POLICY CHOICES AND THE WORLD FOOD ECONOMY

by

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This paper explores a seeming paradox in the world food economy -- the simultaneous presence of large grain surpluses in some countries and large numbers of hungry and malnourished people in others. By 1986, the EC and the U.S. governments held about 200 million tons of cereals that could not be sold; at the same time perhaps 400 million people were unable to buy enough food to avert hunger. Why do these conditions co-exist? This paper argues that domestic agricultural policies provide the principal explanation for this result.

In a number of developed countries, price levels and research and development investments have been highly supportive of agricultural producers. These policies were responsible for historically unprecedented rates of production growth and large surpluses. A subsequent plethora of policies (including food aid, conversion to alternative end-products, and acreage controls) to reduce these surpluses, have met with only limited success. In contrast, policies in many developing countries have been oriented towards low prices (for both consumers and producers) and have largely ignored investment in agricultural development. Ironically, low price policies have had only a limited impact on the hungry, as many of the hungry are without income and thus lack access to food markets. Disregard for the development of the local agricultural economy has hampered growth in employment and wage rates for unskilled labor, further aggravating the problem of hunger.

The next section of the paper reviews the performance of the world food economy over the last two decades and documents the disparate performance of production among countries. At the same time, increased trade has allowed a considerable growth in average consumption levels in almost all countries. Yet large numbers of hungry people remain. Section three provides some simple economic analyses of agriculatural policies that help explain both disparate production performance among countries and the inability of developing country policies to alleviate hunger. The final section considers future policy changes that can resolve these problems of surplus and shortage. Instead of increasing transfers of food between areas of surplus and those with shortages, solutions will involve production-reducing policies in developed countries--replacing price policies with direct income subsidies--and agricultural production-increasing policies in developing countries that allow for increased income and employment opportunities.

THE WORLD FOOD ECONOMY, 1965 - 1984

Table 1 provides data on per capita production and availability of cereals, taken at five-year intervals over the period 1965 - 1984. The cereal crops - - primarily wheat, maize and rice - - represent the staple foods for most of the world's population. But historical data for cereals do not tell the whole story of staple food crop performance. Roots and tubers are an important second group. Unfortunately, data for roots and tuber production are of only limited reliability in most

TABLE 1. PRODUCTION AND DOMESTIC AVAILABILITY OF CEREALS, 1965-1984.

REGION	1965	1970	1975	1980	1984	% CHANGE
	PRODUCTION					
	kilograms/capita					
DEVELOPED MARKET ECONOMIES	528	582	619	713	764	45
NORTH AMERICA	979	1080	1152	1371	1366	40
WESTERN EUROPE	339	387	409	454	559	65
DEVELOPED CENTRALLY PLANNED ECONOMIES	580	666	703	662	665	15
DEVELOPING MARKET ECONOMIES	200	211	209	218	218	9
AFRICA	154	151	143	124	104	-32
LATIN AMERICA	238	245	254	253	273	15
NEAR EAST	253	266	277	268	232	-8
FAR EAST	194	210	205	224	237	22
DEVELOPING CENTRALLY PLANNED ECONOMIES	254	238	265	287	345	36
WORLD	320	333	344	358	378	18
WORLD PRODUCTION, million metric tons	3285	3697	4070	4437	4764	45

REGION	1965	1970	1975	1980	1984	% CHANGE
	DOMESTIC AVAILABILITY					
	kilograms/capita					
DEVELOPED MARKET ECONOMIES	485	552	538	573	612	26
NORTH AMERICA	701	862	764	859	873	25
WESTERN EUROPE	417	448	473	481	530	27
DEVELOPED CENTRALLY PLANNED ECONOMIES	611	667	767	779	782	28
DEVELOPING MARKET ECONOMIES	207	219	225	241	245	18
AFRICA	164	163	167	160	144	-12
LATIN AMERICA	216	233	254	274	284	31
NEAR EAST	279	300	333	356	378	35
FAR EAST	205	219	216	232	243	18
DEVELOPING CENTRALLY PLANNED ECONOMIES	262	244	272	304	357	36
WORLD	319	333	344	358	378	18

Sources: Food and Agriculture Organization, Production Yearbook and Trade Yearbook, various issues.
Except for 1984, data represent three-year averages, centered around the indicated year.
Changes in per capita stocks are included with domestic consumption to estimate availability.
These numbers are large only for the developed market economies.

developing countries. Yields of these crops are difficult to monitor because production is primarily for home consumption or sale through ill-monitored market channels. The absence of reliable roots and tuber data makes difficult evaluation of the extent of hunger. Because roots and tubers are usually the cheapest source of calories, the poorest consumers rely especially heavily on this class of staples, even in countries where cereals dominate total consumtion. In Indonesia, for example, rice is the principal staple, with average consumption in excess of 140 kilograms (kg); but the poorest consumbers rely almost exclusively on cassava (Timmer, Falcon and Pearson).

But even if the data gives a somewhat incomplete picture, the aggregate performance of the world food economy has been little short of remarkable. Over the 1965 - 1984 period, cereal production increased by 45 percent, from 3.3 to 4.8 billion metric tons. This growth exceeded population growth by a substantial margin, and average per capita availabilities of cereals increased by 18 percent, from 320 to 378 kgs. At an aggregate level, the Malthusian hypothesis of relatively rapid population growth has been resoundingly disproven by the experience of the last two decades. On average, people had become substantially better-fed.

