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9. ABSTRACT

This paper discusses the current and prospective world food situation, how domestic policies affect trade in agricultural products, and how some recent trends in national policies are affecting the global state of affairs with respect to food and agriculture. The world food situation in the 1950s and 1960s was fairly comfortable. Developed countries were producing and exporting surpluses, and production in most less developed countries was keeping slightly ahead of population increases. But the situation changed in the 1970s. The United States and Canada reduced production and lowered their surplus stocks. In 1972 the Soviet Union unexpectedly began massive purchases in the world market. Demand for grain has continued to grow, so that now the supply/demand situation in grains is teetering on a razor's edge with respect to surplus or shortage. An important permanent change affecting food supplies is that mass starvation is no longer tolerable. Thus droughts, floods, and other food crises increase demands upon world food supplies and exert pressure on food prices. Another change is that more countries are relying on world markets for their food supplies. Population growth rates have accelerated, while the 1960s spurt of increased food production in many less developed countries is leveling off. Only new and improved inputs in fertilizers, irrigation, seed varieties, and pricing policies will keep the yields rising. Domestic and foreign trade policies concerned with agricultural production, export, or import are closely interrelated. Countries try to protect their domestic producers. This produces price distortions and misallocation of resources. GATT was unsuccessful in liberalizing agricultural trade, but within GATT and other international organizations, serious consideration is being given to development of rules for dealing with nontariff barriers.

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GOVERNMENT POLICIES AND THE WORLD FOOD SITUATION

by

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GOVERNMENT POLICIES AND THE WORLD FOOD SITUATION*

Martin E. Abel**

"Would you tell me, please, which way I ought to walk from here?"
"That depends a good deal on where you want to go," said the cat.
"I don't much care where--," said Alice.
"Then it doesn't matter which way you walk," said the cat.

"But I don't want to go among mad people," Alice remarked.
"Oh, you can't help that," said the cat, "we're all mad here. I'm mad, you're mad."
"How do you know I'm mad?" said Alice.
"You must be," said the cat, "or you wouldn't have come here."

--Alice in Wonderland

Introduction

Like Alice in Wonderland, we are faced with the task of rationalizing an apparently irrational world when we try to determine the roles and contributions of government policies to the world food situation. There are probably more policies which bear on the world food situation than there are countries, each country having several domestic policies of relevance

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plus numerous international policies governing the collective behavior of groups of nations. And, these many policies seem to head in all sorts of directions. It is of little wonder that a noted agricultural economist entitled a recent book on agricultural policies World Agriculture in Disarray.[1/]

How then can we hope to make sense out of such a chaotic situation? Obviously, we must employ a mechanism for meaningfully simplifying a very complex situation. The mechanism chosen is one that considers policies from the standpoint of the broad objectives they are designed to achieve. This approach permits us to classify various policies into a relatively small number of categories. We must, of necessity, ignore the myriad ways by which any particular class of policy might be implemented; i.e., we will not focus on programmatic aspects of policy implementation. Reference will be made to countries which tend to represent our different categories of policies, but no attempt is made to develop a comprehensive survey of all nations.

The next section of the paper deals with a characterization of the current and prospective world food situation. The third section deals with several different categories of policies and discusses how each relates to various elements of the world food situation. In the final section an attempt is made to develop some judgments about the relative importance of different policies in shaping the perceived global state of affairs with respect to food and agriculture.

[1/] D. Gale Johnson, World Agriculture in Disarray (London: Fontana, 1973).

The World Food Situation

Once again the spectre of a Malthusian catastrophe has captured the headlines. The tight food situation in 1972, 1973, and 1974 and the prospects for relatively short supplies and high food prices in 1975 are the sixth time in the last two centuries that there has been widespread concern about food shortages and famine.[2/]

The world food situation in the 1950's and 1960's was reasonably comfortable. There was excess production capacity in the developed countries reflected in combinations of surplus stocks of grain and land withheld from production under governmental programs. Food production in the less developed countries kept slightly ahead of population growth. The increased production in the less developed countries together with increased grain imports, a significant portion of it being food aid, resulted in a modest but fairly steady increase in average levels of per capita food consumption in the less developed countries. Except for the severe droughts in South Asia during 1965 and 1966, the world food situation looked promising over a period of about two decades.

