trend in premiums since 1987 (Ahmadi-Esfahani and Stanmore 1993). The European Community may well be able to continue to cope until future export restitutions are increased, but for Australia and Canada which rely more heavily on wheat exports, the lower prices will have an adverse effect on the structure of wheat production and the viability of the industry.

Similarly in developing countries, the availability of subsidised wheat has shifted the demand for U.S. wheat and forced wheat producers off the land, to the point where several of these countries are now solely dependent on wheat imported from the U.S. Similar to an import or consumption subsidy pursued by some of the recipient governments, EEP has reduced internal prices resulting in expansion of domestic consumption and imports. From a strategic standpoint, the introduction of EEP may also be considered a sunk cost to gain a foothold in non-U.S. markets. This can be justified on economic grounds if these new customers are able to purchase regular amounts at market prices at a later stage. EEP is thus a loyalty-inducing marketing device which has effectively eroded the potential of competing exporters such as Australia and Canada to enter into long-term agreements with developing countries.

Although not explicitly stated as one of EEP's objectives, a rationale underlying this in-kind subsidy scheme was that it would stop the U.S. stockpile of wheat which had built up to a peak of 52 million t in 1985/86 (ABARE 1993: 103). As well as being effective in seeing this excess supply reduced, industries which rely heavily on the wheat industry, such as input marketing services and processing have also benefited. In particular, as the grain trade gets its margin on every tonne regardless of prices, volume increases lead to higher profits for this sector. In fact, it might not be in the interest of this sector to increase the international prices of wheat if it led to more importing countries enhancing their domestic production and marketing capacity to reduce imports. This potential, central to the national food self-sufficiency policies of many developing countries, directly threatens the interest of wheat trade and has been structurally undermined by EEP.

Similarly, the U.S. economy could potentially benefit from the trade of other products to the particular markets targeted under EEP. The increased foreign consumer surplus in wheat (economic gains) will allow the importing country to have more flexibility in purchasing other U.S. agricultural and/or nonagricultural products, particularly if this assistance is tied. Even if unconditional, there may also be political benefits for the U.S. through improved trade relations, the supply of cheap wheat encouraging the importing country to look favourably upon the U.S. in other matters. As such, EEP appears to have become an effective foreign policy tool.

Finally, EEP has also strengthened the U.S.'s ability to win concessions from the European Community and other major exporters in the Uruguay Round of GATT negotiations. More generally, EEP has contributed to the U.S. emerging as a significant balancing force in international trade conflicts. This is supportive of the proposition that the EEP acts not only as a form of aid, but also as a strategic trade policy to serve political ends.

In summary, the use of food aid as a form of development assistance has both the potential to harm and the potential to heal. Some of the trade-offs involved can be captured by examination of the 1986 U.S. EEP, scion of the 1954 PL480 program, which tends to impose costs on producers in competing export countries and importing nations, whilst benefiting producers in donor countries and consumers in food deficit nations. It is perhaps for the latter rationale that EEP, and food aid in general, will continue to find merit, as it transcends the barrier to food faced by the world's one billion poor.

References

- ABARE 1993. Commodity Statistics Bulletin, Canberra, Australian Bureau of Agricultural and Resource Economics.
- Ahmadi-Esfahani, F. and Stanmore, R. 1993. Quality identification, pricing and end use of Australian wheats. Report prepared for the Grains Research and Development Corporation, Department of Agricultural Economics, University of Sydney, December, 24 p.
- Bardhan, P. 1990. Symposium on state and economic development. *Journal of Economic Perspectives* 4, 3, 3–8.
- Bezuneh, M., Deaton, B. J. and Norton, G. W. 1988. Food aid impacts in rural Kenya. *American Journal of Agricultural Economics* 70, 1, 81–191.
- Dearden, P.J. and Ackroyd, P.J. 1989. Reassessing the role of food aid. *Food Policy* 14, 3, 218–231.
- Dreze, J and Sen, A. 1989. *Hunger and Public Action*. New York, Oxford.
- Farzin, Y.H. 1991. Food aid: positive or negative economic effects in Somalia. *Journal of Developing Areas* 25, January, 261–282.
- Fitzpatrick, J. and Storey, A. 1989. Food aid and agricultural disincentives. *Food Policy* 14, 3, 241–247.

- Hall, L.L. 1980. Evaluating the effects of P.L. 480 wheat imports on Brazil's grain sector. *American Journal of Agricultural Economics* 62, 1 19–28.
- Houck, J.P. 1986. *Elements of Agricultural Trade Policies*. New York, Macmillan.
- Isenman, P.J. and Singer, H.W. 1977. Food aid: disincentive effects and their policy implications. *Economic Development and Cultural Change* 25, Jan, 205–237.
- Khadka, N. 1989. Food aid and Nepal: some comments. *Food Policy* 14, 2, 155–166.
- Locke, C.G. and Ahmadi-Esfahani, F.Z. 1993. Famine analysis: a study of entitlements in Sudan 1984–1985. *Economic Development and Cultural Change* 41, 2, 363–376.
- Mann, J. S. 1967. The impact of public law 480 imports on prices and domestic supply of cereals in India. *American Journal of Farm Economics* 49, Feb, 131–146.
- Maxwell, S. 1986a. Food aid to Senegal: disincentive effects and commercial displacement. *Institute of Development Studies Discussion Papers* 225, December, 43 p.
- Maxwell, S. 1986b. Food aid: agricultural disincentives and commercial market displacement. *Institute of Development Studies Discussion Papers* 224, December, 52 p.
- Maxwell, S. 1986c. Food aid to Ethiopia: disincentive effects and commercial displacement. *Institute of Development Studies Discussion Papers* 226, December, 69 p.
- Maxwell, S.J. and Singer, H.W. 1979. Food aid to developing countries: a survey. *World Development* 7, 225–247.
- Owusu, O. 1989. The future of food aid in sub-Saharan Africa. *Food Policy* 14, 3, 207–217.
- Rogers, K.D., Srivastava, U.K. and Heady, E.O. 1972. Modified price, production and income impacts of food aid under market differentiated distribution. *American Journal of Agricultural Economics* 54, 2, 201–208.
- Schuftan, C. 1989. Commentary: the markets of hunger: questioning food aid nonemergency/long-term. *Ecology and Nutrition* 23, 149–157.
- Schultz, T.T. 1960. Impact and implications of foreign surplus disposal on underdeveloped economies—value of U.S. farm surpluses to underdeveloped countries. *Journal of Farm Economics* 42, 5, 1019–1030.
- Schultz, S. 1987. Food aid: an effective instrument of development policy? *Intereconomics* 22, May/June, 137–144.
- Sen, S.R. 1960. Impact and implications of foreign surplus disposal on underdeveloped economies—the Indian perspective. *Journal of Farm Economics* 42, 5, 1031–1042.
- Singer, H. 1988. Food aid: pros and cons. *Intereconomics* 23, March/April, 79–83.
- Thomson, A.M. 1988. Somalia—Food in a long-term emergency. *Food Policy* 8, 3, 209–219.
- WFP (World Food Program) 1992. *Food Aid Review*. World Food Program.