The global average conceals substantial variation in production performance both among and within regions. The most rapid rates of per capita production growth occurred in the developed market economies (45 percent) and in the developing centrally-planned economies, a category dominated by China (36

percent). The developing market economies demonstrated relatively slow growth; per capita production grew by only nine percent. But this average also conceals substantial variation. Production in the Far Eastern countries (comprising nearly 60 percent of the population of the developing market economies), increased by 22 percent, from 194 to 237 kilograms. Latin American countries also increased production at rates near the world average. But the Near Eastern countries and sub-Saharan Africa showed declines in production. Declines were particularly severe in the latter reion, falling by nearly one-third over the time period.

Changes in domestic availability are described in the right-hand side of Table 1. The data are measured in unprocessed form, and thus overstate somewhat actual intakes. In terms of weight, only two thirds of paddy rice and about four-fifths of wheat can be directly consumed. But the numbers remain useful to demonstrate the substantial disparity between developed and developing countries in levels of consumption and stocks. Developed country consumers use a substantial amount of grain indirectly, through the feeding of grains to livestock. As a result, per capita availabilities reached as high as 800 kilograms (in the developed CPE's). In the developing countries, consumption levels are substantially lower. Consumers in the Near East and China eat about 350 kilograms of cereals; intakes in the Far East and Latin America are around 240-280 kilograms; in Africa, consumption levels are only 145 kilograms. In part, these results reflect regional differences in the prominence of

roots and tubers in the diet. In many parts of tropical Africa, for example, cereals are dominated by cassava, yams and potatoes. But more important, the differences reflect variations in income levels, as lower incomes of developing country consumers do not allow comparable consumption levels, particularly of meat and animal products.

Relative changes in cereal availabilities were more uniform across country groupings than changes in production. Among the developed economies, per capita cereal availabilities increased between 25 and 28 percent over the two decades. Because stock levels increased somewhat during this period, rates of increase in consumption were several percentage points lower. Among the developing country groups, changes in stocks were trivial, and thus changes in availability reflect consumtion effects. Availabilities increased most rapidly in Latin America, the Near East and the developing CPE's (China), growing between 31 and 36 percent. Only in Africa did per capita availability of cereals decline; however, the extent of decline (12 percent) was substantially less than the decline in production (32 percent).

Differences between regional consumption and production levels are made possible by changes in inter-regional trade. The more moderate growth of consumption relative to production in the developed market economies reflects the substantial growth in per capita exports from that country group. In most of the remaining country groups, consumption increased more rapidly than production. These groups increased net cereal imports. In Africa, cereal consumption declined less markedly than

production, again signifying an increase in per capita imports. Only the developing CPE's showed little change in per capita trade.

Table 2 presents data on the absolute levels of cereal exports and imports during the 1965 - 1984 period. World trade more than doubled, increasing from about 105 to 235 million metric tons (mt). On the export side, almost all of the growth in trade was accounted for by the developed market economies. Exports from the U.S. and Canada increased by 70 million mt; exports from Western European countries grew by more than 35 mt; other developed countries (primarily Australia) increased exports by 10 million mt. Import growth was more widely dispersed. The Soviet Union and Eastern Europe increased imports by 35 million mt; imports of the Near Eastern developing countries grew by 30 million mt. Next in magnitude are the African and Latin American regions, each with about 15 million mt. Imports by the developing CPE's and the Far Eastern market economies grew by about 9 and 5 million mt, respectively. Trade became increasingly important during the last two decades as a means of increasing levels of cereal consumption, and represents perhaps the most tangible linkage among the various members of the world food economy. Because the developed countries account for the vast majority of cereal exports, whereas the developing countries are the most prominent importing countries, some observers see cereal trade as a prime example of the dependency phenomenon. By "controlling" access to a large and increasing share of staple food supplies, developed country governments and their brethren,

TABLE 2. WORLD CEREAL TRADE, 1965-1984.

REGION	EXPORTS					IMPORTS				
	1965	1970	1976	1980	1984	1965	1970	1976	1980	1984
	(million metric tons)					(million metric tons)				
DEVELOPED MARKET ECONOMIES	80.4	79.8	134.4	184.7	195.1	50.7	57.9	73.4	73.9	71.1
NORTH AMERICA	60.5	50.1	93.8	130.2	130.5	0.9	0.9	1.1	1.4	1.4
WESTERN EUROPE	11.8	18.9	26.4	35.7	48.7	38.3	40.7	49.9	45.9	37.6
DEVELOPED CENTRALLY PLANNED ECONOMIES	5.8	10.3	7.2	6.1	5.1	16.1	10.7	30.4	50.3	50.4
DEVELOPING MARKET ECONOMIES	19.7	18.2	20.6	25.7	32.6	30.8	32.8	51.1	74.6	96.4
AFRICA	0.8	0.8	0.3	0.3	0.3	3.2	4.2	8.0	14.0	17.8
LATIN AMERICA	12.2	11.7	13.7	15.0	18.2	6.9	8.1	13.8	22.5	22.4
NEAR EAST	1.1	0.9	0.7	1.5	1.4	5.0	6.4	11.0	20.1	35.5
FAR EAST	5.6	4.7	6.0	8.8	12.7	15.5	13.9	18.0	17.6	20.2
DEVELOPING CENTRALLY PLANNED ECONOMIES	1.5	1.1	2.2	1.7	2.2	7.0	6.4	9.0	19.4	15.9
WORLD	107.5	109.3	161.2	218.2	234.9	104.6	107.8	163.9	218.1	233.8

