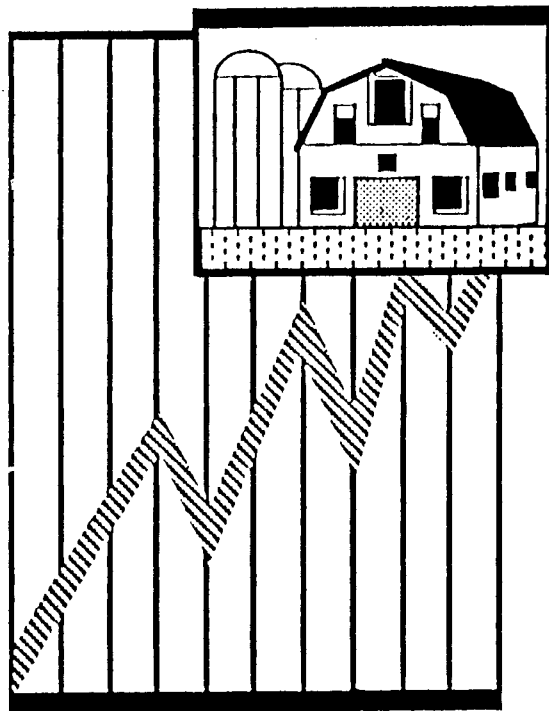


# Food Aid, Agricultural Development and Economic Assistance: Potentials for Stimulating Demand for U.S. Farm Exports

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POTENTIALS FOR STIMULATING DEMAND FOR U.S. FARM EXPORTS

by

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Introduction

For those with sufficient resources to buy, the world has surplus food. Yet many millions go hungry each day, unable to purchase or produce sufficient food for an adequate diet. Of those with too little to eat, a small minority receive food aid, but distribution is uneven and inadequate. Other poor countries are helped with technical assistance to increase their agricultural productivity and make them more self-sufficient in the production of food. In some instances of successful technological assistance, growing agricultural self-sufficiency in the recipient country turns to surplus, and then export oriented donor nations such as the U.S. feel betrayed and attempt to deny further agricultural development assistance. Witness the case of soybeans and Brazil.

This raises an important and fundamental policy question. Do these forms of assistance conflict with the export goals of a U.S. agriculture that needs to export one-third or more of its agricultural output? Or, are they a necessary first step in the creation of a rapidly expanding international market for agricultural products? Clearly, the popular understanding is that any growth in world agricultural productivity will take away markets from U.S. farmers. Evidence is mounting, however, that this is too narrow and static a view of the food market dynamics associated with the process of economic

development. And, with increasing food surpluses in the EC and the U.S., it is evident also, that rapid growth in food markets in the developing world must be encouraged.

How then, does agricultural development create markets in low income countries? Clearly, markets for commercial U.S. agricultural exports are created primarily in countries where effective demand exceeds domestic supply at efficient prices. In poor countries, aside from population growth, demand is created through lower food prices or through increases in per capita income. The greatest demand increases come from income changes, but income growth is generally dependent on agricultural development since poor countries are predominately rural. Thus, agricultural development, paradoxically, can be an integral part of creating export markets for U.S. agriculture. This concept is not intuitively obvious, nor well understood, but it is a concept that is critical to the design of U.S. foreign policy. We will discuss it in more detail later.

Food aid, another form of development assistance, is generally provided for humanitarian or political reasons, but has an impact on the development process also. It is generally provided to countries that would not purchase the commodities at market prices. Since it helps dispose of surplus commodities in these non-commercial markets, it is a very popular program for U.S. agricultural interests. Food aid creates increased consumption in the recipient country through lower food prices, but unfortunately, these same low food prices may retard the development of domestic agriculture and thus, could delay the creation of commercial markets.

From a U.S. perspective, farm income in American agriculture is vitally linked to growth in export markets, which are increasingly located in the low and middle income countries. The manner in which development assistance, food aid, and food and agricultural price policy are determined and implemented in these countries, as well as in the U.S., will have important bearing on the efficient development of U.S. export markets. A clear understanding of this market creation process is essential to the design and implementation of effective policy and ultimately to the economic interests of the American farmer. We begin with an overview of world market changes for U.S. agricultural exports.

