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Abstract

Transitory food insecurity in poor countries is not directly or significantly linked to changing conditions in world grain markets. Per capita grain consumption in the developing countries did not generally worsen when grain export prices increased in 1973–74, or when they increased again briefly in 1995–96, and consumption generally grew more rapidly during the decade of the 1970s (when prices were high) than during the decade of the 1980s (when prices were low). This is partly because reliance on grain imports by genuinely poor developing countries is low, and lower today than several decades ago even when food aid is taken into account. This low dependence cannot be explained as a response to the instability of world grain markets or as a justifiable response to unreliable supplier concerns; it reflects instead a more general aversion by poor countries to all freely operating food markets, domestic as well as foreign. Transitory food insecurity thus seldom results from the malfunction of food markets. Its most conspicuous cause is violent internal conflict, plus non-accountable governments and natural disasters such as drought.

World food security is an easily agreed upon political goal, yet hard to define and operationalize as a policy objective. Here we shall define food insecurity as any transitory interlude of below-trend food consumption that threatens human health. Food insecurity is thus distinct from chronic malnutrition (which may be non-transitory) and from outright famine (which threatens not just health, but life itself). Food insecurity, when defined in these terms, could be measured either for individuals, households, communities, nations, or for the whole world.

Analysts often must rely on indirect indicators of food security, and one conventionally popular indicator of “world” food security has been the changing condition of international grain markets. It is conventional to assume the world’s food system (whatever that is) will be more secure when grain export prices are low and when carry-over stocks in exporting countries are high. World grain prices and stocks are among the principal indicators of food security routinely tracked and reported by FAO, the World Bank, IFPRI, and USDA. Here we shall argue against continued use of such indicators. Evidence will be presented showing that people in poor countries vulnerable to hunger tend to be no better fed when world prices are low and stocks abundant, than when world prices are high and carry over stocks low.

World grain markets are a poor indicator of food insecurity because most food insecure countries still depend only lightly on imports of grain from the world market. Dependence on international grain markets is low for most poor countries even when food

aid shipments are considered together with commercial imports. Food insecure citizens in poor countries are not disconnected from all world markets, of course; their income and employment prospects are often heavily dependent on world markets for *non-food* products, including raw materials markets and markets for various non-food agricultural commodities, plus world markets for financial capital, currency exchange, and direct investment. It is only world food markets, paradoxically, that seldom loom large.

I. The Habit of Tracking World Grain Markets

World grain market conditions have been used as indicators of changing food security conditions among the poor for at least three decades, ever since the so-called world food crisis of the 1970s. Grain export prices roughly doubled in 1973–74, largely as a consequence of global macroeconomic imbalances that were not specific to the food sector; the international price of almost all commodities and raw materials increased sharply during this period, including petroleum, bauxite, copper, and tin, not just food and farm commodities. Still, analysts within the food sector assumed higher world grain export prices presented a threat to consumption options for the poor. FAO convened a World Food Conference in Rome in November 1974, where the Director General of FAO described the situation as “grave.” Yet actual evidence of below-trend consumption among poor countries was scant at the time. FAO’s 1974 report on the State of Food and Agriculture provided current estimates of agricultural production, trade, stocks, prices, and food aid, but no estimates of current consumption.¹ Consumption was simply assumed to be under threat, because world prices were high and stocks low.

The research community followed the policy community and quickly picked up this habit of judging world food security circumstances by tracking grain export price levels and world carryover stocks. One prominent academic account of the early 1970s by Hopkins and Puchala was typical: “The gravity of the situation as it developed between 1972 and 1975 is captured rather dramatically in two sets of indices—(1) grain export prices, and (2) reserve stocks of grain.” (Hopkins and Puchala, 1978, p. 6). These same two indicators were later singled out in an account of the period offered by Valdes and Siamwalla: “[A]gricultural prices had risen to record highs, carry-over stocks of grain were at precariously low levels, and concern was focused on the undernourished millions in the Third World suffering from the scarcity and high price of food.” (Valdes and Siamwalla, 1981, p. 1).

This use of export price and world stock levels as indicators of global food security has proved durable through the 1980s and even into the 1990s. When grain export prices fell sharply and stocks began to accumulate within exporting countries in the mid 1980s, it was commonplace to conclude that the world food crisis was over. In one widely cited account of this period in the influential periodical *Foreign Affairs*, Barbara Insel announced the world was now “awash with grain” (Insel 1985). Then in 1995–96, when grain stocks fell and export prices rose sharply again, food insecurity concerns were revived. The World Bank, in a report it prepared for yet another FAO World Food Summit conference in Rome in November 1996, used high world prices and low stock conditions as a basis for noting similarities to the earlier 1970s interlude of presumed insecurity.² Even the International Food Policy Research Institute (IFPRI), which in its own research has generally employed more reliable country level and household level indicators of food insecurity (von Braun et. al. 1992), reinforced the conventional view that world grain market conditions deserved priority attention. IFPRI observed in 1997 that, “Sharp increases in international wheat and maize prices, along with significant reductions in global cereal stocks, have received wide publicity and greatly excited concerns about food security during the past two to three years.” (IFPRI 1997, p. 14).

This conventional association between high grain export prices and food insecurity needs to be discarded. Food consumption in most poor countries is little affected one way or the other by high grain export prices in the world market, and often citizens in poor countries are doing better rather than worse when world grain prices are high, because world grain prices so often rise under conditions of rapid macroeconomic growth, when employment and income levels in poor countries will move above trend. Also, world grain markets often move in parallel with other raw material and commodity export markets, which to many poor countries are still important sources of income growth and foreign exchange earnings.

Here we shall illustrate the impropriety of using world grain market conditions as indicators of food security conditions in poor countries, first by examining recent per capita cereal consumption trends during times of both high and low world market prices. We shall explain the failure of per capita consumption to react to world prices by showing the small (and shrinking) extent to which genuinely poor countries depend on world grain markets. We shall then go on to observe that neither the instability nor the unreliability of world grain markets has discouraged food insecure poor countries from depending on them more heavily. We then close by examining some more important non-market sources of transitory food insecurity in poor countries, including political malfunctions such as violent civil conflict, policy errors made by non-accountable governments, and natural disasters such as drought.

II. International Grain Market Conditions: Erroneous Indicators of Food Security

The impact of tightened world grain market conditions on food consumption trends among the world's poor is subject to empirical test. When world grain market conditions tighten, is below trend consumption the result in poor countries?

First consider the experience of poor countries during the “world food crisis” of 1973–74. Between 1971 and 1974 the real export price of U.S. wheat increased by 103 percent and the real export price of U.S. maize by 58 percent. (Johnson, 1991). World food reserves simultaneously declined from 71 days worth of annual grain consumption to just 33 days of annual grain consumption (Hopkins and Puchala 1978, page 7). Many analysts assumed under these tightened world market conditions only the rich would be able to sustain their accustomed consumption levels.³ Did per capita consumption of grains in poor countries decline?

FAO estimates of 1971–74 per capita grain consumption levels country by country and region by region do not confirm any overall pattern of decline. Table 1 compares per capita food consumption of all cereals (wheat, maize, rice, and other coarse grains) for various developing countries and regions in 1971 versus 1974.⁴ In some nations or regions per capita consumption declined slightly, but in most developing countries and regions per capita cereals consumption either remained steady or actually rose while the so-called “food crisis” was at its worst.

Table 1: Per Capita Food Demand for all cereals (wheat, maize, rice, other coarse grains), in kg./capita by IMPACT regions, 1971 and 1974

	1971	1974
Latin America		
Mexico	167	168
Brazil	96	102
Argentina	131	127
Colombia	76	81
Other Latin America	108	107
Africa		
Nigeria	64	61
Central and West Sub Sahara Africa	66	65
Southern Sub Sahara Africa	115	117
Eastern Sub Sahara Africa	70	78
Egypt	165	174
Asia		
Other West Asia North Africa	155	167
India	130	126
Pakistan	115	125
Other South Asia	96	99
Indonesia	125	135
Malaysia	157	160
Philippines	114	119
Myanmar	176	175
Other South East Asia	161	168

Source: FAO data, compiled into IMPACT regions by IFPRI

In Latin America, per capita cereals consumption did decline in Argentina from a high initial level, yet it increased a bit in Mexico, Brazil, and Colombia, and remained essentially unchanged elsewhere in the region. In Africa per capita cereals consumption declined a bit in Nigeria, but remained essentially unchanged in the rest of Central and West Africa, and also in Southern Africa, and increased markedly in East Africa, Egypt, and North Africa (here, from already high levels). In Southeast Asia, including Indonesia, Malaysia, and the Philippines, per capita consumption also increased during the so-called world food crisis. In South

Asia, per capita cereals consumption did decline in India between 1971 and 1974, but at the same time it was increasing sharply in Pakistan, and it increased in the rest of the region as well. We thus find no generalized deterioration of grain consumption circumstances in the developing world as world grain prices increased sharply between 1971 and 1974.⁵

A later increase in world cereals export prices in 1995–96 also failed to produce any noticeable decline in per capita consumption in developing countries. Between 1994/95 and 1995/96 U.S. wheat export prices increased from \$157 per ton to \$216 per ton, and world cereal stocks as a percent of world consumption fell from 17.8 percent to just 14.1 percent, generating talk of another world food crisis. Yet the imports of most developing countries were sustained and average per capita food use of cereals in developing countries overall continued to increase. Average annual per capita cereals food use in the developing world as a whole increased from 170 kg in 1994/95, to 171 kg in 1995/96, and then to 172 kg in 1996/97, despite much higher world grain prices.⁶

Food consumption circumstances in many poor countries were actually better in the mid 1970s (and mid 1990s) when grain export prices were high, than in the mid–1980s when grain export prices were low. Comparing the 1970s to the 1980s is revealing. Grain markets were generally tight during the decade of the 1970s, but food consumption circumstances in most poor countries were nonetheless improving in most cases. In Latin America between 1970 and 1980, the share of the population that was chronically malnourished dropped from 19 percent to 13 percent; in the Near East, the share of the population chronically undernourished fell from 22 percent to 12 percent; and in Sub-Saharan Africa, the share of the population that was malnourished remained relatively steady (at roughly one third), despite exceptionally rapid population growth in that region (USDA 1995, p. 46).

In contrast during the decade of the 1980s, when world grain markets were generally slack (export prices low and stocks abundant), food consumption circumstances in many poor countries worsened. In Africa overall the rate of dietary improvement fell by two thirds during the decade of the 1980s compared to the 1970s, and in Latin America by more than half.⁷ This deterioration took place in Latin America despite slowing population growth in that region. FAO estimates that the number of chronically undernourished people in Latin America and the Caribbean grew from 46 million around 1980 to over 60 million by the early 1990s, reaching roughly 14 percent of the population (Alexandratos 1995).