Sources: Food and Agriculture Organization, Trade Yearbook, various issues.
Except for 1984, data represent three-year averages, centered around the indicated year.
Exports do not exactly equal imports, because of reporting errors, cross-country differences in accounting years, and end-of-year in-transit shipments.

the multinational corporations, are presumed able to coerce developing country governments into particular political and economic policy choices (Lappe amd Collins).

If the developed countries have such power, they have done a remarkably poor job of exploiting it. Prices on the world grain markets have gone downward almost continuously, particularly in recent years. To compare price quotations from different time periods, price data must be adjusted for inflation. This adjustment accounts for changes in the prices of all other goods and, hence, the ability of the purchaser to pay for the commodity. The choice of price index is somewhat arbitrary, but all indices suggest declines in the 'real' prices of cereals. Use of the index of developing country manufactured export prices, for example, yields real prices for 1985 that are only 60 percent of their average value a decade earlier. Indeed, even the nominal prices of the major grains were lower in 1985/86 than in 1975/76. Export prices for Thai 100% rice declined from $295 to $226/mt; U.S. No. 1 Hard Winter Wheat prices fell from $151 to $128/mt; prices for U.S. No. 2 yellow corn went down from $116 to $105/mt.

By 1986, cereals had become more affordable to developing countries than at any time in the twentieth century. Prices of the major exports of the low-income food-deficit countries were higher in nominal (if not real) terms in 1985 as compared to 1975, except for sugar. Further, foreign exchange availabilities were of no particular importance to the magnitude of imports by developing countries. Cereal imports utilized less than 15

percent of the value of exports over the past decade in almost all developing countries (except for Bangladesh, where the figure is 30 percent); on average, the share of cereal imports in export earnings is only 5 percent (Monke and Abdel-Salam).

If the dependency argument founders in terms of prices, what of the possibility that grain would be unavailable to a particular country because of an embargo by the developed countries? During a one or two month period in 1974, for example, rice exports were simply unavailable for sale at any price to any importer. But such an event has never occurred in the wheat or corn markets, as each is roughly ten times the size of the rice market (100 million mt versus 10 million mt). The large size of the grain market, the ease of transshipment and the large number of producers (hence, potential exporters) makes cereal products among the least attractive comodities for an embargo. The futility of such an effort was evidenced most recently by the U.S. attempt against the U.S.S.R. in 1980. Even though the U.S.S.R. is the world's largest cereal importer, and purchased principally from the U.S., the U.S. embargo resulted in a decline in imports of at most 2 or 3 million mt out of intended imports of 35 million mt. Alternative suppliers and transshipments overwhelmed the U.S. effort (Paarlberg).

The implausibility of limiting access of a country to world grain markets does not deny that exporters try to use the cereal market as a tool of political persuasion. Food aid, like any other type of economic assistance, can be used by donors and

recipients to reinforce the power of existing regimes or to allow domestic agriculture in the recipient country to be overlooked.

But no evidence is available to allow the conclsuion that political and economic conditions in recipient countries would be otherwise, were food aid unavailable. Because world cereal prices are low and imports require only a trivial share of foreign exchange availabilities, food aid reflects economic convenience rather than economic necessity on the part of recipient country governments. Like all consumers, a commodity with a zero or near-zero economic price is preferred to that same commodity bearing a market-determined price.

Table 3 presents recent data on the supply and disposition of food aid. In general, the evidence is consistent with the view that food aid availability is inversely related to commercial market demand (compare 1975/76 to 1985/86), and that prominent recipients are often important political allies of donor countries. Egypt, for example, is by far the largest recipient of food, mostly from the U.S. Supplies to Viet-Nam, again largely provided by the U.S., declined from 500 to less than 45 thousand mt between 1978/79 and 1981/82. At the same time, the numbers paint a picture that is not entirely black. Needy countries, such as Ethiopia, Mozambique and Sudan, have received substantial amounts of food aid. Currently, about 85 percent of all food aid is directed toward low-income (less than $800 per capita) food-deficit countries.

Intra-Country Distribution and Nutritional Status

TABLE 3. FOOD AID SHIPMENTS, 1975-1985.

	1975/76	1980/81	1984/85
		(thousand metric tons)	
TOTAL	6847	8942	12643
SELECTED DONORS			
Canada	1034	600	943
EEC	928	1291	2504
U.S.	4273	5212	7536
SELECTED RECIPIENTS			
Low-income, food-deficit countries		6826	10590
Bangladesh		737	1500
Vietnam		150	21
Egypt		1865	1951
Ethiopia		228	869
Mozambique		155	366
Sudan		194	812
El Salvador		49	194
Korea		678	0
Pakistan		277	411

Source: Food and Agriculture Organization, Food Outlook: Statistical Supplement, February, 1987.