But, starting in 1970, the world food situation began to change. As concern grew over mounting surpluses, grain production and stocks in the United States and Canada were reduced as a matter of government policy. Poor weather reduced grain production in Australia. The demand for grain

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[2/] See Martin E. Abel, "Food Production Possibilities in the High-Food-Drain Economies," American Journal of Agricultural Economics, Vol. 50, No. 5, December 1968, pp. 1273-82, for a brief historical review. During this same period there were numerous, localized famines, some of considerable magnitude. These were generally considered to be isolated, transitory events and did not influence global views about the growth of food supplies relative to the growth of the demand for food.

continued to grow at rapid and predictable rates in the industrialized countries. However, the sudden emergence of the USSR in 1972 as a massive purchaser of grain was not predictable. Soviet grain purchases placed great stress on existing grain supplies and reduced reserve stocks to extremely low levels "setting off the greatest price boom, first in grains and then in animal products, in modern times."[3/]

As Cochrane states:

> The general surplus condition in the grains which existed in 1970 was gone by the summer of 1972. Depending upon the point of view, the world was, in June 1972: (a) in an economic balance with regard to grain production and utilization; or (b) teetering on a razor's edge with respect to surplus or shortage, feast or famine.[4/]

The "economic balance" or "razor's edge" in grains has prevailed well into 1975 and is likely to continue in 1976. Poor weather in various places, including the United States in 1974, has prevented world grain production from increasing faster than demand and either reducing prices or allowing grain stocks to be rebuilt in any significant amount.

In addition, the costs of agricultural inputs have risen significantly. The rise in input prices has been due partly to the sharp rise in petroleum products, which sharply escalated the price of fuel and nitrogen fertilizers, and partly to inflation, which has been widespread.

The price boom in agricultural commodities in the early 1970's

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[3/] Willard W. Cochrane, Feast or Famine: The Uncertain World of Food and Agriculture and Its Policy Implications for the United States, National Planning Association, Washington, D. C., February 1974, p. 2. This reference also contains an excellent summary of the numerous specific forces that gave rise to the price boom of 1972.

[4/] Cochrane, ibid., p. 2.

represented a substantial increase in real prices. There are powerful forces at work to further increase the nominal prices of food in world markets. The demand for food will continue to grow as a result of increasing population and rising per capita income. Continued general inflation and increases in prices of key agricultural inputs, such as for fuel and fertilizer, will work towards increasing production costs and product prices. Bringing additional land into production can be done profitably only at higher product prices because of the substantial investments required and the lower productivity of the additional land. It would appear that only an accelerated rate of technological advance would dampen increases in nominal prices and ensure that the real price of food does not continue to rise.[5/]

It is useful to consider some of the basic, long-term changes that have taken place on the world food and agricultural scene as they relate to the world food situation.

One important change has been the humanitarian revolution, largely a post-World War II development, which resulted in large groups of people feeling some obligation for the welfare of other peoples. As a minimum, starvation on a large scale has become morally intolerable. Thus, we observe the fairly new phenomenon that people who face starvation because of acts of nature such as drought, earthquakes, pests, etc., and because of acts of man against man, such as war, have a rightful claim on the world's food supplies. Droughts, such as occurred in South Asia in

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[5/] This assessment assumes that climatic conditions remain normal. If, as some climatologists are predicting, there is a rapid deterioration in climatic conditions, food production could be adversely affected and food prices could soar.

1965/66, 1966/67, and 1972/73; the long drought in Sub-Sahara Africa; and wars, in places like Nigeria and Bangladesh, create demands upon world food supplies and exert significant upward pressures on food prices. The days are gone when several million Bengalis could die of starvation, as in the famine of 1943, without causing a ripple in the large world food supply and price picture. Furthermore, this universal humanitarian revolution has succeeded, as it should, in divorcing food needs from effective purchasing power. In this respect, there is an element of worldwide food distribution which is relatively insensitive to food prices and national purchasing power as the mechanisms for allocating food supplies.

A second change in the world food picture has been the rapid acceleration in rates of population growth, especially in the developing countries, which occurred in the 1950's and 1960's. Annual rates of population growth in the range of 2.5 to 3.5 percent are now commonplace. The increased rates of population growth reflect substantial declines in death rates brought about by successful, large-scale public health programs, and improved systems of food distribution.

The rapid growth of incomes in the developed countries and in an increasing number of less developed countries has resulted in a rapid expansion of (a) demand for agricultural products and (b) agricultural trade. This is another important dimension of the world food situation. The rapid rates of growth in incomes are in part due to a growing rationalization of trade and production policies and are not, therefore, a completely exogenous factor in explaining the growth in world agricultural trade. Even though growth in trade based on growth of income and

population, particularly in the developed countries, is predictable with a reasonable degree of accuracy, the results can, nevertheless, be spectacular. For example, U.S. agricultural exports to Japan increased from $1.2 billion in 1969 to $3.5 billion in 1974.[6/]

A fourth change is the recent slowing of the rate of growth of agricultural output in a number of less developed countries. During the late 1960's food production in a number of developing countries received a significant fillip from the introduction of the new high-yielding varieties of wheat and rice. The adoption of these new varieties was especially rapid in those areas where there were adequate water supplies, abundant fertilizer, and favorable prices. Once this production potential was exploited, the rate of adoption of the new varieties slowed.[7/] Their further spread will be conditioned by the rates at which (a) the quantity and quality of irrigation can be expanded, (b) the new varieties can be adapted to local conditions, (c) fertilizer supplies can be increased, and (d) product-input price relations can be improved.