The decade of the 1980s was marked by low grain prices on the world market, yet it was one of severe food crisis within both Africa and Latin America. This was due to the onset of a world recession and high interest rates after 1980, which brought reduced income and export earnings, and unserviceable external debts. Macroeconomic performance plummeted. For Latin America and the Caribbean in the 1980s compared to the 1970s, real GDP growth rates fell from an annual average of 5.7 percent to just 1.2 percent. For Sub-Saharan Africa real GDP growth fell from a 1970s annual average of 3.4 percent to a 1980s annual average of just 1.8 percent (Grindle 1996, p. 20). Governments in Latin America and Africa responded to this macroeconomic crisis by cutting per capita expenditures for social services, including health care, adding a further burden to those suffering from malnutrition due to unemployment and slower income growth. Wage compression in the public sector plus lower government spending on electricity, water, and transportation also deepened the crisis for the poor.

Per capita grain consumption trends confirm that the decade of the 1980s was generally worse for the developing countries than the decade of the 1970s. Table 2 provides a comparison of growth rates in per capita cereal consumption in the 1970s versus the 1980s across a number of developing country regions. This table reveals that throughout Latin America (except in Argentina) per capita growth in cereals consumption was higher during the decade of the 1970s than during the 1980s. Table 2 reveals that the rate of growth of per capita cereals consumption slowed almost everywhere in Latin America in the 1980s, and turned negative in Brazil plus collectively in the numerous smaller Latin countries presented here as “other Latin America.” Likewise in much of Africa, the rate of growth in per capita cereals consumption was slower during the decade of the 1980s than during the 1970s. In South Sub-Saharan Africa and in East Sub-Saharan Africa, consumption growth went from strongly positive during the 1970s (despite tight world markets and an alleged “food crisis” at the time) to strongly negative during the 1980s (despite glutted world grain markets). In Central and West Sub-Saharan Africa, the rate of growth in per capita cereal consumption was comparably low (from a low starting point) both in the 1970s and the 1980s, despite dramatically different world market conditions. Only in Nigeria do we find consumption growth significantly higher in the 1980s than in the 1970s. In Egypt, and also in West Asia and North Africa, per capita cereals consumption growth remained high — from high starting levels — during both decades, and was actually higher during the “food crisis” decade of the 1970s than during the “food glut” decade of the 1980s.

Table 2: Per Capita Food Demand for all cereals (kg./capita), by IMPACT regions, Average Annual Rate of Growth, 1971–1980 and 1981–90, (%)

	1971–80	1981–90
Latin America		

Mexico	.48	.37
Brazil	1.45	-.35
Argentina	-.91	.75
Colombia	1.15	.56
Other Latin America	.63	-.40
Africa		
Nigeria	-.30	2.97
Central and West Sub Sahara Africa	.31	.37
Southern Sub Sahara Africa	1.06	-1.12
Eastern Sub Sahara Africa	1.79	-1.02
Egypt	4.10	2.90
Asia		
Other West Asia North Africa	3.23	1.76
India	-1.15	1.71
Pakistan	7.84	-1.49
Other South Asia	-.30	2.64
Indonesia	3.05	2.58
Malaysia	-1.06	-2.37
Philippines	2.39	.86
Myanmar	-1.79	.81
Other South East Asia	2.85	2.18

Source: FAO data, compiled into IMPACT regions by IFPRI

In South Asia, at last, we find a region where per capita cereal consumption growth was generally lower (in fact, negative) during the decade of the 1970s, compared to the 1980s. Yet even in this region, exceptions are noted. While India and Bangladesh both struggled during the decade of the 1970s then recovering during the decade of the 1980s, neighboring Pakistan was doing the reverse. The 1970s were also better than the 1980s for all of Southeast Asia (except for Myanmar), despite higher world market prices and lower stock levels.

This general worsening of food security circumstances in the 1980s was missed by those in the international policy community that were inferring food security from world grain market conditions. Slack market conditions tricked many into thinking that the “world food crisis” had ended, and partly as a consequence international assistance to agriculture in developing countries went into a damaging decline. Between 1980 and 1988, the real value of World Bank lending for agricultural and rural development declined by 20 percent (Lipton and Paarlberg 1990). Real public spending on farming in the developing world itself was also declining (at an annual average rate of *negative 15 percent* early in the 1980s), partly because of the severity of the crisis.⁸ In Sub-Saharan Africa, publicly financed spending on agricultural research had been increasing in real dollar terms by 2.5 percent annually between 1971–81, but then grew at only an 0.8 percent annual rate in the 1980s. Agricultural research spending fell even more sharply in Latin America, from a positive 7.2 percent growth rate in the 1970s to a negative 1.1 percent rate in the 1980s (FASF 1997). These cut backs in investment and research in the 1980s, partly inspired by the false indicator of world grain market conditions, led indirectly to slower agricultural productivity growth in many developing in the 1990s.

What explains the counter-intuitive disconnect between world grain market conditions and actual food security circumstances in poor countries? One factor is the natural tendency for people to spend whatever it takes to keep eating. Because demand for food tends to be inelastic in this fashion, higher food prices don't generate significantly reduced consumption of food among the poor, so much as reduced consumption of other things. Interludes of high food prices can thus be interludes of great hardship, even when food consumption itself is not much affected.

Second, world market conditions are a bad indicator of food circumstances in poor countries first of all because the poor countries are not heavy users of world grain markets. The share of world grain imports taken by poor countries (those for whom food security is an issue) has always been small, and within genuinely poor countries the share of food consumption satisfied by imports is smaller still.

When world grain markets expanded in size dramatically in the 1970s, it became commonplace to attribute a significant part of this increased trade to the growing “food deficits” of potentially food-insecure poor countries. In fact, the share of world grain imports (including food aid) taken by genuinely poor developing countries has always been small and has scarcely changed over

the past three decades. As shown in Table 3, poor developing countries took 21.6 percent of world grain imports in 1973, 22.9 percent of total imports in 1983, and 24 percent of total imports in 1993.

Table 3: Poor Country¹ Population, Grain Imports², and World Shares By Regions, 1973, 1983, 1993

Region	Year	Total Number Poor Countries	Population Millions	Share of World Population (%)	Grain Imports (1000 MT)	Share of World Grain Imports (%)
Sub-Saharan Africa	'93	38	582	9.3	10,392	4.6
	'83	36			7,064	3.2
	'73	39	265	6.9	3,652	2.3
South Asia	'93	6	1188	21.3	5,510	2.4
	'83	6			6,697	3.1
	'73	6	754	19.6	8,929	5.7
East Asia and Pacific	'93	7	1516	27.2	19,599	8.6
	'83	8			23,556	10.8
	'73	8	1097	28.6	16,141	10.2
Latin America and Caribbean	'93	9	71	1.3	4,593	2.0
	'83	7			1,415	1.0
	'73	9	58	1.5	1,290	1.0
Middle East and North Africa	'93	4	82	1.5	14,474	6.4
	'83	4			11,253	5.1
	'73	6	77	2.0	3,959	2.5
Poor Country Total	'93	64	3439	61.7	54,568	24.0
	'83	61			49,986	22.9
	'73	68	2251	58.7	33,977	21.6

¹Poor countries defined as those with gross national income per capita of \$1000 or less (constant 1987 U.S. dollars), as recorded in World Bank *World Tables 1995*, Johns Hopkins University Press.

²Imports of cereals (041–046)

Sources: FAO Trade Yearbooks 1995, 1985, 1975;
FAO Production Yearbooks 1993, 1973.

The “poor country” share of world grain imports shown in Table 3 could be made larger or smaller by adjusting the definition of what constitutes a poor country. Here we define the poor as all countries in Asia, Africa, or Latin America with a gross national income per capita of \$1000 or less in constant 1987 U.S. dollars. This is a generous definition of poverty—and potential vulnerability to food insecurity—since it is well above the \$750 threshold (GNP per capita) used in recent years by the World Bank to classify economies as “low income.” Table 3 shows that in 1993 a total of 64 countries around the world could be classified as poor when using the \$1000 per capita national income threshold, with a combined population that constituted 61.7 percent of the total world population. Under this definition of poverty, most of the world’s largest developing countries (including China, India, Indonesia, Bangladesh, Nigeria, and Pakistan) are all still considered poor and are included in Table 3.

Table 3 also reveals that this has been a relatively stable category of countries over the years, containing a stable share of the world’s population. Between 1973 and 1993, only nine countries “graduated” from this list into the ranks of the non-poor (Cameroon, Congo, Mauritius, Republic of Korea, Columbia, Ecuador, Paraguay, Syria, Tunisia, and Thailand), four were added to the list of the poor due to percapita income decline (Papua New Guinea, El Salvador, Peru, and Nicaragua), and two that had graduated between 1973 and 1983 (Cameroon and Congo) had by 1993 fallen back again. Overall, between 1973 and 1993 the total countries on this list fell only slightly, from 68 to 64, and the share of the world’s population contained within these poor countries rose only slightly, from 58.7 percent to 61.7 percent.

The important conclusion to draw from Table 3 is that this large group of poor and still hungry countries may contain 60 percent of the world's population, but they take less than 25 percent of total world grain imports. The poor countries of Africa (38 in 1993) took only 4.6 percent of world grain imports (including food aid) in 1993. The poor countries of South Asia in 1993, containing 21 percent of the world's total population and still the largest total number of food insecure people, took only 2 percent of world's total grain imports.

Not only are the grain imports of poor countries relatively unimportant to the world market; imports from the world market also remain relatively unimportant to total grain availability within most poor countries. Table 4 shows that in 1993 all genuinely poor countries together (again, we consider poor countries to be those with gross national income per capita of \$1000 or less) imported 54.6 million tons of grain from abroad, while at the same time producing 993.7 million tons of grain at home. If we take as a measure of import dependence tonnage of imports divided by the sum of domestic production plus imports, these poor countries together in 1993 depended on the world market for only 5.2 percent of their grain. This is actually down slightly from the grain import dependence of all poor countries two decades earlier in 1973, when the percentage of dependence recorded was 6.4 percent.

Table 4:
Poor Country¹ Grain Import² Dependence³ By Regions, 1973, 1993

Region	Total Cereal Production (1000 MT)		Total Cereal Imports (1000 MT)		Import Dependence	
	1973	1993	1973	1993	1973	1993
Sub-Saharan Africa	32,957	66,151	3,652	10,392	10.0%	13.6%
South Asia	154,583	267,493	8,929	5,510	5.5%	2.0%
East Asia and Pacific	288,063	493,374	16,141	19,599	5.3%	3.8%
Latin America and Caribbean	6,082	7,986	1,296	4,593	17.6%	36.5%
Middle East and North Africa	13,916	158,709	3,959	14,474	22.5%	8.3%
All Poor Country	495,601	993,713	33,977	54,566	6.4%	5.2%

¹Poor countries defined as those with gross national income per capita of \$1000 or less (constant 1987 U.S. dollars)

²Imports of cereals (041–046)

³Dependence measure as cereals imports divided by domestic production plus imports

Sources: FAO Trade Yearbooks 1995, 1985, 1975;

FAO Production Yearbooks 1993, 1973.