Although average per capita intake of cereals increased substantially in almost all developing countries outside of sub-Saharan Africa, much less is known about changes in the intra-country distribution of staple foods and the impact of production growth on hunger. Even aggregate estimates of the present magnitude of malnutrition, much less changes over time, remain well beyond the grasp of nutritionists, demographers and economists. While the environment of malnutrition is now better characterized than two decades ago, aggregate data on these characteristics are either unavailable or ludicrously inaccurate in almost all developing countries.

In trying to define better the physical characteristics of malnutrition, scientists largely agree on the nature of the problem - - protein-calorie deficiencies that in most cases are simultaneously resolved when an adequate intake of calories is attained. But the concept of a minimum number of calories necessary to adequate nutrition has proven a chimera. Nutritional research has shown growth and development is influenced by environment, to some extent, people accomodate a nutrition-scarce environment by slowing down development and minimizing growth. But obvious moral constraints limit the ability of science to define the limits to this adaptive capacity. As a result, nutritionists concerned with estimation of the magnitude of hunger have turned away from approaches based on recommended daily allowances. In their place come estimates based on percentages of population groups deemed most at risk - - such as pregnant and lactating mothers and very youg children.

although still arbitrary, these new measures have caused substantial reductions in estimates of the number of hungry, from 50-60 percent of the population of developing world to 10-20 percent (Foleman).

Economists and other social scientists have also been unable to contribute very usefully to the estimation of numbers of hungry. Micro-economic analyses of expenditure patterns in various countries have been successful in establishing low income as the common characteristic of hungry people in all countries. As incomes increase from very low levels, the intake of calories, proteins and almost all other nutrients increases. Food is not the only commodity group whose consumption increases, but all consumers place a high priority on the uses of incremental income to purchase adequate nutrition.

But economists have been unable to estimate accurately either the total income of the poor or the income distribution in developing countries. Much of the income of the very poor is earned ouside of the formal money economy. Some earn income as very small-scale entrepreneurs, trading and selling small quantities of low-priced items such as cigarettes or agricultural products. Most often, the poor participate in informal markets for occasional day-labor; wage payments often include meals and other non-monetary benefits as well as cash payment. But even if daily earnings are well-known by outside observers, the second key influence on income - - number of days of employment per worker - - are almost never known. And it is the latter magnitude that is most critical to estimating the extent of

hunger. Daily wages are never below subsistence levels; instead, the number of days of employment provides the critical determinant of the individual's capacity to sustain an adequate level of nutrition. The "hungry season," common to so many impoverished agricultural regions, comes not when labor demand is strong, but before the harvest, when both labor demand and food supplies are small.

Finally, estimates of the number of hungry are hampered because neither social scientists nor nutritionists have been successful in identifying the individual's access to food. For the very poor, food supplies usually come from both market and non-market sources - - donations from relatives or neighbors or through own-production are prominent complements to food obtained by expenditure of a meager cash income. But the non-market sources are largely unquantified, forcing analysts to guess at their magnitude. Further, even where these non-market sources are estimable or judged insignificant, little is known about the distribution of food within the nutritionally marginal and sub-marginal household. Who bears the burden of malnutrition within the household? No one knows.

Lacking firm knowledge of both critical levels of nutrient intakes and the number of people with insufficient income to afford an "adequate" diet, analysts of the world food situation are reduced to the use of casual observations rather than analysis of numerical data to determine changes in the extent of hunger. In a number of countries, opinion is nearly universal that the incidence of hunger has fallen. China and Indonesia are

perhaps the most striking success stories is this respect. But in most of the developing world, the story is not so clear. Casual observation is confounded by population growth, migration from rural to urban areas, and the fact that all poor people - - malnourished as well as adequately nourished - - are interested in augmenting consumption levels beyond those allowed by present income.

Food Policy - - Explaining Shortages and Surpluses

Whatever the magnitude of hunger, none would dispute that the hungry are too numerous, and that reductions in their number would be desirable. Even gross overestimates of the extent of hunger show that the amount of grain required to alleviate hunger is relatively small. Reutlinger and Selowsky estimates of the mid-1970's, for example, suggested that more than half of the developed world was malnourished. But the grain needed to alleviate this shortfall amounted to only about 30 million mt. At the same time, the rapid production growth in the developed market economies encouraged the accumulation of substantial amounts of stocks. Over the last decade, world cereal stocks have increased to about 400 million mt. Much of this total is held by the U.S. and EC governments. During the 1976 - 1980 period, cereal stocks in these countries were about 90 million mt. By 1986, holdings had grown to about 215 million mt. Almost all of this increment was owned, directly or indirectly, by government. How do surpluses arise, and why do they coexist with shortages? Some simple economic analyses of food policy in

surplus and shortage countries goes a long way towards resolving this apparent paradox.