Finally, an important, but not fully appreciated, change in the world food picture is the decision by a large number of countries to rely on world markets for their food supplies beyond what can be explained merely by growth in income and population. These are decisions which move countries, sometimes suddenly, away from autarchic national

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[6/] Foreign Agricultural Trade of the United States, Economic Research Service, U.S. Department of Agriculture, Washington, D. C., June 1975.

[7/] Dana G. Dalrymple, Development and Spread of High-Yielding Varieties of Wheat and Rice in the Less Developed Nations, Foreign Agricultural Economic Report No. 95, Economic Research Service, U.S. Department of Agriculture, Washington, D. C., July 1974.

agricultural policies toward greater reliance on international trade. It is not always clear whether these moves are for rational economic reasons which recognize the benefits of trade, or for domestic and international political reasons. But even though we may not be sure of the motives, the impact on the world food situation is clear and sometimes very pronounced. The entry in a big way of the Soviet Union into world grain markets in 1972 illustrates this point. Unlike early 1963, when the Soviet Union adjusted to a precipitous drop in domestic grain production by severe belt-tightening which involved liquidation of large numbers of livestock, the Soviet Union decided in 1972 to maintain domestic levels of food consumption through massive grain imports. This momentous decision may have been due to a basic decision to liberalize trade policies and allow some semblance of comparative advantage to work. But the decision may have also been motivated by the political consideration that food shortages helped to topple Nikita Khrushchev in the USSR and Wladyslaw Gomulka in Poland. Regardless of motive, the impact of the Soviets' action on the world food situation is clear. And, large Soviet grain purchases in 1975 to compensate for a poor production at home is an indication that the new Soviet food and agricultural policy continues to operate. One can find numerous other, though less dramatic, instances where the decisions of countries to follow less autarchic agricultural and general economic policies has had a sudden impact on the demand for food in world markets.[8/]

Each of these changes in the world food scene has resulted in a greater

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[8/] For example, the decisions of both Taiwan and Korea to increase livestock production on the basis of a modern feed industry led to rapid and historically discontinuous increases in feed grain imports during the 1960's and 1970's.

interdependence among nations with respect to food supplies and food prices. It has become increasingly difficult for countries to insulate their food positions from events in other countries.

Some major changes in the demand for and supply of food occur on a systematic basis and can be predicted with a considerable degree of certainty. The systematic changes are generally not overly disruptive of the world food situation. Among the main forces producing regular growth are income and population on the demand side and sustained productivity growth on the supply side. But many other large changes--those resulting from national calamities or sudden changes in economic policies--are unpredictable and can cause serious dislocation in the world picture. Thus, the benefits to be derived from expanded and, hopefully, more economically rational trade can be accompanied by greater uncertainties concerning supply, demand, and price of food in world markets unless random fluctuations are offsetting or reserve stocks of commodities exist to cushion the price effects of unpredicted changes in supply or demand.

Until quite recently, variations in world food prices have been kept within reasonable limits. This has been due in large measure to the ability of the United States to expand agricultural production and to maintain large food reserves in the 1950's and 1960's. These reserves were in the form of grain stocks or idle production capacity. The ability to draw on these stocks and reserve production capacity enabled the United States to meet unpredictable food shortages, such as those caused by the severe droughts in South Asia in 1965/66 and 1966/67, and to maintain a reasonable degree of price stability in domestic and world markets.

In summary, the current world food situation, conditioned by economic and demographic forces; national and international food, agricultural, and

trade policies; and natural forces, namely unfavorable weather, can be characterized in the following way:

(1) The demand for food continues to increase at a fairly rapid pace primarily because of growth of incomes in the industrial and more rapidly developing less developed countries and continued, rapid rates of population growth in most less developed countries.

(2) Food production has been unstable and has not kept pace with the growth in demand because of unfavorable weather conditions[9/] in various parts of the world and uneven rates of technological advance.

(3) Reserve stocks of food (grains) have been depleted and currently there does not exist a buffer against instability in production.

(4) Major areas of the world are more dependent than ever on world markets as a means of achieving their food and agricultural policy goals.