Import dependence is often much higher in urban compared to rural areas, but still this scant dependence of most poor countries overall on world grain markets today is a surprise, given some of the expectations generated by food security researchers several decades ago. In 1977 IFPRI projected that by 1990 the poor developing countries would see their dependence on food imports grow dramatically as a share of total consumption. IFPRI projected a food import dependence rate of 10–12 percent for India by 1990, 30–35 percent for Bangladesh, 14–17 percent for Indonesia, and 44–46 percent for the Sahel Group of countries in Africa (IFPRI 1977). Table 4 shows that for most poor countries today, grain import dependence remains well below 10 percent.

Table 4 also provides a breakout of grain import dependence among poor countries region by region for 1993 and for 1973. Notice that in 1993 poor countries in South Asia (and *all* the countries in this region were counted as poor in 1993 by the per capita gross national income standard being applied here) depended on world markets for only 2.0 percent of their total available grain. Poor countries in East Asia and the Pacific (this includes China and Indonesia) depended on the world market for only 3.8 percent of their total grain. For this important set of poor and still hungry Asian countries, containing roughly half of all the world's citizens, national dependence on grain imports is close to trivial.

In other regions, poor countries have come to depend a bit more on imports. Table 4 shows that the import dependence of poor countries in Sub Saharan Africa for grains—including food aid as well as commercial imports—was 13.6 percent in 1993, up slightly from 10.0 percent 20 years earlier. This does reflect some significant and growing dependence on world grain markets, but adjustments must be made in Africa to reflect the smaller share of the total diet provided there by basic grains (compared to root crops, for example). Higher levels of grain import dependence in Africa need not reflect higher levels of overall food import dependence; the World Bank has estimated that while more than 10 percent of Africa's total grain consumption may have been imported in 1988–92, only 6.5 percent of total calorie consumption in Africa came from these imported grains (Ingco, Mitchell,

and McCalla 1996). So once again, import dependence is small.

Table 4, because it includes only countries that are genuinely poor, provides some useful corrective to conventional views regarding grain import dependence. When the World Bank calculates overall cereal import dependence for the “developing” countries of North Africa and the Middle East (see Ingco, Mitchell, and McCalla 1996, p. 16) it concludes that dependence is high and rising, yet the Bank has apparently included among the developing countries of this region a number of “middle income” countries like Syria, Tunisia, Algeria, Iran, Iraq, Libya, and Oman, and even Saudi Arabia, all of which today have gross national incomes per capita well above \$1000 1987 U.S. dollars. The greater wealth of these nations should take them off the list of those vulnerable to food insecurity. Table 4 reveals that for the nations of the region that have remained genuinely poor, cereal import dependence has in fact declined since 1973, from 22.5 percent down to 8.3 percent (this, even though the genuinely poor nations from this region still include two large grain importers—Egypt and Morocco).

Another important discovery from Table 4 is that today’s poor countries in Latin America and the Caribbean are significantly dependent (and increasingly so) on grain imports. In 1993 the poor countries in this region (Bolivia, Dominican Republic, El Salvador, Guatemala, Guyana, Haiti, Honduras, Nicaragua, and Peru) imported 4.6 million tons of grain, while producing only 8.0 million tons at home, giving them a collective import dependence ratio of 36.5 percent, up from 17.6 percent for poor countries in this region in 1973. Peru, Haiti, and the Dominican Republic had exceptionally high individual import dependence ratios in 1993 of 49 percent, 51 percent, and 64 percent, respectively. Those seeking ways to cushion poor countries from international grain market fluctuations should perhaps be paying more attention to the poor countries of this region. The poor countries in this region are small (together they contain only 1.3 percent of the world’s citizens), and easily overlooked by grain trade analysts because together they take only 2 percent of world grain imports. Yet they are unique among poor countries in their high dependence on imports, and would seem to deserve special food security consideration. The fact that these poor countries are all proximate to the United States and traditionally dependent upon close and sometimes nearly exclusive trade relations with the United States suggests that U.S. scholars and officials should take the lead in providing such consideration.

For the vast majority of poor countries, however, international grain market conditions are not the logical starting point for understanding local cycles of food security or insecurity. Poor countries vulnerable to cycles of food insecurity depend so little on world grain markets that it is erroneous to use conditions in those markets as indicators of the circumstances of the poor. Yet an objection might be raised at this point. Perhaps the disconnection we have noted between world grain markets and food insecure citizens in most genuinely poor countries (albeit not those of Central America and the Caribbean) is attributable not to independent causes, but to the instability or unreliability of the world grain market itself. If so, conditions in the world grain market could re-emerge as a legitimate analytic starting point for scholars and practitioners looking at poor country food security problems. Are poor countries deciding not to depend on world grain markets because those markets are undependable?

III. Explaining Disconnections between World Grain Markets and the Food Insecure

Perhaps some poor countries containing food insecure people have chosen not to depend on grain imports because they fear price instabilities in the world market, or the unstable foreign exchange burdens of trying to sustain imports when currencies are devalued or world market prices rise. Perhaps others have chosen not to depend on grain imports because of their fear access to those markets could suddenly be denied by powerful exporting countries (such as the United States) for a variety of domestic political or diplomatic reasons. If today’s minimal dependence on grain imports by so many poor countries does grow out of such fears, if there is something problematic about the world grain market that has discouraged greater use of that market by the poor, then world grain market characteristics might re-emerge as a legitimate analytic starting point for food security scholars. We now turn to consider these possibilities, looking first at the issue of world market instability and second at the issue of unreliability.

Scholars have long noticed a “bias against trade” in the agricultural policies of both rich and poor countries (Lindert 1991). For most rich countries, the principal source of this bias is not an anxiety about unstable and insecure world markets, or any other food security linked concern; it is political organization and successful rent-seeking behavior by domestic producer groups (Anderson and Hayami 1986). By embracing policies to protect such groups, rich countries (especially the countries of the EU, and Japan) have distorted and at times destabilized world grain markets. Do these distortions and instabilities produce, in turn, a reactive “bias against trade” on the part of the poor? Since the net impact of rich country policies has been to lower the average real price of grain on world markets, we might just as well expect the grain policies of the rich countries to have produced a bias *toward* trade among the poor, and specifically a bias toward larger imports of grain. Yet even in the face of this inducement the policies of many poor countries have remained biased against grain imports. Policies designed explicitly to promote “self sufficiency” in grains are not uncommon.

Perhaps price stability rather than price level is the concern. The policies of some rich countries, while lowering the average price

of internationally traded grains, tend at the same time to destabilize that price. This is especially true for the EU, which worsens downward price movements in the world market by increasing its own export subsidies when world prices fall, and worsens upward price movements by imposing taxes on its own exports when world prices rise (a price destabilizing effect noted both during the world food crisis of the mid 1970s, and then again when world prices rose in 1995–96). Perhaps such policies present poor food insecure countries that would dare to rely more heavily on grain imports with unacceptable short term foreign exchange costs or risks.

The foreign exchange costs associated with importing grain are not a convincing explanation for the persistent import aversion of so many developing countries, since these costs are generally quite small and in many cases are getting smaller. Between 1970 and 1991 the cost of food imports as a share of total import costs fell from 16 percent down to 6 percent in South and Southeast Asia; from 11 percent down to 10 percent in Latin America, and from 14 percent down to 12 percent in Western Asia. Only in Africa did the food import share of costs increase slightly, from 14 percent up to 15 percent (FAO 1996, Technical Document 12, page 9). Given such small and generally declining cost burdens associated with importing food, and given the significant unmet food needs in so many of the poor countries in question, we might expect them to be making greater use of world grain markets than they are.

A reason more often given for avoiding greater dependence on grain imports from the world market is not total foreign exchange cost, but rather the instability and unpredictability of those costs, given the reputed instability of world grain prices. Yet this as well emerges as a dubious rationale for import aversion. Consider the developing countries of Asia, where most of the world's malnourished people still live, yet where total costs of cereal imports in 1988–92 were equal to just 3.5 percent of the region's total export revenues (Ingco, Mitchell, and McCalla 1996, p. 16). Such a tiny share of export earnings spent on imported grain means that import cost burdens would still be tiny even if world grain prices temporarily doubled. The import cost share would increase from 3.5 percent to 7 percent, if export earnings remained unchanged. Moreover, evidence suggests that export earnings would probably not remain unchanged; they would rise as well. This is because such a large share of the export earnings of poor countries are still derived today from raw material and commodity production, and export prices in these markets tend to move in parallel with world cereals markets. Historically, this positive covariance has been an important source of food import security for poor countries.

Goreaux has shown that for 46 developing countries (from all regions) over the years 1963–75 the value of export earnings and costs of cereal imports tended to be positively correlated. During this observation period the costs of cereal imports for these countries “were more often than not offset by excesses in export earnings...” (Goreaux 1981, p. 311). D. Gale Johnson found this same covariance during the 1973–75 food crisis years. For 31 developing countries (countries with populations in excess of 7 million), the annual average value of the excess of agricultural exports over agricultural imports increased between 1969–71 and 1973–75 by \$4.3 billion, generating an agricultural trade surplus for these countries of \$11.6 billion during the so-called “crisis” period (Johnson 1991, p. 176).

To the extent that some of today's poor countries are no longer such large net exporters of agricultural commodities (the nations of Sub Saharan Africa stand out in this regard) this historical buffering mechanism may recently have been weakened, yet world markets are hardly to blame for this weakening. Africa has seen its agricultural exports dwindle not because of import protection by rich countries, but because of taxes it has imposed on its own export producers. Between 1962–64 and 1991–93, Sub-Saharan Africa's share of various agricultural commodity exports (such as vegetable oils, palm oil, palm nuts and kernels, and groundnuts) dropped 47–80 percentage points below earlier levels, and Sub-Saharan Africa's share of global exports of all products fell from 3.1 percent in 1955 to just 1.2 percent by 1990, implying annual trade losses of roughly \$65 billion. Yet the World Bank has determined that this disappointing export performance by Africa is not explainable through reference to OECD country policies, since African exporters tend to face average tariffs below those of other exporters; since nontariff protection against African exports is generally less restrictive than that facing other developing countries; and since the overall external environment for exports facing Africa today (tariff and nontariff) is more favorable than that which the East Asian economies previously faced, and overcame (Yeats 1997). Africa's damaging marginalization in world trade has accurately been described by Jeffrey Sachs as a “self-imposed economic exile” (Sachs 1996). As policies in other nations and regions continue to move toward greater trade liberalization, particularly with the implementation of the Uruguay Round, the continent of Africa, which undertook much less liberalization in the Round, will of its own volition see its shares of world exports and imports shrink even more (Hertel, Masters, and Elbehri 1997).

In any case, most of the variability in food import costs for poor countries has not, historically, come from fluctuations in world market prices. Valdes and Konandreas demonstrated that for a sample of developing countries over the period 1961–76, three quarters of all food import cost variability came from fluctuations in import volume, not price (Valdes and Konandreas, in Valdes, ed., p. 36). Fluctuations in import volume, in turn, are most often an indicator of fluctuations in domestic production. It isn't the world market that has most destabilized the food import costs for poor countries, but instead unstable domestic grain production within those countries. For most such countries, a policy of relying more on grain imports and less on domestic production would

have been, at the margin, a stabilizer rather than a destabilizer both of internal grain consumption and foreign exchange outlays for grain.