Policy and Surpluses - - The Developed Countries

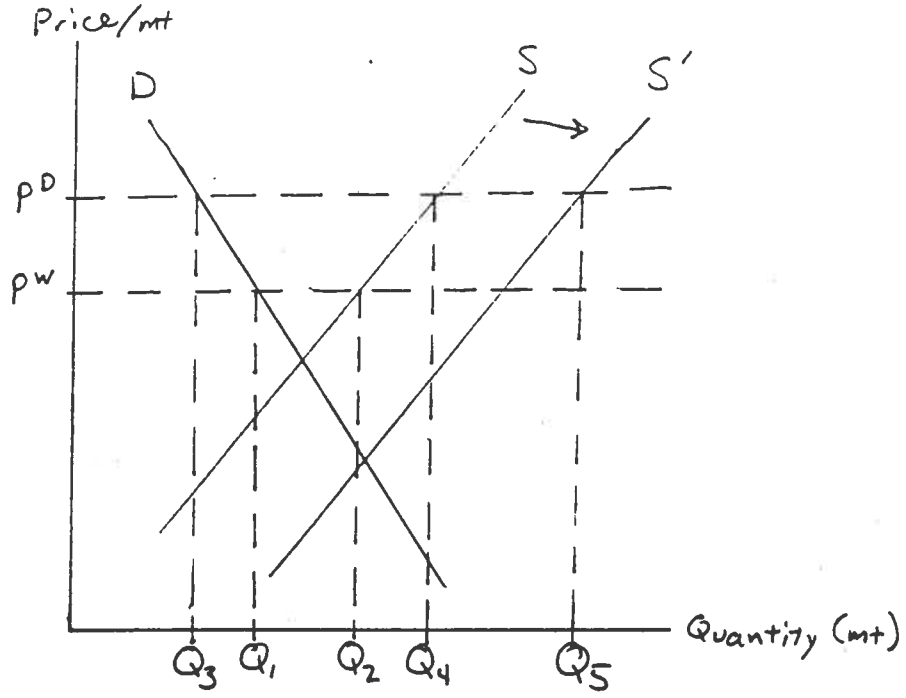
The problem of surpluses is not new. Indeed,except for a brief period in the early- and mid- 1970's, cereal surpluses have been a chronic problem. The only difference between the 1980's and the 1960's lay in the magnitude of surpluses and the number of countries producing them. By the 1980's, the EC government had joined the U.S. as a prominent owner of stocks. The emergence of record surpluses of cereals in the mid-1980's was the consequence of two longstanding policies - - high, governmentally-supported prices for cereals, and, largely as a consequence, substantial public and private investment in increasing the productivity of cereal producing areas.

In both the U.S. and the EC, yield increases rather than area increases have provided the impetus for the increase in surpluses. Total cereal area in the two regions has changed very little, particularly in the past decade. Between 1975 and 1985, area has remained almost constant at about 109 million hectares. Yield increases, however, have continually outpaced even the most optimistic expectations of both biological scientists and economists. By the mid-1970's many experts thought cereal yields in developed countries had neared a maximum. But between 1975 and 1985, U.S. average yields increased by twenty percent or more in each of the major categories of cereals - - rice (5.1 to 6.0 mt/ha), wheat (2.0 to 2.5 mt/ha) and coarse grains (4.3 to 6.0

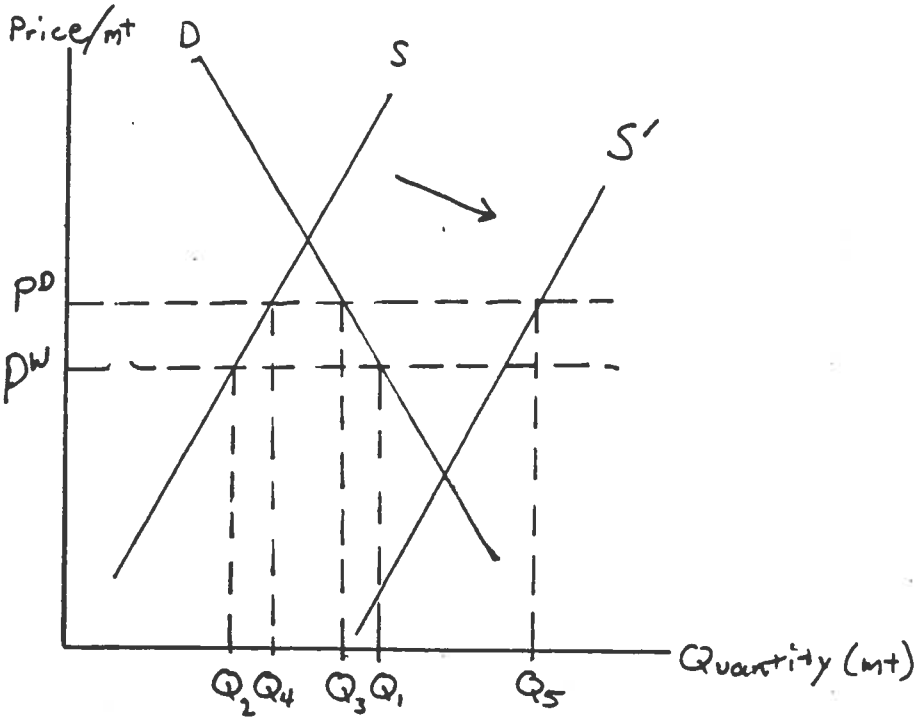
mt/ha). In the EC, yield increases were even more dramatic. Wheat yields went from 3.1 to 4.7 mt/ha ; coarse grain yields increased from 3.3 to 4.4 mt/ha.