(5) Nominal world food prices are high and unstable, by historical standards, and there is a distinct possibility that nominal and real food prices might continue to rise for at least several years.

(6) For developed countries, high and unstable food prices have contributed to inflation and instability in the overall level of prices.

(7) For less developed countries that are net food exporters, high food prices have made a positive contribution to foreign exchange earnings and have helped to offset increased prices of

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[9/] Examples in 1975 are the USSR, Western Europe, and substantial parts of the corn belt of the United States.

nonagricultural imports, particularly petroleum.

(8) In the case of less developed countries that are net food importers, the current food situation has aggravated seriously the shortage of foreign exchange and has pushed up domestic food prices as well. These developments have led to deterioration in the average diets in many of the poorer nations.

Interrelations among Domestic Agricultural Trade and Development Policies

A distinctive feature of food and agricultural policies around the world is the close interrelationship between domestic and trade policies. In fact, mechanisms for interfering with the flow of agricultural products in international trade are usually an integral part of domestic agricultural policies and programs. And, these domestic efforts are designed to bring about substantial deviations between domestic and international prices of agricultural products. These price distortions bring about misallocations of resources that contribute either positively or negatively to the total world supply of food and its allocation among countries.

It is a legitimate activity of governments to implement social and economic policies for the benefit of either agricultural producers or consumers. Political pressures to do so have been historically strong and likely will continue to be. It is naive to expect countries to follow a *laissez faire* policy with respect to food and agriculture. What can be hoped for is that countries will choose mechanisms for implementing their policies that lead to improvement rather than deterioration in the global food situation.

Most of the trade mechanisms used to implement domestic agricultural

policies can be classified as nontariff barriers--quotas, export subsidies, variable levies, sanitary regulations, etc. The various rounds of multilateral trade negotiations carried out under the General Agreement on Tariffs and Trade (GATT) have been singularly unsuccessful in liberalizing agricultural trade because the GATT was not designed to negotiate nontariff barriers. To negotiate such barriers is tantamount to negotiating domestic agricultural policies, something that most countries have been unwilling to do. However, serious consideration is being given in GATT and in other international organizations to the development of rules for dealing with nontariff barriers and the liberalization of agricultural trade without requiring the abandonment of national food and agricultural policies.

In general terms, the objectives of domestic agricultural policies may be either to support farm prices and incomes above levels that would prevail under free market conditions, or to maintain consumer prices of food and fiber below free market levels. Most market economies of the world follow one basic approach or the other, with support to producers found predominantly in the developed countries and support to nonfarm consumers in less developed countries.

In the industrialized countries the reasons for supporting agricultural prices are basically twofold. One is to eliminate wide fluctuations in prices which can result from relatively small shifts in very inelastic supply and demand schedules for agricultural products. Another reason is to deal with the low income problem in agriculture reflected by numerous small producers with inadequate resources to generate earnings from farming comparable to earnings in the nonfarm sector. (Some countries, such as Norway and Sweden, have explicit policies of maintaining a certain proportion of their population in agriculture or in certain rural areas.) The

tendency toward low incomes stems from the inability of resources to shift rapidly enough from agriculture to other sectors of the economy. The income problem is exacerbated when the agricultural sector is experiencing rapid technological change, as in the United States during the 1950's and 1960's.

A typical response to the problem of low and unstable prices and incomes is for governments to implement price support programs for major commodities that maintain prices to farmers and consumers above equilibrium levels. This was done in the United States in the 1950's and currently prevails in the European Community under its Common Agricultural Policy. For a net exporting country it means the use of export subsidies to be competitive in world markets. Even these subsidies (and substantial food aid) did not prevent the accumulation of sizable surpluses. For importers like the European Community it means protective barriers against imports like the variable levy system (and export subsidies when exports are called for). The combined effect of high price supports in both importing and exporting countries is to increase domestic levels of production, reduce consumption, and depress world market prices. The latter effect tends to reduce production in countries that compete at world prices; e.g., Canada and Australia in the case of grains.

Less severe are agricultural policies which provide support to producers but allow market prices to seek world levels. Consumption is not reduced as a result of maintaining artificially high prices to consumers. Production may or may not be stimulated, depending on whether the support to producers is provided by price supports or by income payments unrelated to production. The former system was used by the United Kingdom prior to

joining the European Community and the latter by the United States since the mid-1960's.

Experience has demonstrated that high price supports will not in and of themselves solve the problem of low incomes in agriculture. The income problem will have to be dealt with by a combination of direct welfare measures, assistance for resource adjustment, and expanded opportunities for nonfarm employment. The disenchantment with the farm income maintenance characteristics of price support programs led the United States away from them in the 1960's.[10/] Proposals have also been made for the European Community to find ways other than high price supports for dealing with the problem of low incomes in agriculture,[11/] although as yet no significant moves have been made in this direction.