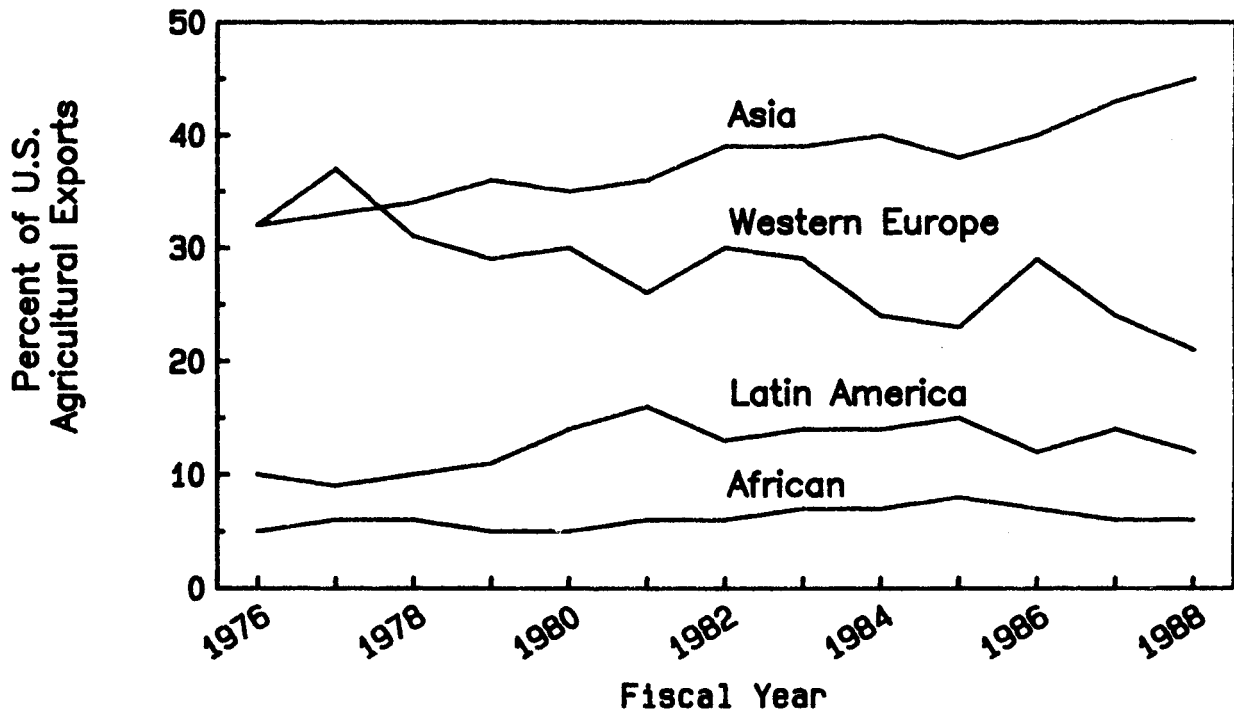
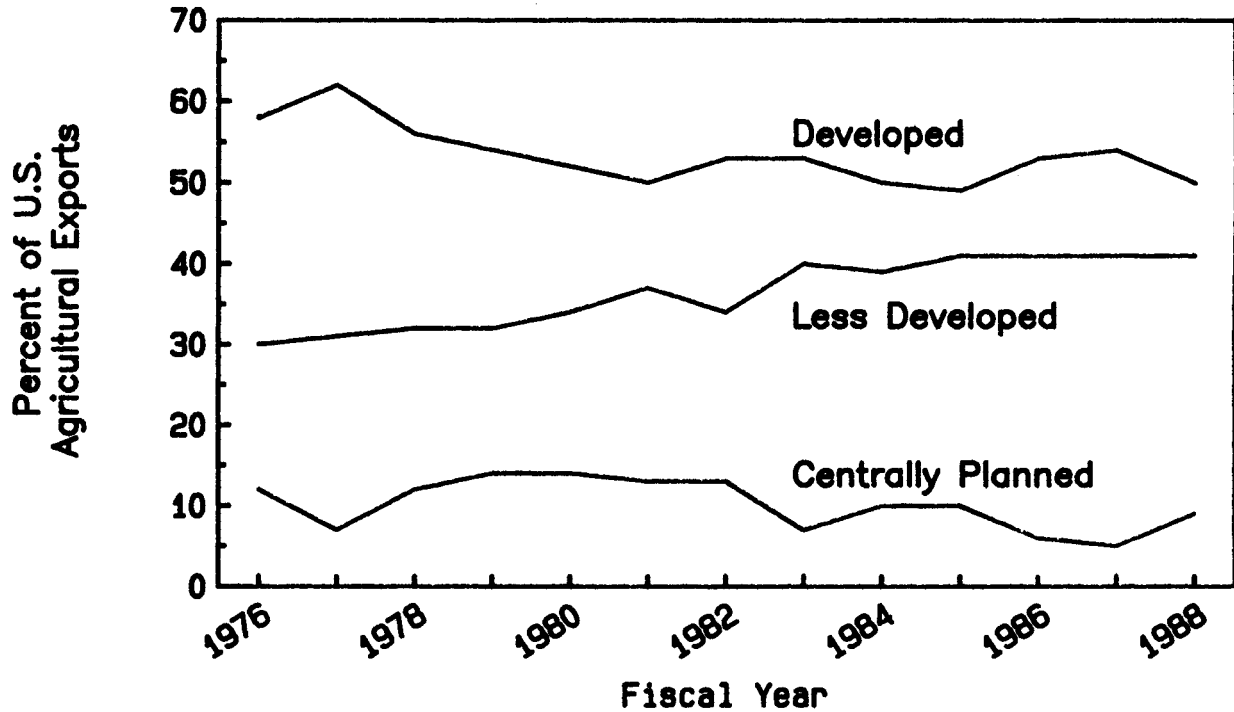
#### The Changing Nature of U.S. International Markets