To illustrate consider the case of India, mentioned above as one country in which per capita consumption of cereals did decline during the 1973–74 period of much higher world grain prices. The principal cause of this damaging internal consumption decline was not India's exposure to world price instabilities, since India was at that time pursuing a policy of depending as little as possible on world grain markets. India had terminated all grain imports (commercial as well as food aid) late in 1971, even though world market prices were still low, and in 1972 India actually emerged as a small net exporter of one half million tons of wheat (Chopra 1981, p. 292). This self-sufficiency policy malfunctioned when an autumn drought in 1972 reduced that year's grain harvest 7 million tons below the 1971 level. The Government of India did not wish to abandon self-sufficiency, so it did not arrange any imports until after it had dumped almost all of its own domestic foodgrain stocks, by which time a rapid rise in domestic prices was underway. When the government did finally decide to import late in 1972, it then did so with far too much caution, placing orders for only 1.5 million tons of wheat, despite a foreign exchange position described at the time as "satisfactory...to finance such imports as may be considered necessary".⁹ Internal prices rose and per capita consumption fell.

India later increased its volume of wheat imports substantially, to 3.6 million tons in 1973 and 4.7 million tons in 1974, despite the rise in world market prices by then underway. India thus increased rather than cut back its imports as world market conditions tightened, belatedly but successfully using the international market—even at the depths of a so-called world food crisis—to make up for some of its domestic shortfall. If it had been willing to turn to the world market sooner it could have made up the domestic shortfall in a more timely fashion, at a lower foreign exchange cost. What blocked this policy opportunity was not any malfunction of world grain markets, but instead India's own independent policy of not wishing to use of those markets.

The supposed foreign exchange risks associated with importing grain have in any case been reduced in recent years by improved trade information reporting systems that minimize surprises (for example, surprises such as the large and secretive Russian grain purchases in 1972 which panicked the world market), better developed futures markets which facilitate hedging against risk, and now liberal policy reforms in major exporting countries which can further stabilize world prices—including tariffication of import barriers under the Uruguay Round Agreement on Agriculture, and termination of annual acreage reduction programs (ARPs) by the United States under the 1996 farm bill. It is indicative of the small and diminishing risks now associated with cereals imports that the Compensatory and Contingency Financing Facility (CCFF) of the IMF, which makes available medium-term credit for cereal imports (credits which are additional to resources available under other IMF arrangements) has been little used since the inception of its cereal element in the early 1980s. This may partly reflect the relatively short repayment period for borrowed funds (at a market related interest rate), but it also reflects a diminished frequency and magnitude of international cereal price shocks. (FAO 1996, Document 12, p. 36).

If world price instability is not a convincing explanation for the low reliance of so many food insecure poor countries on the world grain market, we might next consider risks associated with unreliable export suppliers. Two possible kinds of trade suspensions by exporters might discourage some poor countries from depending more heavily on world grain markets: grain trade suspensions triggered by short supplies in exporting countries, and those designed specifically as political sanctions, to coerce or punish importers.

An example of a short-supply export suspension (though a non-grain example) would be the 1973 U.S. "soybean embargo." This was a suspension of all U.S. soybean exports for approximately one month beginning in late July 1973, at a time of food price inflation both in the U.S. and on the world market, due largely to macroeconomic policy mismanagement. U.S. soybean prices went from \$3.32 a bushel in June 1972 to a peak of \$12.90 a bushel in June 1973. In response to anxieties among domestic consumers, the U.S. government responded with a brief suspension of soybean exports, one which shocked the Japanese (then dependent on imports for 97 percent of soybean consumption, and 92 percent dependent on soybean imports specifically from the United States). This 1973 soybean embargo episode later came to be invoked by agricultural protectionists in Japan as a reason to reduce dependence on food imports (George and Saxon 1986).

The 1973 soybean embargo, though it continues to be cited by some Japanese as a reason to mistrust world food markets, was never a factor in Japan's food security, or in the food security of any other country. It lasted for only a little more than one month (from July 27 to August 1), and upon lifting the embargo the U.S. Commerce Department immediately said it would license exports of up to 100 percent of the embargoed soybeans earlier contracted for sale, so back orders were promptly filled. U.S. soybean exports from the 1973 crop in the end exceeded exports from the 1972 crop. The one policy lesson Japan rightly learned from the soybean embargo was to avoid such heavy dependence upon any one supplier, and imports were subsequently diversified to Brazil and Argentina. But Japan's overall dependence on food imports (which was and remains greater than that of any other large industrial country) was not significantly altered by the soybean embargo experience. In the decades since the embargo, Japan has moved steadily away from its traditional posture of imposing quantitative restrictions on a wide range of farm products, and has even abandoned its formal ban on imports of rice. Japan learned the value of permitting rice imports when, due to bad weather,

its own domestic production declined by 26 percent in 1993/94 (down from 13.2 million tons in 1992/93 to just 9.8 million tons in 1993/94). In response Japan arranged 2.4 million tons of rice imports in 1994. These rice imports both preceded and exceeded the rice import liberalization requirements Japan undertook under the final 1994 Uruguay Agreement on Agriculture.

Short supply export embargoes are still legal in the United States, but they are much less likely today than they were in 1973, not only because that was an era of food price inflation now for the moment passed, but also because of the angry political reaction to the embargo by agricultural interests inside the U.S. To protect U.S. farmers in the future against short supply embargoes, farm state representatives in Congress in 1977 inserted a Section 1002 into that year's U.S. farm bill, which obliged the Department of Agriculture to compensate U.S. producers at a prohibitive level (90 percent of parity) in the event of any future embargo based on short domestic supplies. The purpose of this "embargo insurance" provision was to make future short supply embargoes unaffordable for the U.S. government, and hence unthinkable. Similar provisions have been retained in U.S. farm law ever since, at the insistence of vigilant U.S. domestic producer and exporter interests. In 1996, when rising grain prices and falling grain stocks in the U.S. gave rise momentarily to new talk of a U.S. short supply embargo, the President of the U.S. National Association of Wheat Growers (NAWG) said that he was willing to believe official assurances that an embargo was not to be feared, because the presence of this embargo insurance clause in U.S. farm law would make any embargo much too costly in budgetary terms.

Grain export suspensions designed to sanction importers for international political reasons are a slightly different matter. The leading historical example is the 1980–81 partial embargo on U.S. sales to the Soviet Union, to punish the Soviet Union for its invasion of Afghanistan. When President Carter imposed this embargo he invoked reasons of foreign policy and national security under the 1979 Export Administration Act, thus neatly avoiding Congressional embargo insurance provisions which at that time only covered export suspensions linked to short domestic supplies. Over a period of 16 months the U.S. government allowed only 8 million tons of wheat and corn a year to be sold to the Soviet Union (this was the quantity of grain the U.S. had promised earlier it would make available in a 1975 bilateral agreement). In the aftermath of this 1980–81 grain embargo, Indira Gandhi, the former Prime Minister of India, warned in a speech to FAO that grain exports had now become a U.S. diplomatic weapon, and she urged other developing countries to follow India's lead and "do their utmost to attain self-sufficiency within the shortest possible time."¹⁰

Fear of grain export suspensions linked to international politics (rather than to grain market conditions) might seem a more legitimate reason for some food insecure countries to shun a dependence on imports. The foreign policies of the United States, in recent years, have if anything become more rather than less dependent on use of economic sanctions. The Clinton Administration alone, over the brief period 1993–1998, imposed sanctions 61 times. By one count 73 countries, which are home to two thirds of the world's population, have recently been subject to some kind of economic sanction from the U.S., either to discourage weapons proliferation, bolster human rights, deter terrorism, thwart drug trafficking, discourage armed aggression, promote market access, or protect the environment (Haass 1998).

In the immediate aftermath of the 1980–81 U.S. grain embargo, some developing countries did strengthen their grain self-sufficiency policies at least in part as foreign policy protection against U.S. "food power." The leaders in this movement at the time were a number of states newly rich with oil export revenues, including Mexico, Saudi Arabia, Nigeria, and to some extent Indonesia. Diplomatic concerns had earlier helped motivate the Government of India to embrace its own more determined foodgrain self-sufficiency policies, following a 1965–67 manipulation by the U.S. of PL 480 food aid wheat exports to that country, when President Lyndon Johnson briefly conditioned those food aid exports on changes in India's domestic agricultural policies, its exchange rate policies, and even its policies toward the U.S. war in Vietnam (Bjorkman 1975). Likewise in China, foodgrain self-sufficiency policies have always had a national security dimension.¹¹

Such developing country fears of losing access to grain imports for diplomatic reasons are largely unjustified. The results of the 1980–81 grain embargo itself demonstrate how hard it is for exporters to deny grain supply access to cash-paying importers. Because the U.S. tried but failed to prevent other suppliers from selling to the Soviet Union during this embargo, the Soviets were actually able to import more grain in the first calendar year of the embargo (28.7 million tons in 1980) than they had imported in calendar year before the embargo (25 million tons in 1979). The U.S. sought cooperation from other grain exporting nations in 1980, and received some for a time from close and dependent foreign policy allies such as Canada and Australia, but Argentina never agreed to cooperate, and by shifting the direction of its normal trade away from traditional customers it was able to increase its rate of grain exports to the Soviet Union tenfold during the embargo. It did so to capture the premiums Soviet purchasing agents had begun offering for non-U.S. grain.

The Soviet Union was importing grain in 1980 primarily as animal feed to boost meat production, rather than for direct human consumption, so basic food security was never at issue. Yet the Soviets were even able to import enough grain during the embargo to avoid serious damage to domestic livestock herds. In November 1980, nearly a year into the embargo, Soviet inventories of cattle, hogs, and poultry all stood above the pre-embargo level. These expanded inventories were then maintained throughout

1981, despite four more months of the embargo and, more remarkably, despite a third bad domestic grain harvest (Paarlberg 1985, p. 202).

Much like the earlier short supply soybean embargo, the foreign policy motivated grain embargo generated a powerful backlash from domestic U.S. farm interests. President Jimmy Carter was the first to feel this backlash, as he was punished with a loss of farm state support in the 1980 presidential election and replaced by Ronald Reagan, who had courted farmers in that election with a pledge to lift the embargo. U.S. Presidents have avoided selective grain embargoes against foreign countries ever since, and President Reagan carried out his promise in 1981 to lift the embargo against the Soviet Union, despite his own hard line views toward the “evil empire,” and despite foreign policy objections from his Secretary of State, his Secretary of Defense, his National Security Advisor, his Ambassador to the United Nations, and even his U.S. Trade Representative. When a new round of sanctions was imposed on the Soviet Union in 1982–83 after an imposition of martial law in Poland, commercial U.S. grain sales were excluded from the sanctions package from the start, and they have been excluded from every U.S. sanctions episode since.