Figure 1 provides a synthetic characterization of cereal policy in the U.S. and the EC countries during the past two or three decades. Figures 1.1 and 1.2 illustrate the cereal markets in terms of price and quantity measures. In each panel, the curve D represents domestic demand; it slopes downward because, as prices fall, consumers increase their intake (directly or indirectly via meat consumption), or new uses become attractive. Domestic supply in each case is represented by the curves labelled S. They slope upward because farmers find production increasingly profitable as output prices increase. Producers respond to higher prices by expanding area planted and with more intensive use of inputs; both changes cause increases in output.

In Figure 1.1, the curves D and S are intended to characterize the U.S. cereal market of the mid 1950's. At world market prices, supply was larger than demand. As a result, the U.S. entered the world market as an exporter, shipping out the quantity ($Q_2 - Q_1$). At this point, policy-makers enter the scene. For various reasons, farmers were considered deserving of higher incomes than they earned at prevailing world market prices; the policy chosen to raise incomes involved increasing domestic prices rather than direct income payments to farmers. The government established a guaranteed domestic price of P^D; the price was higher than world prices and encouraged a predictable response -- domestic supply increased and demand declined The



1.1) the U.S.



1.2) The European Community

Figure 1. Cereal Policy and the Accumulation of Subsidies

excess of domestic supply over domestic demand increased, from $(Q_2 - Q_1)$ to $(Q_4 - Q_3)$. But because domestic prices are above world market prices, foreign customers were not interested in the U.S. product. Thus $(Q_4 - Q_3)$ accrues to the U.S. government as a "surplus" stock.

The analysis thus far concerns only the static effect of domestic price policy. But dynamic effects result as well, because higher prices increase the potential returns to new investment that increase productive potential. These innovations involve new inputs - - such as hybrid seeds, increased fertilizer responsiveness, new pest control methods or new investments in irrigation. All increase productive capacity, and the supply curve shifts outward, to S^1. If the government continues to guarantee a price P^D, the stock surplus will increase, from $(Q_4 - Q_3)$ to $(Q_5 - Q_3)$. Not shown in the graph are the shifts in the demand curve that occur as domestic population and per capita income increase. In the U.S. cereal market, however, these shifts have been much smaller than the supply shifts. The consequence has been a tendency for surplus stock levels to increase over time.

The description of European cereal policy (Figure 1.2) is similar to that of the U.S., except that the EC was originally an importer of cereals. At world market prices, EC demand exceeded EC supply, leading to imports of $(Q_1 - Q_2)$. Higher domestic prices in this circumstance reduced imports to $(Q_3 - Q_4)$ by encouraging domestic production and discouraging domestic consumption. But over time, the domestic supply curve continued

to shift. By the early 1980's, the EC had become a surplus producer of cereals represented in the Figure as ($Q_S - Q_D$), the difference between domestic production and consumption at price P^D. Because domestic prices exceed world market prices, this amount accrues to the EC government as surplus stocks.

Policies to alleviate surpluses have been far less effective than the policies that created them. Over the past three decades in the U.S., almost every imaginable option has been tried, short of a return to market-determined pricing. Acreage controls have been thwarted by the capacity to increase yields; conversion to alternative products, such as sugar or alcohol, have proven extremely expensive or capable of absorbing only a fraction of the surplus; food aid has primarily displaced commercial market demand rather than led to a net increase in world trade. Only export subsidies have worked, with U.S. and EC taxpayers financing the difference between high domestic prices and lower world market prices. Because of the prominence of the U.S. and the EC as exporters, such policies force down world prices, further increasing the cost of export subsidy programs.

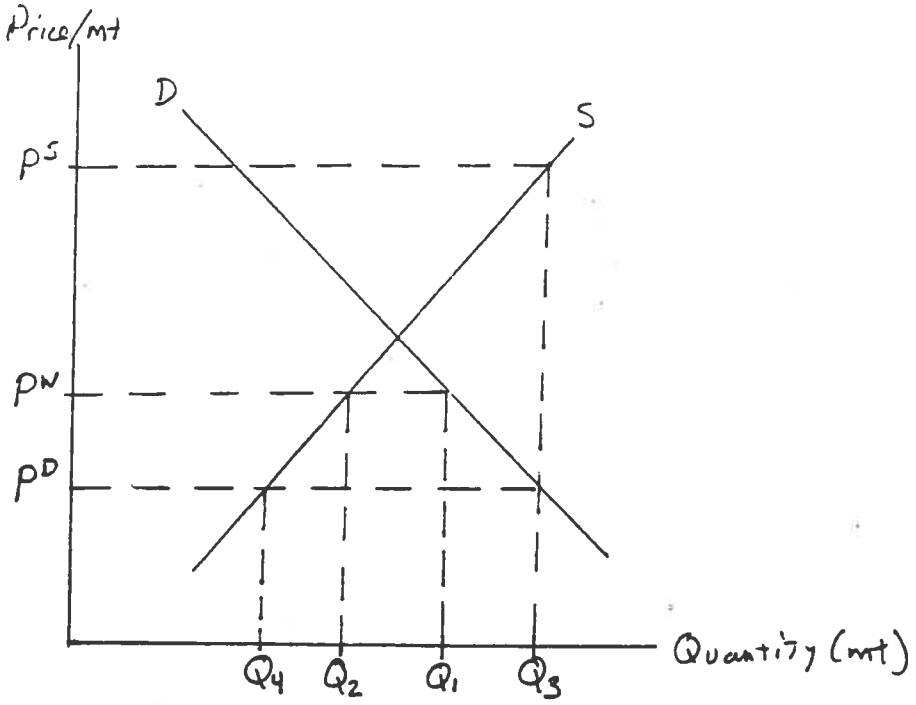
Policies and Hunger - - The Developing Countries