The U.S. is increasingly dependent on international markets as a source of farm revenue. Despite elaborate programs to limit agricultural output, farm surpluses have risen from five percent of total output in the early 1960's to as much as 30 percent in recent years. Production of some commodities, for example wheat, has exceeded domestic use by two and three times in some years.

International markets for this excess production have changed as well. These changes relate primarily to stage of economic development in the importing country and thus involve geographical movements in market volume also. Relative changes in the share of U.S. agricultural exports to three defined market groups, developed countries, less developed countries, and centrally planned countries for the 1976-88 period are shown in Figure 1.

Historically, major U.S. agricultural markets have been concentrated in developed countries. This pattern continues, but the

**Figure 1. U.S. Agricultural Export Markets 1976-88.**



Source: (1)

share of U.S. exports going to this group of countries has dropped from 60 percent in the mid 1970's to 50 percent in the 1980's. In contrast, exports to less developed countries (LDCs) have increased by more than one-third, advancing from 30 percent to over 40 percent in the same time period. The remainder of U.S. exports has gone to centrally planned countries, a more volatile weather driven market ranging from five to fifteen percent, but at the lower end of this range in recent years.

Geographic market changes are more revealing. Exports to the Asian and Western European markets were each about 35 percent in the mid-1970's but have followed opposite growth paths since, with the Asian market rising to 45 percent and the Western European market dropping to 20 percent this past year. In Asia, income growth among several food deficit countries, especially Taiwan and South Korea, and a continued strong market in Japan are responsible primarily for the market growth. In Europe, a strong production response from favorable agricultural price policy, without a compensating increase in demand, has eroded export markets for the U.S. there. Trade with Latin America rose from 10 to 15 percent of U.S. exports during the early 1980's, but has retreated slightly in the late 1980's as many Latin American countries are under pressure from high international debt.

Exports to Africa continue at about five percent with subsidized exports accounting for one-fourth to one-third of this five percent. Thus, commercial trade with the poor countries of Africa is a very small part of U.S. exports. Subsidized trade of \$1 to \$1.5 billion annually, ranges from three to six percent of U.S. exports with about one-half sent to Africa. Egypt alone receives about one-fourth of all.

concessional (subsidized) U.S. exports, a clear indication that food aid recipient selection is in a significant way politically motivated.

The dynamic trade picture that emerges includes declining markets in developed countries where agricultural productivity continues to grow while consumption remains relatively stable, especially Europe; rapidly growing markets in some IDCs where economic development is occurring, principally in Asia; and relatively stagnant markets in other developing countries experiencing little or no growth or hampered by large debt obligations, principally in Africa and Latin America.

Export markets for U.S. agriculture, thus, appear to benefit from sustained economic development in low and middle income countries. We turn now to a detailed look at the relationship between economic development and food consumption, including the implications for agricultural trade and market development.

#### Economic development (income growth) and food consumption

A number of important agricultural, food, and trade policy issues are defined by the dynamic relationship between absolute income level, income growth and food demand (1,2). The manner in which this relationship is understood and incorporated in food, food aid, trade, and development policies, holds important implications for the future quantity and type of U.S. agricultural exports as well as the geographic location of agricultural export markets.