Congressional actions have reinforced this exclusion of commercial farm sales from new U.S. sanctions policies. Following the 1980–81 embargo, Congress inserted Section 1204 into the Agriculture and Food Act of 1981, extending the embargo insurance concept to foreign policy and national security cases by requiring that U.S. producers be compensated at an unacceptably high rate (at 100 percent of parity) in the event of any future export suspension which singled out farm products. This provision has been retained in U.S. farm law ever since 1981, and was renewed for 1996–2002 in the FAIR Act of 1996.

In some exceptional cases the U.S. still does impose commercial food export suspensions, as an accompaniment to more comprehensive diplomatic sanctions. Cuba, Iran, Libya, North Korea, and Sudan have recently been targeted by the U.S. in this manner.¹² Seldom, however, do these more comprehensive U.S. sanctions policies block other exporters from supplying the target states in question. In the case of comprehensive U.S. sanctions against Iraq during and after the 1990–91 Persian Gulf War, strict U.S. bilateral sanctions were initiated by executive order which prohibited the export of any U.S. goods (including farm goods) to Iraq, but when the U.S. sponsored a multilateral version of this export embargo within the United Nations, it agreed to exempt both food and medicine and it even permitted Iraqi oil sales of \$1 billion every 90 days to pay for the cost of such humanitarian imports (Melby 1998).

Even in some of its bilateral sanctions practices, the U.S. frequently exempts food and farm products. The 1998 sanctions to punish India and Pakistan for conducting nuclear tests are a case in point. Commercial grain sales were not touched by these Congressionally mandated sanctions, nor were PL 480 food aid shipments. Legal experts in the U.S. Department of Justice did conclude that taxpayer funded General Sales Manager (GSM) export credit guarantee programs would have to be terminated under the law (the Glenn provision of the Arms Export Control Act), but farm state interests objected and persuaded the Clinton Administration’s National Security Council to support an exemption for GSM programs as well, under the guise that a “humanitarian” issue was at stake. Secretary of Agriculture Dan Glickman conspicuously pledged that the Administration would “resist any action that would lead to a de facto grain embargo.”¹³ An amendment exempting USDA export credit guarantees from the Arms Export Control Act (AECA) was hastily passed and signed by President Clinton in July 1998, just in time for U.S. exporters to bid on a 365,000 metric ton wheat tender from that country.¹⁴

A powerful domestic constituency had generated this policy outcome: U.S. growers of soft white wheat from the Pacific Northwest. Pakistan had recently emerged as the largest foreign buyer of U.S. white wheat (taking as much as one third of the entire Pacific Northwest crop), and U.S. commercial sales to that country would have slipped if Pakistan lost its access to GSM–102 credit guarantees. The leaders in the Congressional effort to exempt GSM programs from the sanctions included House Agriculture Committee Chair Bob Smith (R–Ore.), a special friend of export-oriented Pacific Northwest U.S. wheat interests, and Senate Agriculture Committee Chair Richard Lugar (R–Ind.), long a critic of any sanctions policy that might harm U.S. agricultural interests.

China is another case in point. Following China’s violence against pro–democracy demonstrators in June 1989, the U.S. government imposed broad economic sanctions on China, but again exempted commercial exports of U.S. farm products. Not only did the U.S. continue farm exports on commercial terms, it also continued to subsidize farm exports to China under the Export Enhancement Program (EEP). Early in 1994 the USDA offered China a record–high \$65 per ton EEP export subsidy as an inducement to purchase U.S. wheat, despite a diplomatic conflict at the time over China’s decision to arrest of pro–democracy dissidents on the eve of a visit to Beijing by U.S. Secretary of State Warren Christopher.

If international grain markets favor anyone in diplomatic terms, they tend to favor importers rather than exporters. This is not only because long term price trends in grain markets continue to be downward;¹⁵ it is also because of the strong political organization of grain interests in most exporting countries, which generate a political imperative to sustain and enlarge commercial grain exports. Recent grain trade relations between the U.S. and China again illustrate the point. China has gained rather than lost

political leverage over the U.S. by virtue of its periodic emergence as a large market for U.S. grain exports. China's importance as a potential market for U.S. farm products is consistently mentioned as a reason to extend MFN status to China. Grain export interests in the U.S. Congress tend to support cooperative commercial relations with China whether grain markets are slack or not, and whether China's imports have been dependable or not. In 1983–84, China was not punished when it failed to make the annual minimum purchases of U.S. grains that it had earlier agreed to make under the terms of a formal U.S.–PRC bilateral grain trade agreement; instead it was rewarded, by pressures from U.S. wheat producer interests on the U.S. Commerce Department to relax restrictions on imports of Chinese textile and apparel products.

This same pattern re-emerged in 1995–96, at a time when grain markets were tight rather than slack. Despite a sharp increase in grain export prices and despite a simultaneous increase in China's grain import needs, the reliability of the U.S. as a supplier of grains to China was never in question. China, by contrast, gained bilateral leverage by posing as an unreliable customer. An important test came May 1996, at the time of a sharp U.S.–Chinese dispute over intellectual property rights. The U.S. never threatened during this dispute to interrupt exports of grain, but China did threaten to interrupt imports, warning that it would retaliate against any U.S. economic sanctions with 100 percent tariffs on selected imports from the U.S. led by "agricultural and animal husbandry products." Earlier in the year China had ignored a personal plea from Agriculture Secretary Dan Glickman to lift its ban on imports of U.S. wheat suspected of being contaminated with TCK fungus, and later in the year it felt free to cancel some U.S. wheat purchases outright, as it became clear that China's own summer grain harvest was about to set a record.

So even in a tight world market, food importers can exercise bilateral bargaining leverage over exporters, rather than the other way around. Food insecure nations should have little reason to limit grain imports due to worries about the structure, condition, stability, or reliability of international grain markets. Other explanations for their grain import aversion must be sought, on a region by region or country by country basis.

The existing literature suggests that a number of other explanations can be found. In Africa, governments have not been notably hostile to grain imports as such, but they have embraced economic policies that have generated such little dynamic income growth as to stunt effective demand for imports, while cutting their own foreign exchange earnings by overtaxing producers of exportable cash crops and raw materials. Their marginal position in international grain markets is consequently just a reflection of their marginal position in most other international markets. It is part of what Sachs has called their "self imposed exile" from open international trade. For India, Srinivasan (1994, p. 156) found that import-averse agricultural trade policies were also much more than a sector-specific phenomenon. They were part of India's larger post-independence desire to gain separation from all private world markets, which Congress Party leaders viewed at the time as a "whirlpool of economic imperialism." Ironically, India's subsequent industrial development planning efforts so neglected agriculture as to lead, by the mid 1960s, to an interlude of deep dependence on U.S. food aid. This dependence had to be corrected through larger public agricultural investments and improved incentives policies for farmers, plus green revolution seed varieties. India's food self-sufficiency policies today reflect in part a continuation of the original aversion to all kinds of private international trade, plus now as well an organized effort by rent-seeking commercial grain interests to hold onto the subsidies and incentives policies earlier extended to them by the state, in the name of "self sufficiency."

China's grain policies grow out of a larger state aversion to markets, more than out of any misgivings specific to the world food market. China since 1949 has mistrusted private grain markets at home almost as much as abroad. China regulates domestic grain trade tightly with a variety of goals in mind: provisioning the army, accumulating capital and foreign exchange for the development of urban industry, and procuring cheap food to lower and stabilize retail prices for workers in politically volatile urban areas. This tight state regulation of the grain sector malfunctioned badly during the 1959–60 Great Leap Forward, producing a massive state-created internal famine. China's current rhetorical stress on "grain self-sufficiency" is as much a reaction to this past history of self-inflicted famine during the Maoist period as it is a comment on the reliability of international markets.

Today it is not the world grain market that threatens to destabilize grain markets in China; it is instead China's erratic and unpredictable state-managed grain trade policies that threaten to destabilize the world market. Despite official rhetoric embracing "self sufficiency" in grains, China has a long history of denying adequate price incentives to grain farmers, while simultaneously importing and exporting grains.¹⁶ China can switch suddenly from a substantial net exporting posture to large net imports. In China's pursuit of self-sufficiency the ratio of average net imports to total domestic production has gone down since the 1980s (Chen and Pan 1997), yet China's swings in net trade have remained quite large. Between 1993 and 1995 China briefly unnerved world markets by switching from being a net exporter of 7.5 million tons of grain to being a net importer of 15.5 million tons, a total turnaround of 23 million tons, or about 10 percent of global grain trade (Crook and Colby 1996). Part of this large turnaround in net trade can be explained by an 11 million ton domestic production shortfall in 1994, but swings in China's net trade are often much larger than swings in its domestic production, in part because trade decisions are made by slow-moving market-insulated state bureaucracies. In 1994 China's state grain trade companies continued to export corn (nearly 9 million tons total) even though, due to a poor domestic crop, the average domestic price for corn was already above the world market price. Then in 1995, in a

panic over domestic food price inflation (brought on largely by undisciplined monetary policies) China's trading companies turned around and imported too much grain (Ke 1997). These excessive imports in 1995 then led, by 1996, to a disruptive pattern of sudden import cancellations.

If some poor countries are averse to using world grain markets more efficiently, then, it is not necessarily because of bad experiences they have had with those markets. It is usually, instead, because of a larger policy aversion the governments in these countries have toward all markets, both grain and non-grain, both domestic and foreign. The transitory food insecurity of these countries does not usually reflect any malfunction of international food markets, or even a malfunction of domestic food and farm markets within these countries. When poor countries experience transitory food insecurity today, it is usually a severe malfunction of internal political institutions that is to blame.

IV. Non-Market Sources of Food Insecurity

The most important sources of transitory food insecurity in the developing world today are natural disasters (such as prolonged droughts), non-accountable political systems hostile to the operation of markets (such as the regime in North Korea), and violent internal civil conflict. Conventional work on food security persists in underemphasizing these factors, partly because of the influence of Amartya Sen's early work on famine, which directly challenged the importance of drought-induced food availability declines in particular. Sen stigmatized this as a simple-minded "FAD" (food availability decline) approach to a problem he said stemmed from poverty plus adverse relative price shifts within a market system.¹⁷ Sen influential 1981 book on poverty and famine did not address at all the issue of non-accountable government or the threat of violent internal conflict.¹⁸ Instead he implicitly assumed internal peace, then hoped benign governments would ensure food security by providing the poor with minimum wage employment guarantees and comprehensive social security systems (Sen 1981, p.7).

Agricultural economists also tend to ignore the non-market sources of food insecurity. They sometimes put forward a variant of Sen's argument, agreeing with him on the importance of poverty but then proposing improved agricultural development policies rather than wage or income insurance policies as the most likely escape from poverty-induced food insecurity. Only at the end of the analysis do some acknowledge the importance of non-economic factors such as violent conflict (Tweeten, et. al. 1992). In some cases the importance of such non-economic factors is acknowledged at the beginning, but then avoided at the end (Von Braun, et. al. 1992).