Policy in the developing countries has followed a substantially different orientation. Because of the larger number of countries involved, generalizations about developing country food policy are more hazardous than discussions of the policies in developed countries. But in most cases, developing country governments have been more preoccupied with the welfare

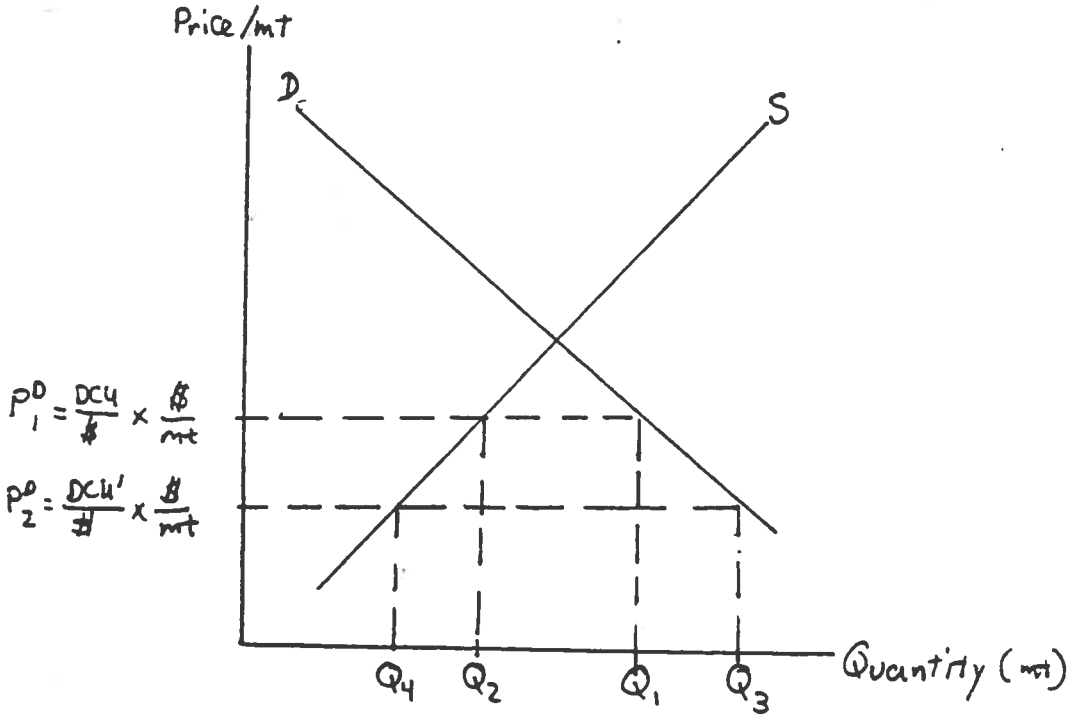
of domestic consumers than with that of domestic producers. Rather than augment farmer incomes relative to the level realized at world prices, governments have sought to augment consumer purchasing power by reducing the market price for basic staples. In principle, such an objective appears a laudable way to increase the welfare level of poor people. In practice, the policies have had remarkably little impact on the hungry.

Figure 2 illustrates the mechanics of policies to lower domestic market prices. In the Figure, domestic demand and supply conditions are assumed such that imports occur when domestic prices equal world market prices. (The alternative assumption, of export surplus, could be made without affecting the results). Domestic demand is Q_1, supply is Q_2, and imports ($Q_1 - Q_2$) make up the difference. Now policy-makers are introduced into the market scenario. In this case, the concern may be expressed in terms of prices (world prices are "too high") or in terms of quantities (domestic consumption levels are less than desired). As the diagram shows, one variable (P^D) implies the other (Q_3).

To reach the domestic consumer objective, the government can choose among several policies. The first two are illustrated in Figure 2.1. The government could set a producer price that is consistent with quantity Q_3; this policy involves buying the commodity at price P^S and then selling the commodity to consumers at price P^D. The price difference represents the net subsidy cost per unit output. Total cost of the program for the government is $(P^S - P^D) \times Q_3$. Alternatively, the government



2.1)Import subsidy or producer subsidy



2.2)Overvalued exchange rate

Figure 2. Cereal Policy and Consumer Subsidies

could use an import subsidy policy, importing the commodity at the world price and selling on the domestic market at price P^D. If the government is willing to import whatever quantity is necessary to maintain the domestic market price P^D, total imports will increase to $(Q_3 - Q_4)$. In the case of import subsidies, domestic production declines from Q_2 to Q_4 as a result of the lower market price.

When developing countries have chosen among alternative subsidy policies, import subsidies have almost always been favored (Monke and Salam). The diagram shows why - - import subsidy programs place a much smaller burden on the government budget than producer subsidies. In many developing countries, budgetary implications are of overriding importance in choices among policies. With the import subsidy program, domestic producers implicitly provide a part of the total subsidy bill, because they receive a price for their output of P^D instead of P^W. Logistical factors represent a second attraction of import subsidy programs. In most developing countries, imports involve a small quantity relative to domestic production. These imports can be handled through a few major ports; domestic production, on the other hand, often entails substantial collection and marketing costs becauses of its wide geographic dispersion.