The basic income-consumption concept is generally understood, though the magnitude and the dynamics of the consumption change are not generally appreciated. The basic premise is that as incomes grow from low levels (economic development), food consumption behavior is quickly



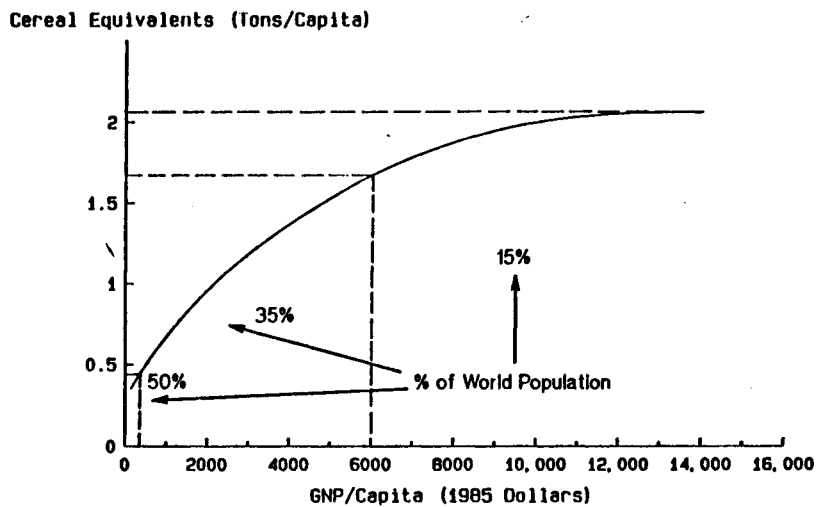
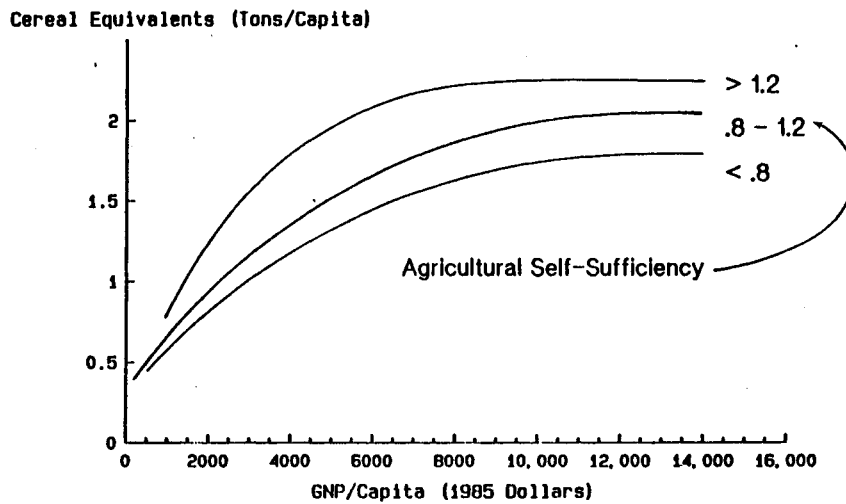
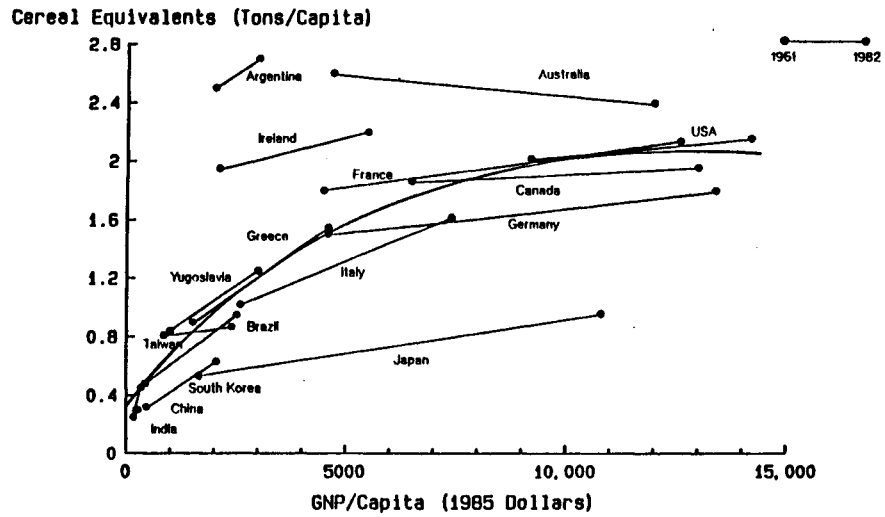
and radically changed. The principal change is to diets with a greater portion of livestock products. But, livestock are not efficient converters of grains and other feeds to human food. This requires greater farm production for the new per capita diet. In addition, there are less dramatic consumption changes to more fruits and vegetables, and from tubers and coarse grains (rice, corn) to wheat products.