Improved agricultural development policies are indeed essential in most cases to the elimination of poverty, but transitory food insecurity is not caused by poverty alone. It is a transitory phenomenon with transitory causes most often rooted in the malfunction of political institutions, natural disasters, or both. In an absence of drought or violent conflict, even a poor nation's citizens can be food secure, and experience shows that food security can even be provided under conditions of drought or natural disaster, if accountable government is present and violent conflict is absent.

Consider the country-by-country patterns of transitory food insecurity tracked recently by the Office of Foreign Disaster Assistance (OFDA) at USAID, the agency which coordinates humanitarian responses to manmade and natural disasters outside the United States. In 1996, OFDA was monitoring what it calls "complex humanitarian emergencies" underway in 23 different countries, affecting a total of 34 million people. In 19 of these 23 country cases (all but Armenia, Cambodia, Sri Lanka, and Tajikistan) "food insecurity" was a conspicuous part of the emergency. In 17 of these 19 food insecurity cases (all but North Korea and Eritrea) a "civil conflict" was underway.¹⁹

The United Nations Food and Agriculture Organization also tracks countries facing exceptional food emergencies. In 1996 FAO listed 14 countries in Sub-Saharan Africa alone (involving 22 million people) as falling into this category. In 10 of these 14 countries the reasons given for the emergency included either civil strife or population displacements linked to civil strife, and in 2 of the remaining 4 countries (Eritrea and Ethiopia) citizens had been made vulnerable to the 1996 food emergency due to earlier episodes of violence. For the 2 cases in which violence and population displacement were not mentioned, "drought-reduced harvest" was given as the cause of the emergency. In none of these cases did the FAO find that poverty alone, or bad development policies alone, or the malfunction of food markets (internal or international), had caused the transitory emergency (FAO 1996).

Private evaluations done by NGOs tend to reinforce the conclusion that violent conflict is in fact the world's greatest food security threat today. In 1994 the World Hunger Program at Brown University assembled a count of armed conflict cases which also involved the destruction or diversion of food supplies, or destruction of the potential to produce food. Forty-two countries affected by such "food wars" were identified overall, and in 32 of those 42 countries a food threatening conflict was still currently underway. Fourteen of these 32 active cases were in Africa in 1995, but 8 were in Eastern Europe or the former USSR—including

most prominently Bosnia and Chechnya (Messer and Uvin 1995; De Rose, Messer, and Millman 1998).

Food insecurity in Sub-Saharan Africa today is distinctively related to political unrest and violent internal conflict. Africa since decolonization has been the scene of more than 60 successful political coups, plus more than a dozen long-running civil wars among post-colonial contenders for political power. Per capita war fatality rates in Sub-Saharan Africa are three times higher than the Middle East. Seven million Africans have died fighting over the past 30 years. By one count eleven civil wars were still underway on the continent in the early 1990s (Deng and Minear 1992). The most destructive of these included a 17 year old civil war still underway in Angola, a three-sided military conflict in Liberia, a 16 year old civil war finally winding down in Mozambique, a revived civil war between Hutus and Tutsis in Rwanda, fighting in Togo that had created 230,000 refugees, the continuation of a civil war in the south of Sudan, plus widespread sub-clan violence amid virtual anarchy in Somalia.

The links between violent civil conflict and food insecurity are multiple and powerful. Civil conflicts are often rooted in traditional ethnic, tribal, or religious animosities, and groups that organize around these identities typically form militias either to defend themselves or attack their weaker neighbors. In primarily agricultural societies, the recruitment of young men into these militias will both reduce family income and take labor away from food production, be it farming or herding. Food availability and access to food will also be diminished directly, due to the predatory activities of both militias and regular armies in the field, which tend to subsist in poor societies by eating whatever they can take from the unarmed population. These militias and armies will also be motivated to destroy any food they cannot use immediately in contested areas, so as to deny it to their adversaries. Anticipating this theft and destruction, farmers that remain on the land in violence-torn societies will lose their incentive to plant crops in the first place (Natsios 1997). Countries experiencing conflict in Africa on average have produced 12.4 percent less food per capita in war years than in peacetime. Comparison of wartime and a "peace adjusted trend" shows that since 1980 in Africa, peace would have added 2 to 5 percent to the continent's total food production per year (Messer, Cohen, and D'Costa 1998).

Violent internal conflict will also typically bring a termination of important government health, education, and infrastructure maintenance services in contested zones, physical insecurity for traders on all trunk roads moving through rural areas, a hyperinflation of the economy, a destruction of the currency, and a more general interruption of private employment and economic exchange. These are calamities from which rural economies may recover only slowly. In Uganda, a succession of internal wars and military coups between 1971 and 1986 reduced real income per person by 40 percent. Between 1975 and 1986 food production per capita fell by 39 percent, as national extension services and agricultural research stations stopped functioning and as farming technology went backwards. Use of animals for land clearing became impossible as the animals were either killed or stolen, so less productive hand tool techniques had to be revived. Today, more than a dozen years after this period of devastation, per capita food production in Uganda has yet to recover to the 1971 level (Nygaard, et. al. 1998).

Amid violent internal conflicts, it is not uncommon for farmers in contested areas to give up food production entirely, leave their land, and become what the United Nations refers to as "internally displaced persons." Since the early 1990s, total numbers of internally displaced persons world wide have fluctuated between 20 million and 25 million, in 35 to 40 different countries (Cohen and Deng 1998). At one point early in the 1990s more than 6 million people in Africa were refugees and 16 million more were internally displaced. The internally displaced are often more vulnerable to hunger than cross-border refugees, since they can find themselves beyond the diplomatic reach of international relief agencies. Once mass population movements begin, a second order of public health as well as feeding difficulties than will emerge, sometimes producing widespread deaths from diseases linked to poor sanitation as well as malnutrition. States torn by internal conflict will usually lack the authority, financial resources, and institutional capacity needed to respond to such emergencies without external assistance, and this assistance must at times be accompanied by external military intervention.

Some scholars have attempted to reassert the primacy of economic variables in such cases of violent conflict, by depicting the violence itself as a consequence of poverty and resource scarcity. Thomas F. Homer-Dixon has sought to link the outbreak of violent conflict in poor countries to factors such as land shortages that accompany high rates of population growth, land degradation, and increased youth entering the labor force (Homer-Dixon 1991; Homer-Dixon 1994). Michael Renner has sought to attribute conflict in poor countries not so much to tribal, ethnic, or religious differences but instead to "explosive population growth, severe land shortages, land degradation, lack of nonagricultural employment, falling export earnings, and the pain of structural economic adjustment (Renner 1996)." Yet actual frequency counts of violent minority conflict in Africa tend to belie such assertions. These counts show that rates of violent conflict in Africa have not been rising over time, as would be expected if population density or land scarcity were the cause. Instead, rates of violent minority conflict in Africa surged to a high level in the mid 1960s, immediately following European decolonization, and have remained steady at that high level ever since (Gurr 1993).

One ambitious effort at statistical correlation, a still-classified 1995 CIA study of "state failure," has concluded (judging from press reports²⁰) that the state failures producing internal civil conflict in so many developing countries were correlated with high infant mortality rates. This prompted some to infer, once again, that some form of Malthusian emiseration might be at the root of Africa's political distress. Yet this seems a highly unlikely inference especially for Africa, since infant mortality rates there have

recently been falling sharply rather than rising. Between 1960 and 1990 the mortality rate (per 1000 live births) for children under five years fell sharply in a number of “failed” states in particular: in Somalia from 294 to 215, in Rwanda from 248 to 198, in Liberia from 310 to 205, and in Sudan from 292 to 172 (UNDP 1992, Table 4, p. 135). Africans on average are living dramatically longer today, thanks to improved public health, inoculations against childhood disease, and also thanks to gradually improving nutrition. Their transitory food insecurity grows out of political malfunction and civil conflict plus periodic drought, rather than out of an overall population driven eco–malthusian decline.

Consider Rwanda, where population growth has been dramatic, but where both famine and civil conflict have taken place independent of changing population density. In Rwanda between 1900–1950 there were seventeen years of famine, despite the fact that the nation at that time contained only 20 percent of its current population (Uvin 1996). The full scale civil war that resumed in Rwanda in 1990, and which led to a terrible genocide in that country in 1994, is most parsimoniously understood as the continuation of an unresolved post–colonial political conflict between Hutu and Tutsi peoples, rather than as the result of eco–malthusian emiseration.

A far more convincing explanation for violent conflict in Sub–Saharan Africa starts with the serious geographical mismatch, long noticed on the continent, between post–colonial national boundaries and ethnic boundaries. The boundaries of today’s African states south of the Sahara were drawn by European colonial powers at a conference in Berlin in 1885, and the purpose on that occasion was to keep peace among Europeans, not among Africans. When the European colonizers finally departed in the 1960s, the diverse ethnic groups contained within these poorly drawn national boundaries naturally began to struggle with each other for control of the various state assets (armed forces, civil service payrolls, state–owned enterprises, marketing boards and other instruments of trade regulation and taxation, diplomatic services, etc.) that the colonizers had left behind.

The great diversity of ethnic groups in Africa would have made the problem of peaceful nation state formation difficult even if Africans had been in control from the start. According to one conservative count, black Africa has 74 different ethnic minorities, versus only 43 in Asia, where the population is much larger (Gurr 1993, p. 254). In Sub–Saharan Africa minorities comprise 42 percent of the region’s population, versus a global average of 17 percent. Fourteen out of the fifteen most ethnically diverse societies in the world are in Africa. Ethnopolitical groups in Africa also tend to have a stronger sense of group identity than in other regions. Fifty–seven percent of black African minorities on which data are available are strong identity groups, versus the global mean of 37 percent. Africa’s greater ethnic diversity is a force which seems to have constrained the region’s economic performance independent of any tendency to generate violent conflict. One World Bank correlation study found that Africa’s much greater than average ethnic diversity accounted for approximately 35 percent of its growth differential with the rest of the world, in contrast to the more ethnically homogeneous nations of East Asia (Easterly and Levine 1994, p. 12).

Violent conflict has now become an even more important source of transitory food insecurity than natural disasters such as drought, thanks to the dramatic improvements that have recently been made in international systems of drought warning and famine relief. Improved famine early warning systems, well developed intergovernmental and NGO relief delivery systems, plus modern communication and transport infrastructures have sharply curtailed the forces of nature alone as a source of famine. Consider Africa in 1984, when drought related production losses (plus a world recession, low commodity export prices, and a debt crisis) put the continent’s food security at risk. Harvests failed for three consecutive years in a number of countries, more than 35 million people were affected, and some 10 million left their homes in search of food and water. Yet in those African countries where peaceful conditions prevailed, food relief measures were undertaken with remarkable success (Deng and Minear 1992). As Jean Dreze observed, “Though drought threatened a large number of African countries at that time, only some of them—notably war–torn ones—actually experienced large–scale famine (Dreze 1995).”