But the simplest and cheapest way for governments to lower staple food prices is indirectly, via overvaluation of the foreign exchange rate. In most developing countries, foreign exchange rates (units of domestic currency per unit of foreign currency, such as the U.S. dollar) are fixed by government

policy-makers. These values are usually set at an artificially low level. Discussion of the reasons for such choices would take this essay far afield, and attention here is confined to the impacts of low rates on the cereal market (Valdes).

Although not discussed in previous diagrams, world prices on the domestic market are the product of the world commodity price, quoted in some foreign currency such as the U.S. dollar, and the foreign exchange rate. In Figure 2.2, initial prices and quantities are presumed the same as in Figure 2.1 - - price P^D, equals P^W, consumption is Q_1, domestic production is Q_2, and imports make up the difference ($Q_2 - Q_1$). In Figure 2.2 the desired increase in consumption (to Q_3) is achieved by creating an overvalued exchange rate - - i.e., reducing the units of domestic currency that are equivalent to one unit of foreign currency. The effects of this policy are identical to the import subsidy program of Figure 2.1, with one exception. The exchange rate policy comes at no cost to the government budget. Instead, the government merely ensures that sufficient foreign exchange is made available to buy ($Q_3 - Q_4$) of cereal imports. Because purchases are made at the controlled (overvalued) exchange rate, no subsidy cost appears on the government budget.

Although food policies have created lower cereal prices in many developing countries than would otherwise exist, their impact on hunger has been substantially diluted. Three sets of factors appear particularly important in understanding the persistence with which governments follow cheap food policies and their limited effect on the hungry. First, all consumers benefit

from low cereal prices. The poor-but-not-hungry, middle and upper-income consumers benefit to a much larger extent than the hungry from subsidized cereal prices, simply because they consume much larger quantities of cereals. Indeed, in most countries the diets of the poorest are dominated not by cereals, but by starchier roots and tubers that are available at a much lower cost per calorie than cereals. Unless cereal subsidies are massive (as, for example, in Egypt) cheap cereal policies have the least effect on the most needy. But the non-hungry form a prominent lobby group for the continuation of subsidy policies.

Second, the binding constraint on the attainment of adequate diets is income level. In this regard, the opportunity and duration of employment opportunities appears crucial. However low wage rates may be in developing countries, they are always above starvation level (except where wages are calculated as an implicit ex post return to an uncertain output, such as in small-farm agriculture). Hunger problems arise not when the poor are working but when work opportunities do not exist, such as during slack seasons of the agricultural year or periods of decline in the industrial sector. Subsidized cereal prices make no difference to individuals with zero or near-zero incomes.

Finally, subsidized cereal prices have failed to cure hunger because of the implicit discrimination they bring against the agricultural sector. Low prices discourage agricultural output and employment, and affect the income of a substantial segment of the population that is almost always poor, if not hungry. Because prices are low, the dynamic changes related to

agricultural investment and innovation are also discouraged by low cereal prices. Thus the agricultural sector is prevented from playing a leading role in the process of economic growth, encouraging neither the industries that benefit from the farmer's expenditure as a consumer, nor the industries that provide the inputs purchased by the farmer as producer (Mellor and Johnston).

In response to the failure of cereal price policies, many countries have introduced alternative policies to combat hunger; usually these programs represent some type of rationing in which the commodity is given away to individuals requesting it. The problems with these programs are obvious. Universal entitlement is a costly proposition requiring budget shares that are in the range of 25 - 35 percent of revenues; attempts to reduce costs by discriminating among the needy and non-needy are difficult if not impossible in economies without formal records of income; the administrative and distribution costs of ration programs often limit their use to urban areas where population densities are high, while the rural hungry go unattended. But for all their problems, ration systems have made some impact on the prevalence of hunger (George).

Concluding Comments

If policies are the root cause of both surpluses and shortages in the countries where these phenomena occur, wherein lies the cure? Elimination of all policy intervention provides no reasonable expectation of success. Nor are increased transfers from countries with surpluses to those with shortages

likely to solve problems. Such transfers do not ensure long term income for the unemployed in developing countries (although "Food for Work" programs have succeeded on occasion). Nor can such transfers be targeted uniquely at the hungry through market or ration shop mechanisms. Although developed country surpluses are larger than the "calorie-gap" of the hungry, they are far smaller than the quantity needed to satiate consumer demand in the developing countries.

Instead, resolution of the problems of surplus and shortage will depend on internal policy reform in each of the countries. In developed countries, these changes mean displacement of price subsidies that encourage production with income subsidies that allow the farming lifestyle for as many families as society is willing to support. For developing countries, the priority must be on increasing employment opportunity. These changes need not be dominated by agriculture or food production , but the current employment distribution in most developing countries is so heavily weighted in this direction that agriculture must figure prominently in an anti-hunger strategy. The path to solution is well-trodden; success stories are simply too numerous to ignore. But how to motivate domestic policy-makers to change? Therein lies the Gordian knot confounding those concerned with world hunger.

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