As a consequence, diets of high income people (\$10,000 GNP/capita and greater) require up to seven times as much agricultural resources as diets of very low income people (\$400 GNP/capita and less). The diet change is especially rapid at low income levels. At high income levels, diets are essentially stable in terms of aggregate agricultural demand. When these dynamic consumption changes are combined with less dramatic but more constant increases in agricultural productivity, a general pattern of food self-sufficiency at very low income levels, import dependency at intermediate income levels and growing food surplus at high income levels emerges. (Figure 2) These relationships are summarized by Rask as follows (1):

"Thus, economic development, as evidenced through rising incomes exerts a dynamic influence on food needs. First, in early stages of development there is a dramatic increase in the demand for agricultural commodities, in part through population growth but more importantly through diet change to a higher proportion of livestock products. A country may or may not be able to meet this demand from domestic agriculture. In most cases, a combination of too slow growth in agricultural productivity (or a lack of agricultural resources) and/or the inability to produce efficiently the newly required livestock feeds leads to a consumption-production gap that must be filled with imports.

At high income levels the consumption-production relationship is reversed as population growth slows, income induced consumption changes cease, and agricultural productivity growth continues, either narrowing the consumption-production gap or creating exportable surpluses. Trade in agricultural products serves both surplus and deficit countries at various stages in the development process." (1 pg 4)

**Figure 2. Food Consumption and Income 1961-82**



Source: (1)

Agricultural policies in both exporting and importing countries can expedite or retard this market development process (3). Policies that result in high prices, in effect reduce purchasing power (income) of poor people, and thus lower food consumption levels. This effect is much less evident in rich countries where income and food price levels have less impact on food expenditures. The domestic policy implications are clear. For example, as long as the U.S. was producing primarily for a high income domestic market and a high income Western European market, price was not an important issue and a domestic policy of high agricultural prices could be pursued. Today, however, as market volume shifts increasingly to low and middle income countries, price becomes an important determinate of market volume, strongly influencing the direction of domestic farm income policy.

Similarly, within the importing country, agricultural support and/or import quotas and duties can materially affect the food consumption habits and hence the level of imports. Witness the case of Japan, where rice and meat consumption patterns are more typical of a poor country because of policies that result in food prices several times greater than in the U.S.

Thus, within this general relationship between stage of economic development (level of income), agricultural productivity, agricultural policy, and food consumption, much of the recent shifts in U.S. markets can be explained, future market potential determined, and appropriate policies developed to maximize this potential. For example, in Western Europe, consumption levels have plateaued, production levels will continue to rise, and not only will our markets there diminish further,

but export competition will likely intensify. Policy changes in Western Europe may affect consumption and production marginally, but the trend toward a declining market for the U.S. is unlikely to be reversed.

In contrast, food markets in the Pacific Rim countries will continue to grow. Even Japan, the single largest market for U.S. agricultural exports is potentially a much larger market, if food and agricultural policies are modified to provide more realistic market prices for food commodities. Many other countries in the Pacific Rim where rapid economic development is occurring, and especially those countries with limited agricultural resources, will be growing markets for U.S. exports. Clearly, in these low and middle income markets food price levels will be important determinates of the market volume.

In much of Africa, declining incomes hold little hope for increases in commercial markets. Many countries in Latin America, too, must get out from under crushing debt problems before development can proceed at a pace sufficient to expand markets for U.S. exports.

We turn next to an examination of the impact of agricultural development on growth in food imports and the effect of food aid and technical assistance on this process.

#### Agricultural Development and Food Imports

U.S. agricultural exports have increased from \$4.6 billion in 1960 to \$27.9 billion in 1987, an increase of 503 percent and U.S. agricultural imports have increased from \$4.0 billion to 20.6 billion in this same period, an increase of 414 percent. The more rapid growth of exports compared to imports indicates that agriculture has been successful in finding export markets for farm products. As indicated

above and shown in Figure 1, the growth of US exports to developing countries has been much faster than the growth in exports to developed or centrally planned economies. This suggests that, contrary to popular opinion, economic growth and increased agricultural production in developing countries may be consistent with increased food imports by those countries.