No less dramatic was the timely international response to a severe 1991–92 region–wide drought in southern Africa. Grain yields in the ten states of the Southern African Development Community (SADC) were only 56 percent of normal, and regional stockpiles were inadequate to cover the shortage. Cereal production fell by 60 percent in Malawi and Swaziland, and by more than 70 percent in Namibia and Zimbabwe. The drought placed 17–20 million people at risk of starvation, yet there were no famine related deaths reported, except in Mozambique where a civil war was still underway (DeRose, Messer, and Millman 1998). Starvation was avoided because per capita food aid to the region increased dramatically, from an average of less than 10 kg. per person in the 1980s to a peak of more than 25 kg. per person in 1992 (Pinstrup–Anderson, Pandya–Lorch, and Babu 1997). It once again helped that most of the nations worst affected by this drought were not being torn by internal military conflict.

The greater food security threat posed by civil conflict versus drought is also illustrated in the case of Sudan. When northern Sudan faced a drought during the middle years of the 1980s, it managed to avoid widespread starvation thanks in part to the successful delivery of \$1 billion in external assistance. Yet when violent civil conflict later escalated in southern Sudan, relief could not be delivered to the affected areas and hundreds of thousands starved, even though the drought by then had ended. During the years 1986–88, an estimated 400,000 persons lost their lives in Sudan. By 1988 roughly half of the population in the south had been displaced by the fighting, and famine deaths in that year alone reached about 250,000. A new international relief effort was

mounted in response to this conflict-linked emergency in the south (Operation Lifeline Sudan), but it was far less successful than the earlier international drought relief effort, due to armed attacks on food shipments by the warring parties (Deng and Minnear 1992).

Somalia is another illustrative case. The same drought that devastated southern Somalia beginning late in 1991 also devastated southern Ethiopia and northern Kenya, yet in these latter two countries there were few deaths because international relief efforts succeeded in getting food to the vulnerable without incident. In Somalia food relief shipments were blocked by armed sub-clan militia groups engaged in a struggle for political control, and so a major famine took place. Not until a U.S. military intervention late in 1992 was a minimum of food security restored (Natsios 1996). Where civil conflict is absent, food relief can work well in response to drought. Where conflict is present, food relief not only can fail; it can become counterproductive. Without military intervention to neutralize or disarm the warring factions, food relief is likely to be taken at gunpoint by those warring factions and either destroyed or otherwise used for warmaking purposes.

Violent internal conflict has not always been the premier indicator of food insecurity in poor countries that it is today. During the middle years of the 20th Century transitory food insecurity was at times a result of violent *international* conflict (particularly during and after the Second World War). It was also a frequent result of the food and farm policy initiatives undertaken by Stalinist or Maoist political regimes. Stalin's coercive collectivization and food procurement policies in the Ukraine brought death by famine to an estimated 7 million peasants in 1932–33 (Conquest 1986). Mao's Great Leap Forward brought death by famine to over 15 million peasants in China in 1959–62 (Riskin 1995). A number of other self-styled Marxist-Leninist political systems also brought food emergencies onto their own people, including Kampuchea under the Khmer Rouge after 1975, Ethiopia under Mengistu in 1984–85, Angola and Mozambique following independence from Portugal, and currently the Democratic People's Republic of (North) Korea. Fortunately, fewer such systems remain in place around the world today, and China has largely corrected Mao's most damaging land collectivization policies. The world's only unreformed Stalinist political system today is the North Korea, and that regime is now itself under threat due to an internal famine of its own creation.

The recent demise of so many market-hostile, non-accountable Marxist-Leninist regimes is part of a wider late 20th Century global trend toward more democratic governance (Huntington 1991). This has been a fortunate trend for food security purposes, since governments which guarantee press freedom and feature accountability through democratic competition are more likely to provide timely public sector responses to food needs and food emergencies (Dreze and Sen 1995).

V. Summary and Qualification

We have argued here that transitory food insecurity in poor countries is not directly or significantly linked to changing conditions in world grain markets. We have shown that per capita grain consumption in the developing countries did not generally worsen when grain export prices increased in 1973–74, or when they increased again briefly in 1995–96. We have also shown that per capita grain consumption in these developing countries generally grew more rapidly during the decade of the 1970s than during the decade of the 1980s, even as world grain market conditions were giving the opposite impression. We have explained this disconnection between consumption trends and world market conditions by showing that the reliance of genuinely poor developing countries on grain imports is usually low, and generally lower today than it was several decades ago, even when food aid is taken into account.

We have next argued that this low dependence by food insecure poor countries on grain imports cannot be explained as a response to the instability of the world grain market. Most poor countries spend only a small and shrinking share of their foreign exchange earnings on food imports; for most, export earnings tend to rise and fall in parallel with food import prices; and for most, the instability of domestic grain production is a more frequent source of internal market destabilization than world grain market prices. Of all the world market fluctuations that can destabilize food security circumstances within poor countries (including fluctuations in non-grain farm commodity markets; raw materials and energy markets; foreign exchange markets; international financial markets; and markets for international direct investment), fluctuations in international grain markets are perhaps the least important to the poor.

Low dependence on grain imports also cannot be justified as a response to unreliable supplier concerns, since even when markets are tight many of the larger exporters into the world grain market—led by the United States—will continue to export to all cash paying customers. They do so because strong domestic grain producer lobbies argue so forcefully against any restraint on export sales. These producer interests in rich countries consistently trump disorganized domestic consumer interests, and easily override foreign policy interests. As a consequence in today's world grain markets, exporters tend to be far more reliable than the importers, and importers tend to exercise more bilateral bargaining leverage than exporters.

The tendency of so many poor countries to depend so little on world grain markets is not generally a reflection on the operation of those markets. Instead it usually reflects a mistrust toward all private markets, both grain and non-grain markets, both foreign and domestic markets.

Having concluded that transitory food insecurity is seldom a result of market malfunction, we ended by reviewing the most conspicuous non-market sources of food insecurity, including most of all violent internal conflict, plus non-accountable governments and natural disasters such as drought. We concluded that violent internal conflict is increasingly the most important of these three, now that the means to provide drought relief have improved, and since non-accountable (especially Stalinist and Maoist) political regimes are now fewer in number. Where violent conflict is absent, international food relief in the face of drought is possible and often successful. Where violent conflicts continue, food relief can become impossible and unsuccessful even in the absence of drought.

One important qualification must be added at the end of this argument. International food aid played a large role in the successful humanitarian response to the drought related food insecurities of central Africa in 1984, and southern Africa in 1992. Any sanguine view of future humanitarian response capabilities therefore must assume a continued availability of large scale international food assistance when required in an emergency. In the future, timely food aid could become more difficult to arrange if commercial stocks are low and export prices high, or if government-owned stocks (for example, CCC inventories in the U.S.) have either been depleted through export subsidy use or terminated as a result of liberal domestic farm policy reforms (for example, the 1996 FAIR Act). In other words, international grain market conditions could start to make a difference.

Recent trends in food aid availability are worrisome in this regard. Total cereals food aid availabilities for 1997/98 have been forecast by FAO at 5.5 million tons, 12 percent up from the reduced volume of 1996/97, yet less than half the level of the early 1990s, when large supplies were needed to meet transitory demands in the Balkans, the former Soviet Union, and in southern Africa.²¹ If large humanitarian food aid relief requirements were to arise some time in the near future, perhaps due to a return of drought conditions in Sub Saharan Africa, this availability level would have to increase quickly, something that could be more difficult to arrange if world export prices were momentarily high or government stock levels low. It was fortunate in this regard that the brief 1995–96 interlude of higher world grain export prices and diminished stocks coincided with a period of above trend food production in Sub Saharan Africa, rather than with a period of suddenly higher food aid needs in that region.

In this indirect sense then, world food market conditions do link up to the food security prospects of some poor countries, particularly those threatened by periodic drought. Yet the most obvious policy solutions begin in the realm of government and international food aid budgets and international food aid agreements (such as the Food Aid Convention), rather than in the realm of commercial trade or market management policies. Declining food aid availability should be understood as a foreign assistance budget problem, and not be redefined as an international grain market stability problem. International commercial grain markets are important for many things, but we have shown here that they are not the appropriate analytic starting point for estimating, diagnosing, or addressing the transitory food security problems of the poor.

References

- Alexandratos, Nikos, ed. 1995. *World Agriculture: Towards 2010*, Rome: FAO.
- Alexandratos, Nikos. 1997. "The World Food Outlook: A Review Essay." *Population and Development Review* 23(4), December 1997, pp. 877–888.
- Bjorkman, James W. 1975. "Public Law 480 and the Policies of Self-Help and Short Tether: Indo-American Relations, 1965–68," in Appendices (Case Studies, Economic Policy), *Commission on the Organization of the Government for the Conduct of Foreign Policy*, Washington, D.C., June.
- Chen, Xikang, and Xiaoming Pan. 1997. "China's Grain: Challenges and Productivity Potentials in the 21st Century," Chinese Resource Papers, Millennium Institute, Washington, D.C.
- Chopra, R. N. 1981. *The Evolution of Food Policy in India*. New Delhi: Macmillan India, Ltd.
- Cohen, Roberta, and Francis M. Deng, 1998. "Exodus Within Borders," *Foreign Affairs* 77(4), July/August, pp. 12–16.
- Conquest, Robert. 1986. *The Harvest of Sorrow: Soviet Collectivization and the Terror-Famine*. New York: Oxford University Press
- Crook, Fredrick W., and W. Hunter Colby. 1996. "The Future of China's Grain Market," Washington, D.C., USDA, ERS

Information Bulletin Number 730, October.

Deng, Francis M., and Larry Minear. 1992. *The Challenges of Famine Relief*. Washington, D.C.: The Brookings Institution.

Dreze, Jean, 1995. "Famine Prevention in Africa: Some Experiences and Lessons," in Jean Dreze, Amartya Sen, and Athar Hussain, *The Political Economy of Hunger*, Oxford: Clarendon Press, pp. 554–603.

Dreze, Jean, and Amartya Sen. 1995. "Introduction," in Dreze, Sen, and Athar Hussain, *The Political Economy of Hunger*: Oxford, Clarendon Press, pp. 13–45.

Easterly, William, and Ross Levine. 1994. *Africa's Growth Tragedy*. Unpublished manuscript. Washington, D.C.: World Bank.

FAO (Food and Agriculture Organization of the United Nations). 1984. *Public Expenditure on Agriculture in Developing Countries, 1978–1982*. Rome: FAO. November 1984. Policy Analysis Statistics Division.

FAO (Food and Agriculture Organization of the United Nations). 1991. *The State of Food and Agriculture 1991*. Rome: FAO.

FAO (Food And Agriculture Organization of the United Nations). 1996a. World Food Summit, Technical Background Documents, Volume 3. Rome: FAO.

FAO (Food and Agriculture Organization of the United Nations). 1996b. *Food Supply Situation and Crop Prospects in Sub-Saharan Africa*. Rome: FAO, May.