The situation in many developing countries is quite different from what one finds in industrialized nations. There is a strong desire in many developing countries to keep the price of food to urban consumers below world market levels. To the extent that this is accomplished, producer prices are also depressed. This has been done with a variety of mechanisms. Food exporting countries have used export tax mechanisms. Examples where domestic prices to both consumers and producers have been depressed below world market levels, and at times substantially below, are rice in Thailand and wheat and corn in Argentina. Food importing

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[10/] U.S. Agriculture in a World Context: Policies and Approaches for the Next Decade, The Atlantic Council of the United States, Washington, D. C., July 24, 1973.

[11/] See A Future for European Agriculture, The Atlantic Papers No. 4, The Atlantic Institute, Paris, 1970.

countries have used imports, which were sold at subsidized prices in domestic markets, to keep domestic consumer and producer prices low. The direct financial costs of such policies depend on the level of imports and their unit costs. Food aid programs, such as P.L. 480, historically provided developing countries with a cheap source of imports, and consequently, the budgetary costs of maintaining low domestic food prices were not high. The budgetary cost can be substantial when imports are obtained at world market prices and the domestic subsidy is large. There are a great many countries which have had cheap food policies. A few examples are Indonesia, India, and Pakistan.

The general effect of low food price policies is to depress returns to and discourage investments in agriculture, thus depressing the rate of growth in output. At the same time, consumption is stimulated.

Food and Agriculture Policy Perspective

We now turn to a discussion of specific sets of policies which bear directly on the current world food situation. The policy sets that will be discussed are: (1) Policies that lead to underinvestment in technological and resource development in many less developed countries; (2) trade and price policies in less developed countries that discourage the adoption of known technologies and the use of modern inputs; (3) protectionistic policies in the developed countries that depress world market prices and limit export markets for less developed countries; (4) policies that contribute to the instability of world prices; and (5) national and international development programs designed to increase food production in developing countries.

Underinvestment in Agriculture

It is no great secret that many countries, particularly the less developed ones, do not assign high priority to agricultural development. This is true even when the bulk of their gross domestic product comes from agriculture and a high proportion of the population are employed in agriculture. To the extent that any development is emphasized, it is generally industrial development that is emphasized and not agricultural development.

In a study of 26 selected developing countries[12/] for the period 1948-63, only 12 had compound rates of growth in agricultural output of 4 percent a year or more. Of the remaining 14 countries, 5 had rates of growth of agricultural output lower than those for population. The study concludes that:

> Rapid rates of increase in crop output have not happened as a consequence of normal economic and social processes in societies organized on a laissez-faire basis. Rather, they have been undergirded by aggressive group action, generally national in scope, directed specifically to improving agricultural production conditions. (p. v)

India is an example of a country that has not given a great deal of emphasis to agricultural development in relation to the size of the agricultural sector. It has had an uneven and less than spectacular long-term rate of growth in agricultural output. Agriculture accounts for about 50 percent of the net domestic product, and 80 percent of the total population lives in rural areas and depends heavily on agriculture for

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12/ Changes in Agriculture in 26 Developing Countries, 1948-63, Foreign Agricultural Economic Report No. 27, Economic Research Service, U.S. Department of Agriculture, Washington, D. C., November 1965.

their livelihood. Yet as the data in table 1 indicate, the percent of total investments going to agriculture has declined from 25 percent in the First Five Year Plan to 16.1 percent in the Fourth Five Year Plan, while the proportion of investment going to large scale industry, power, and mining went from 23 percent to 39.2 percent. And, these trends do not appear to be reversing in the Fifth Five Year Plan currently being implemented. While these data do not prove a lack of sufficient commitment to agricultural development in India, they certainly seem to indicate it. A similar story can be told for all too many other developing countries.

Behind the overall picture of a relative lack of interest in agricultural development are numerous details. Two very important components of more rapid growth in agricultural output are the development of land and water resources and the development of new technology. With the exception of countries that have been able to exploit large amounts of unused land, rates of growth in agricultural output are closely related to rates of resource development and the capacity to generate new technology. (Of course, other aspects, such as infrastructure markets, credit, and price policies, are also important.) In a comprehensive study of agriculture in Asia,[13/] these two areas receive high priority. Countries whose progress in agricultural development has been rapid, such as Japan, Korea, Taiwan, Israel, etc., have placed heavy emphasis on land and water resource development and on technological change.