Motivated by the controversial nature of this issue, several studies have been completed recently to test for the existence of a positive relationship between changes in agricultural production and changes in agricultural imports in developing countries. In one study, a group of 18 developing countries with the most rapid growth rates of per capita food production from 1970 to 1982 also had increased amounts of corn, soybeans, and soybean product imports at respective increases of 34 percent, 97 percent, and 257 percent faster than the group of 13 developing countries with the slowest growth in per capita food production (4). Another study of 65 developing countries for the same time period found a positive and significant relationship between growth in agricultural production per capita, growth in overall per capita income, and increased agricultural imports per capita (5). A strong and positive relationship was also found between gross domestic product per capita and agricultural imports of developing countries (6). Another study conducted in Australia found positive correlations between per capita agricultural growth in developing countries and per capita agricultural imports from the world, the U.S. and Australia (7). In contrast, in countries with decreasing per capita agricultural production there was a negative effect on agricultural imports.

Some country examples may help to clarify the dynamics of the economic development process and the impacts on agricultural production, food consumption and demand for food imports. Brazil, a large developing country, that has grown rapidly in the last 25 years is a very important market for U.S. farm products even though Brazil also produces some products that compete with US farm products on the world market. From 1970-72 to 1980-82, Brazil increased the imports of wheat and wheat products and corn and corn products from the U.S. by 27 percent and 86 percent, respectively. During this same period, Brazil was also increasing the production and exports of soybeans and soybean products on world markets in competition with the U.S.

The South Korean experience is very similar to that of Brazil. As a result of rapid economic growth, increasing incomes and changing consumption patterns, South Korea has rapidly increased agricultural imports at the same time that agricultural production was increasing. The over-all index of Korean agricultural production more than doubled from 1961 to 1981, but at the same time, agricultural imports also increased (8). Korean agricultural imports from the U.S. have increased from \$ 280 million in 1970 to \$ 2 billion in 1987, nearly a ten fold increase in less than 20 years. Wheat, cotton, corn and soybeans account for most of these imports. China's farm output increased by over 50 percent from 1978 to 1984 including significant gains in grains, red meat, sugar, and cotton while food self-sufficiency declined because domestic demand growth exceeded growth in domestic production.

The Brazil, China, and Korea experiences follow the pattern of Taiwan. Taiwan has experienced rapid economic growth, growth in domestic

agricultural production and consumption changes during most of the last 30 years. In this period, Taiwan's self sufficiency in food production has been declining and reliance on food imports has been increasing. Taiwan has become a major buyer of U.S. farm products in the 1980's and will continue to need large amounts of food imports in the future.

Malaysia, a consistent net exporter of agricultural products, increased imports of food, feed grains, and oilseeds from a wheat equivalent basis of about 1 million metric tons to nearly 2.4 million metric tons from 1967 to 1983 (9).

#### Food Aid and Agricultural Development

An important objective of U.S. foreign policy has been to improve the welfare of the poor in less developed countries (LDCs). Adequate and low cost food supplies are a key element of this policy. It is felt that such a policy will reduce poverty, increase stability, promote the economic development of LDCs, and thus expand export markets for U.S. farm products. Food aid enhances U.S. farm income because food aid is generally provided to countries that would not purchase the commodities at market prices. Food aid helps dispose of surplus commodities in non-commercial markets through sales to countries in local currency and dollar credits on concessionary terms that include low interest rates and long repayment periods. Thus, food aid in the short run may increase our export markets but what is the long run impact on agricultural development and export markets in recipient countries?

The U.S. Agricultural Trade Development and Assistance Act of 1954 (also known as Public Law 480 or Food for Peace) under which nearly \$40 billion of food assistance has been provided to recipient countries on a

concessional basis has been a politically popular program in the U.S. as well as in the recipient countries. Within the U.S., food assistance has had strong support among farm groups because it represents an important outlet for farm products and among the public in general because food assistance to the poor and hungry of LDCs has appealed to humanitarian values.

Public Law 480 as amended, states that it is U.S. policy to:

"expand international trade; to develop and expand export markets for U.S. agricultural commodities; to use the abundant agricultural productivity of the U.S. to combat hunger and malnutrition and to encourage economic development in the developing countries, with particular emphasis on assistance to those countries that are determined to improve their own agricultural production; and to promote in other ways the foreign policy of the United States." (10, pg.1).