FASF (Federation of American Scientists Fund). 1997. *Perspectives on the Long-Term Global Food Situation*, Volume II, Issue No. 2. Washington, D.C.: FASF.

George, A., and E. Saxon. 1986. "The Politics of Agricultural Protection in Japan," in Kym Anderson and Yujiro Hayami, *The Political Economy of Agricultural Protection: East Asia in International Perspective*, Sydney: Allen and Unwin, pp. 91–110.

Gurr, Ted R. 1993. *Minorities at Risk: A Global View of Ethnopolitical Conflict*. Washington, D.C.: U.S. Institute of Peace.

Haass, Richard N. 1998. *Economic Sanctions and American Diplomacy*. New York: Council on Foreign Relations.

Hertel, Thomas W., William Masters, and Aziz Elbehri. 1998. "The Uruguay Round and Africa: A Global, General Equilibrium Analysis," *Journal of African Economies* 7(2).

Hopkins, Raymond F., and Donald J. Puchala. 1978. "Perspectives on the International Relations of Food," *International Organization*, 32:3, summer 1978, pp. 3–40.

Homer-Dixon, Thomas, 1991. "On the Threshold: Environmental Changes as Causes of Acute Conflict," *International Security*, 16(Fall), pp. 76–116.

Homer-Dixon, Thomas, 1994. "Environmental Scarcities and Violent Conflict: Evidence from Cases," *International Security*, 9(1):5–40.

Huntington, Samuel P. 1991. *The Third Wave: Democratization in the Late Twentieth Century*. Norman: University of Oklahoma Press.

IFPRI. 1977. *Food Needs of Developing Countries: Projections of Production and Consumption to 1990*. Research Report No. 3, Washington, D.C.: IFPRI.

Johnson, D. Gale. 1978. "World Food Institutions: A 'Liberal' View," *International Organization*, 32:3, summer 1978, pp. 265–282.

Ke, Bingsheng. 1998. "Food and Agricultural Policy in China: Reviews and Future Perspectives," Millennium Institute, Chinese Resource Papers.

Lindert, Peter H., 1991. "Historical Patterns of Agricultural Policy," pp. 29–83 in C. Peter Timmer, ed., *Agriculture and the State*, Ithaca: Cornell University Press.

Lipton, Michael, and Robert Paarlberg. 1990. *The Role of the World Bank in Agricultural Development in the 1990s*. Washington, D.C.: IFPRI.

Melby, Eric D. K. 1998. "Iraq," pp. 107–128, in Richard N. Haass, ed., *Economic Sanctions and American Diplomacy*, New York: Council on Foreign Relations.

- Messer, Ellen, and Peter Uvin. 1996. *The Hunger Report: 1995*. Alan Shawn Feinstein World Hunger Program, Brown University.
- Messer, Ellen, Marc J. Cohen, and Jashinta D'Costa. 1998. *Food From Peace: Breaking the Links Between Conflict and Hunger*. 2020 Brief 50. International Food Policy Research Institute. Washington, D.C.: IFPRI.
- Natsios, Andrew W. 1996. "Humanitarian Relief Interventions in Somalia: The Economics of Chaos," *International Peacekeeping* 3(1):68–91.
- Natsios, Andrew S. 1997. *U.S. Foreign Policy and the Four Horsemen of the Apocalypse: Humanitarian Relief in Complex Emergencies*. Washington, D.C.: Praeger.
- Nygaard, David, Robert Paarlberg, Jane Sanyu–Mpagi, Ruth Matovu, and Suresh Babu. 1998 (forthcoming). "The Modernization of Agriculture in Uganda: The Political Challenge of Moving from Adjustment to Investment." Washington, D.C.: IFPRI
- Pinstrup–Andersen, Per, Rajul Pandya–Lorch, and Suresh Babu. 1997. "A 2020 Vision for Food, Agriculture, and the Environment in Southern Africa," in Lawrence Haddad, ed., *Achieving Food Security in Southern Africa*, Washington, D.C.: IFPRI.
- Renner, Michael. 1996. *Fighting for Survival: Environmental Decline, Social Conflict, and the New Age of Insecurity*. New York: W.W. Norton & Co.
- Riskin, Carl. 1995. "Feeding China: The Experience Since 1949," in Jean Dreze, Amartya Sen, and Athar Hussain, eds., *The Political economy of Hunger*. Oxford: Clarendon Press, pp. 401–444.
- Sachs, Jeffrey. 1996. "Growth in Africa: It can be Done." *The Economist*, June 29 1996, pp. 19–21.
- Sen, Amartya. 1981. *Poverty and Famines: An Essay on Entitlement and Deprivation*. Oxford: Clarendon Press.
- Tweeten, Luther, with John Mellor, Shlomo Reutlinger, and James Pines. 1992. *Food Security Discussion Paper* (PN–ABK–883), prepared for U.S. Agency for International Development under supervision of the International Science and Technology Institute, released in May, 1992.
- USDA. 1995. "Food Aid Needs and Availabilities: Projections for 2005," ERS Report GFA–6, October 1995.
- USDA. 1996. "The U.S. Contribution to World Food Security: The U.S. Position Paper Prepared for the World Food Summit." Washington, D.C.: U.S. Department of Agriculture.
- Valdes, Alberto, and Panos Konandreas, 1981. "Assessing Food Insecurity Based on National Aggregates in Developing Countries," pp. 25–52, in Valdes, ed., *Food Security for Developing Countries*, Boulder, Colorado: Westview Press.
- Valdes, Alberto, ed. 1981. *Food Security for Developing Countries*. Boulder, Colorado: Westview Press.
- World Bank. 1996. "Global Food Supply Prospects: A Background Paper Prepared for the World Food Summit, Rome, November 1996," prepared by Merlinda D. Ingo, Donald O. Mitchell, and Alex F. McCalla. World Bank Technical Paper No. 353, Washington, D.C.: World Bank.

Endnotes

Note 1: The most recent consumption data in this 1975 report were from 1970. See FAO, *State of Food and Agriculture 1974*, Rome, 1975, p. 120. [Back](#).

Note 2: As the Bank explained, "The first World Food Conference, held in 1974, was the culmination of worldwide concern about the global food situation. Many of the same concerns have emerged again. Food reserves are low, as they were in 1974. The ratio of world end-of-year grain stocks to consumption, a common measure of food reserves, had fallen to 15 percent in 1974 — the lowest level recorded until that time. The current ratio is even lower, at 13 percent. Food prices have been rising as they were from 1972 to 1974..." (World Bank 1996, p. 3). [Back](#).

Note 3: As Mellor observed in 1981, "In high income countries, much of the adjustment to fluctuating supplies is made by changes in livestock numbers. Contrastingly, in low-income countries it is the low-income people who must adjust to fluctuating supplies." (John W. Mellor, Foreword to Valdes, ed., 1981, p. xv). [Back](#).

Note 4: This “cereals only” measure of food consumption actually provides an exaggerated measure of food intake decline in poor countries during periods of shortage, since non-cereal supplementary food sources will remain available in those countries in most cases. [Back.](#)

Note 5: Adjustments were small in poor countries in part because they were so large in rich countries. In 1973–74, when grain prices rose, the feeding of grain to livestock declined in the United States by 37 million tons, or approximately 25 percent. Feed use of grains declined so much in exporting states in 1973–75 (Canada and Australia also cut feed use in response to high prices) that it was possible for the rest of the world to continue increasing the feeding of grain not only to people but also to animals, at the depths of this so-called world food crisis period. See Johnson, 1991. Reduced feed use of grains in wealthy exporting countries such as the United States did not result in food insecurity; it led to higher meat prices and reduced consumption of red meat, on balance a nutritional benefit. [Back.](#)

Note 6: FAO, “Food Outlook,” No. 2, Rome, April 1998. [Back.](#)

Note 7: FAO 1991, p. 31. [Back.](#)

Note 8: FAO 1984. [Back.](#)

Note 9: *Economist Intelligence Unit*, Quarterly Economic Review, India (fourth quarter) 1972, p. 4. [Back.](#)

Note 10: Prime Minister Indira Gandhi, speech presented to Food and Agriculture Organization of the United Nations, Rome, 9 November 1981, pp. 7–8. [Back.](#)

Note 11: Reflecting the national security significance attributed to grain issues in China, the total size of the State Grain Reserve remains a military secret. Yet one recent private estimate puts the size of this state reserve at just 15 million tons, far less than the estimated 400 million tons plus of cereals stocks recently held on the farm by Chinese peasant households, for personal food security and as a hedge against inflation. See “China Agriculture Newsletter,” published by Clear Thinking (HK) Ltd., vol. 2, issue 6, June 1997, p. 5. [Back.](#)

Note 12: U.S. wheat producers object to these sanctions policies, arguing that they cost \$1 billion a year in lost export sales, but the ITC has recently found that these sanctions policies cost little in the way of lost sales, because the countries targeted were mostly small economies not heavily engaged in imports of farm products. *Inside U.S. Trade*, September 11, 1998, p. 17. [Back.](#)

Note 13: “White House Endorses Bills to Exempt Farm Credits from Sanctions,” *Inside U.S. Trade*, Vol 16, no. 24, June 19, 1998, p. 3. [Back.](#)

Note 14: *Inside U.S. Trade*, July 17, 1998, p. 9. [Back.](#)

Note 15: The short term trend is downward as well. With the 1995–96 price spike behind us, USDA now expects grain prices for 1998/99 to return to the much lower levels of the early 1990s. See USDA, *Agricultural Outlook*, June–July 1998, p. 2. [Back.](#)

Note 16: Particularly during the period 1966–76 China exported rice and imported wheat, to take advantage of rice prices in the world market nearly twice as high as wheat prices. This strategy allowed China to balance its international grain trade in terms of value, while maximizing domestic calorie availability through an annual average 2.2 million tons of net grain imports. [Back.](#)

Note 17: As Sen noted, “A sharp change in the relative prices of sandals, or haircuts, or labour power (i.e., wages) vis-a-vis food can make the food entitlements of the respective group fall below the starvation level” See Sen 1981, p. 155. [Back.](#)

Note 18: The cases of famine used by Sen to draw this conclusion appear, from today’s perspective, to be highly selective. Sen’s cases were the Bengal in 1943, Ethiopia in 1972–74, the African Sahel in 1972–74, and Bangladesh in 1974. Even at the time these cases were far from typical; they were among the very few which did not feature either a violent internal conflict or a Marxist/Leninist regime. [Back.](#)

Note 19: These seventeen cases in 1996 were Afghanistan, Angola, Azerbaijan, Bosnia–Herzegovina, Burundi, Chechnya, Ethiopia, Georgia, Haiti, Iraq, Liberia, Mozambique, Rwanda, Sierra Leone, Somalia, Sudan, and Zaire (Natsios 1997, Table 1, p. 8). [Back.](#)

Note 20: For example, “Why do countries fall apart? Al Gore wanted to know,” *U.S. News and World Report*, February 12, 1996, p. 44. [Back.](#)

Note 21: FAO, Food Outlook, No. 2, April 1998, p. 22. [Back.](#)