[13/] Asian Agricultural Survey, Asian Development Bank, Manila, Philippines, 1969. For an excellent discussion of the importance of new technology see Yujiro Hayami and Vernon W. Ruttan, Agricultural Development: An International Perspective (Baltimore: The Johns Hopkins Press, 1971).

Table 1. Distribution of Net Investment among Various Sectors, by Development Plan, India

Five year plan period	Agriculture, including irrigation		Big industry including power and mining		Other small industry		Transportation and communication		Other	
	Rs. Crores*	Percent	Rs. Crores	Percent	Rs. Crores	Percent	Rs. Crores	Percent	Rs. Crores	Percent
First plan	875	25.00	805	23.00	175	5.00	775	22.14	870	24.86
Second plan	1180	19.03	1810	29.19	270	4.35	1360	21.94	1580	25.48
Third plan	2110	20.29	3632	34.92	425	4.09	1736	16.69	2497	24.01
Fourth plan	3439	16.11	8366	39.19	550	2.58	3640	17.05	5355	25.08

*1 crore = 10,000,000

Source: Wilfred Malenbaum, Modern India's Economy (Columbus, Ohio: Charles E. Merrill Publishing Co., 1971), p. 62.

Trade and Price Policies

Trade and price policies that shift the terms of trade against the agricultural sector discourage the use of known technology and modern production inputs as well as retard longer-term investments in resource and technological development. Policies repressive to the agricultural sector are widespread among developing countries. Little, Scitorsky, and Scott conclude, "the bias has been excessive: that in several of the countries [studied] the effect on agricultural production has been damaging, and that agricultural exports earned less than they should have done in most of the countries."[14/]

Several studies deal with the strong effect that trade and price policies have on the adoption of new technology and the use of modern inputs. The results of some of these are worth summarizing.

Ardila, Hertford, Rocha, and Trujillo[15/] concluded that the slow rate of adoption of improved varieties of wheat in Colombia was the result of low domestic prices resulting from substantial imports of wheat under the P.L. 480 program. De Janvry's study[16/] of the use of fertilizer in cereal production in Argentina concludes that high fertilizer prices resulting

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[14/] Ian Little, Tibor Scitorsky, and Maurice Scott, Industry and Trade in Some Developing Countries (London: Oxford University Press, 1970), p. 178.

[15/] Jorge Ardila, Reed Hertford, Andres Rocha, and Carlos Trujillo, Returns to Agricultural Research in Colombia, Paper presented at the Conference on Resource Allocation and Productivity in International Agricultural Research, Airlie House, Virginia, January 26-29, 1975.

[16/] Alain De Janvry, "Optimal Levels of Fertilization Under Risk: The Potential for Corn and Wheat Fertilization Under Alternative Price Policies in Argentina," American Journal of Agricultural Economics, Vol. 54, No. 1, February 1972, pp. 1-10.

from import tariffs and restrictions that protect a monopolistic and technologically obsolete fertilizer industry greatly inhibit its use. The development of new technologies to increase grain yields based on fertilizer are also retarded. He concludes that Argentina "is losing its international comparative advantages which have been resource based by not participating in the Green Revolution when it could in fact be one of the greatest beneficiaries." A final example is rice production in Thailand where the combination of an export tax on rice and a highly protected domestic fertilizer industry has made expanded use of fertilizer unprofitable and resulted in a lower level of rice production and exports than would have prevailed under product and factor prices approaching international levels. Welsch and Tongpan concluded in 1971 that changes in rice and fertilizer prices are required if the new varieties of rice are to be adopted and fertilizer use expanded significantly.[17/] These examples should serve to illustrate that unfavorable trade and price policies in many less developed countries retard growth in agricultural production and contribute to a world food situation characterized by strong demand relative to supply and high prices.

Protectionist Policies in Developed Countries

It is well known that most of the developed countries have maintained domestic prices above world levels in their efforts to achieve

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[17/] Delane E. Welsch and Sopin Tongpan, Background to the Introduction of High Yielding Varieties of Rice in Thailand, Staff Paper P72-6, Department of Agricultural and Applied Economics, University of Minnesota, St. Paul, Minnesota, February 1972.

price and income protection for producers.[18/] It is also well known that these protective agricultural policies cost the countries involved substantial amounts because consumers must pay high prices for food, excessive resources are retained in agricultural production, and there may be substantial drains on national treasuries. The main concern of this paper is with the relationship between policies and the world food situation. It is within this context that we want to look at the protectionistic agricultural policies of the developed countries.