P.L. 480 exports have been an important market for U.S. farm products exceeding \$1 billion annually nearly every year since 1954. P.L. 480 exports reached a peak in 1957 at 33 percent of total agricultural exports, declined to 20 percent in the 1960's, and to 5 percent in the 1970's and 1980's (Table 1). The inflation adjusted value of the exports has declined since 1954. For example, the \$1.1 billion of P.L. 480 exports in 1960 when adjusted for inflation would be nearly \$4 billion in 1986 compared to the actual amount of less than \$1 billion. Not all farm products have benefitted equally from P.L. 480 exports; in fact, two products, wheat and wheat flour represent over 47 percent of all exports since 1954 (Table 2). Other important commodity exports under P.L. 480 include rice, soybean meal, non-fat dry milk and corn. For these products, P.L. 480 exports have been an important way to enhance U.S. farm income.



Table 1: Value of U.S. Farm Products Shipped Under Public Law 480 Compared with Total Exports of U.S Farm Products, Selected Years, 1955-1986

Year	Total P.L. 480	Total Agricultural Exports	P.L. 480 Exports as a Percent of Total Agricultural Exports
---Millions of Current Dollars---			
1955	385	3,144	12
1960	1,116	4,519	24
1965	1,570	6,097	26
1970	1,056	6,718	16
1975	1,101	21,578	5
1980	1,341	40,487	3
1981	1,334	43,780	3
1982	1,107	39,094	3
1983	1,195	34,769	3
1984	1,377	38,027	4
1985	1,627	31,201	5
1986	960	26,324	4
Total 1955 through 1986 <sup>a</sup>	37,853	519,446	7

Source: (11)

<sup>a</sup> Total equals all years 1955-1986 including those not reported in this table.

Table 2: Value of Public Law 480 Exports by Major Commodities and Total, July 1, 1954 through September 30, 1986

Commodities	Total Public Law 480 (Billions of Current Dollars)	Percent of Total P.L. 480 Exports
Wheat	14.8	39.1
Wheat Flour	3.2	8.4
Rice	4.2	11.1
Soybean Oil	3.2	8.4
Non-fat dry milk	1.6	4.2
Corn	1.7	4.5
All other commodities	9.2	24.3
Total	37.9	100.0

Source: (11)

The distribution of P.L. 480 assistance by major recipients demonstrates that the countries have been mostly Asian, some Latin American and African and even a few European (Table 3). Eight countries (India, Egypt, Pakistan, South Korea, Indonesia, South Vietnam, Bangladesh and Yugoslavia) have each received over \$1 billion of P.L. 480 assistance. The distribution of food aid by major recipients suggests that a mixture of economic and political interests have been important selection criteria. Some of the countries that have received large amounts of food assistance in the past have experienced rapid economic development and today have become important commercial importers of U.S. farm products. The most notable among these are South Korea, Brazil, Spain, Italy, Taiwan and Japan. These countries have succeeded in using food aid plus other forms of economic assistance in combination with domestic policies to develop their agricultural sector and the general economy to the level where they are now important commercial buyers of U.S. farm products. Clearly, the fact that other recipient countries have not succeeded raises questions concerning the impact of food aid on agricultural development.

#### The Food Aid and Development Policy Dilemma

Inconsistencies in food aid and development policy are readily apparent since the expansion of export markets for U.S. agricultural commodities may directly conflict with efforts to improve agricultural production in developing countries. These inconsistencies in the P.L. 480 program have contributed to much controversy and discussion since its inception (12,13, and 14). The issue is even more important today

Table 3: Major Recipients of Public Law 480 Aid, By Selected Periods and Total, Fiscal Years July 1, 1954 through September 30, 1986