One effect of these protectionistic policies is to depress world market prices. Importing countries reduce their levels of imports by maintaining excess resources in their agricultures. Support to agriculture may be so excessive that it can result in importing nations becoming net exporters of some commodities, usually involving substantial export subsidy costs. The EEC is a case in point. It is nearly self-sufficient in sugar production; at times it has had substantial surpluses of dairy products which it has disposed on world markets with sizable export subsidies; and it has reduced its net imports of total grains (from 22.9 million metric tons in 1965/66 to 13.3 million metric tons in 1973/74)[19/]

[18/] For more detailed discussions of this point see Agricultural Policies in 1966: Europe, North America, Japan, Organization for Economic Cooperation and Development, Paris, 1967; D. Gale Johnson, World Agriculture in Disarray (London: Fontana, 1973); D. Gale Johnson and John A. Schnittker, eds., U.S. Agriculture in a World Context: Policies and Approaches for the Next Decade (New York: Praeger Publishers, 1974); A Future for European Agriculture, The Atlantic Papers No. 4, The Atlantic Institute, Paris, 1970; and John S. Marsh, European Agriculture in an Uncertain World, The Atlantic Institute, Paris, 1975.

[19/] Data for the EEC(9). Foreign Agriculture Circular, FG10-74, Foreign Agricultural Service, U.S. Department of Agriculture, Washington, D.C., April 1974.

in spite of rising domestic consumption, with exports of some grains, such as wheat, being substantial in some years.

The disparity between agricultural prices in the EEC and world markets is illustrated in table 2 for 1966/67. These data are reflective of market conditions which prevailed throughout the 1960's and early 1970's; i.e., prior to the surge in world agricultural prices since 1972. The extent to which EEC prices are above world prices ranges from 15 percent for olive oil to 187 percent for sugar.

But the EEC countries are not the only ones that maintain high agricultural prices. From the data on producer prices for selected agricultural products presented in table 3 one can get an idea of how widespread is the support of agricultural prices and the wide range in price levels. The producer price of wheat in 1968/69 ranged from less than U.S. $4 per 100 kg. in Argentina to over $14 in Finland, Japan, Norway, and Switzerland. A similar pattern holds for the other commodities as well.

Among the developed countries, reduced imports by net importing countries placed downward pressure on the demand for exports. This meant that prices received by producers and production were depressed in those developed exporting countries that did not insulate their domestic markets from the world market, e.g., Canada and Australia in the case of grains. Those developed exporters that did insulate domestic markets, such as the United States, were faced with an accumulation of surpluses or the need to purposely withhold resources, mainly land, from production. There have been two "safety valves" for the excess production in the developed, exporting countries; one was subsidized food consumption for the domestic poor and the other was food aid to the less developed countries.

Table 2. European Economic Community and World Prices for Agricultural Commodities, 1966/67

Commodity	EEC price	World price	EEC price as a percent of world price
	U.S. $ per ton		Percent
Soft wheat	107.30	57.90	185
Durum wheat	126.64	80.70	157
Corn and sorghum	90.10	56.30	160
Barley	80.28	56.70	142
Rye	93.75	57.48	163
Rice	179.60	153.40	117
Sugar	223.50	78.00	287
Eggs	511.40	387.50	132
Poultry	723.30	550.00	132
Pork	567.10	387.10	146
Beef and veal	680.00	388.20	175
Butter	1874.40	708.50	265
Non-fat dry milk	412.48	165.34	249
Whole dry milk	863.10	443.12	195
Cheese	865.00	632.50	137
Olive oil	806.20	698.40	115

Source: G. R. Kruer and B. Bernston, "Cost of the Common Agricultural Policy of the European Economic Community," Foreign Agricultural Trade of the United States, U.S. Department of Agriculture, Washington, D. C., 1969.

Table 3. Producer Prices for Farm Products, 1968 or 1968/69
US $ per 100 kg.

	Wheat	Whole milk
$4 or less	Argentina	-
4-6	Canada	-
6-8	Denmark, U.K., U.S.A.	Denmark, Ireland, Australia
8-10	Ireland, Greece, Sweden, Austria, Spain, Turkey, France, Netherlands	U.K., Austria, France, Belgium, Portugal, Spain, Netherlands
10-12	Italy, Portugal, USSR	W. Germany, Italy, Sweden, Switzerland, U.S.A.
12-14	-	Norway
Over 14	Finland, Japan, Norway, Switzerland	USSR
	Rice (Paddy)	
$6 or less	Thailand	
6-8	Egypt	
8-10		
10-12	Ceylon, U.S.A.	
30 or more	Japan	
	Beef cattle	**Hogs**
$30 or less	Argentina	
30-40	Denmark, Yugoslavia	Argentina
40-50	Ireland, U.K., Canada	U.S.A., Canada, U.K., Denmark, Ireland
50-60	U.S.A., Norway, Spain	Austria, Spain
60-70	Belgium, France, W. Germany, Sweden, Switzerland	W. Germany, Netherlands, Italy, Norway, Greece, Sweden
70-80	Italy	Belgium, Switzerland, France
80-130	-	-
130 or more	USSR	USSR