Country	1954-64	1965-74	1975-86	Total
---Millions of Dollars---				
India	2,084	2,933	1,415	6,432
Egypt	690	222	2,810	3,724
Pakistan	736	906	896	2,538
South Korea	493	1,034	445	1,972
Indonesia	212	757	897	1,866
South Vietnam	130	1,307	27	1,464
Bangladesh	n/a	66	637	1,337
Yugoslavia	783	238	0	1,021
Brazil	501	385	11	897
Morocco	97	264	411	772
Israel	289	375	52	716
Poland	535	33	139	707
Turkey	452	218	4	674
Spain	604	18	0	622
Sri Lanka	56	101	386	543
The Philippines	89	167	279	535
Peru	n/a	n/a	474	474
Sudan	n/a	n/a	461	461
Chile	128	112	208	448
Tunisia	96	200	146	442
Italy	403	3	0	406
Taiwan	237	158	0	395
Japan	367	0	0	367
United Kingdom	342	11	0	353
Dominican Republic	n/a	n/a	344	344
Bolivia	n/a	n/a	341	341
Cambodia	n/a	207	91	298
Zaire	n/a	n/a	296	296
El Salvador	n/a	n/a	288	288
Somalia	n/a	n/a	280	280
Colombia	118	131	30	279
Portugal	59	48	59	266
Ethiopia	n/a	n/a	251	251
Greece	202	43	0	245
Haiti	n/a	n/a	222	222
West Germany	212	3	0	215
World Total	11,692	11,463	14,666	37,821

Source: (11)

because the U.S. and a number of other surplus food producing countries have food aid programs to expand foreign markets for their products.

Controversy surrounds the manner in which income growth is stimulated, since low income countries are generally rural and largely self-sufficient in agriculture. The logical development of the agricultural sector first, thus, is seen by many in the agricultural export countries, as a direct threat to traditional export markets. Early research results do not support these fears, however, as income growth based on increased productivity in agriculture, when multiplied throughout the economy is shown to result in increased agricultural imports. Korea is a unique example of this success based on agricultural development, progressing from hunger to food aid to agricultural development to a commercial market for farm products.

"Thirty eight years ago, Korea was considered an economically hopeless country. Today, Korea has become a reliable agricultural trading partner with the United States. Past American development assistance has had the following results: (1) during the 1979-81 period, imports of agricultural products increased faster than income; (2) per capita consumption of food in Korea increased faster than the per capita food production; (3) as income increased, a greater variety of better food was demanded--more than was available from domestic production; and (4) as the economy grows further, longevity and population increases will likely result in additional demands for many high value-added agricultural products." (8, pg. 13)

Further, the opportunities for creating expanded markets are significant. For example, with rapidly changing diets, both in type and quantity of food items, self-sufficiency in specific commodities as well as for overall food supply is a transitory concept for many developing countries. Also, agricultural and food policies, through their impacts on farmers and consumers can dramatically alter food production and consumption patterns for particular countries. Finally, most countries

and populations are in the low income consumption phase, an indication that substantial market opportunities exist for increased exports if the "right" combination of development, food aid, and food policies are followed by both importing and exporting countries. The "right" combination of policies will strengthen the ties between increased agricultural output and widespread income growth in developing countries. These include appropriate economic policies, price and exchange rate policies, trade policy, industry development policy, agricultural technology development and diffusion policy, policies that increase access to resources and educational opportunities and development of infrastructure in rural and urban areas.

How do we capitalize on these preliminary understandings of the nature of export markets, including the impact of agricultural development, general economic development, domestic food production and consumption, and food aid and other policies on market creation. First, several general principles are evident in the material presented above:

1. To maintain or improve farm income in the U.S. under free market conditions, commercial export markets must be expanded.

2. Future growth in agricultural export markets will occur principally in developing countries; especially those experiencing substantial increases in per capita income.

3. Agricultural development is often the primary source of increased income at early stages of economic development and can thus be an important first step in market creation.

4. The role of food aid in creating markets is less clear. Some situations in which food aid was given have become important U.S.

markets, others have not. Many food aid situations are marked with inconsistencies and political motivations. In total, the food aid program is not large enough to have a significant impact and may have retarded agricultural development in some recipient countries.

5. Clearly, the large increases in food consumption associated with economic development are in livestock products. Yet, U.S. trade to developing countries is more in the basic feed grains and oilseeds.

These conclusions lead to several observations concerning future policy and research issues.

1. An export focus on the basic commodities as a means to enhance farm income is not sufficient. We should attempt to capture a number of value added components in our export products and thus broaden income enhancement to include the greater food system.

2. Policies affecting exports and export markets need to reflect the special needs and realities of developing countries including low cost and more reliable food supplies, development assistance, especially agricultural development, and flexibility to accommodate changing market demands.

3. Food self-sufficiency, food and agricultural policies, and dietary needs are dynamic concepts within our future export markets and these markets are themselves changing. Thus, it is important that we understand how these processes are working in a representative group of rapidly developing countries. This information will assist in the design of policies and market development efforts to take advantage of the emerging market opportunities. A program to more fully understand these dynamic relationships should be part of our research agenda.

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