(continued)

Table 3--continued

Butter	
$100 or less	Australia, Denmark, U.K.
100-120	Ireland
120-140	Sweden, Canada
140-160	U.S.A., Netherlands
160-180	W. Germany
180-200	Belgium
200-280	
280 or more	Switzerland

Source: Compiled by D. Gale Johnson, World Agriculture in Disarray (London: Fontana, 1973), pp. 56-57.

The depressing influence on world market prices of protectionistic agricultural policies in the developed countries has had serious repercussions for the less developed countries, all leading, in general, to reduced incentives to develop agriculture and increase agricultural output at faster rates.[20/] Those developing countries bent on keeping domestic consumer prices low were able to do so as a result of relatively low world prices and a ready supply of food aid. In the process, producer prices were also kept low and incentives to increase production were weakened by varying degrees.[21/] The situation was further compounded in those countries where investments in agricultural development were

[20/] For a detailed discussion of the effects of U.S. agricultural policies on less developed countries see Martin E. Abel, "The Developing Countries and U.S. Agriculture," in D. Gale Johnson and John A. Schnittker eds., U.S. Agriculture in World Context: Policies and Approaches for the Next Decade (New York: Praeger Publishers, 1974), pp. 138-181.

[21/] Some of the more pertinent literature on this subject includes T. W. Schultz, "Value of U.S. Farm Surpluses to Underdeveloped Countries," Journal of Farm Economics, Vol. XLII, No. 5, December 1960, pp. 1019-1030; S. R. Sen, "Impact and Implications of Foreign Surplus Disposal on Underdeveloped Economies--The Indian Perspective," Journal of Farm Economics, Vol. XLII, No. 5, December 1960, pp. 1031-1042; Franklin M. Fischer, "A Theoretical Analysis of the Impact of Food Surplus Disposal on Agricultural Production in Recipient Countries," Journal of Farm Economics, Vol. 45, No. 4, November 1963, pp. 863-875; Jitendar S. Mann, "The Impact of Public Law 480 Imports on Prices and Domestic Supply of Cereals in India," Journal of Farm Economics, Vol. 49, No. 1, Part I, February 1967, pp. 131-146; Gary L. Seevers, "An Evaluation of the Disincentive Effect Caused by P.L. 480 Shipments," American Journal of Agricultural Economics, Vol. 50, No. 3, August 1968, pp. 630-642; Per Pinstrup-Anderson and Luther G. Tweeten, "The Value, Cost, and Efficiency of American Food Aid," American Journal of Agricultural Economics, Vol. 53, No. 3, August 1971, pp. 431-440; Peter Greenston, The Food for Peace Program and Brazil: Valuation and the Effects of the Commodity Inflow, Ph.D. Dissertation, Dept. of Economics, University of Minnesota, 1972; and Leonard Dudley and Roger J. Sandilands, "The Side Effects of Foreign Aid: The Case of Public Law 480 Wheat in Colombia," Economic Development and Cultural Change, Vol. 23, No. 2, January 1975, pp. 325-336.

neglected because of the perception that there was an abundant supply of food at low prices available in world markets.

Those developed countries that depend heavily on agricultural exports for foreign exchange and development resources were also penalized. Incentives to increase agricultural output and exports were weak, given the levels of world prices and the limited export opportunities. And, the foreign exchange earnings from agricultural exports were also depressed, thereby limiting the resources available to finance development.

As already mentioned, some developing countries made a relatively bad situation worse by imposing their own domestic policies which worked against agricultural development. On the other hand, some other countries did well in spite of world market conditions by emphasizing agricultural development and, in some cases, emphasizing production of those agricultural commodities for which world demand has been growing rapidly, e.g., fruits, vegetables, and beef.

Policies Contributing to Instability of World Prices

There are basically three ways in which policies have contributed to instability in world prices of agricultural products. They have reduced the price elasticity of import demand or export supply relations, reduced stocks of agricultural products, and changed suddenly the reliance of some countries on world markets enough to affect the behavior of world market prices. We are concerned with short-term movements in prices and will not consider policies which result in longer-term secular or cyclical movements in prices.

The way in which some countries have intervened in agricultural

trade has reduced the price elasticity of import demand and increased price variability resulting from a given change in supplies on world markets. Much of the intervention has been through the use of a variety of non-tariff barriers that tend to make the import demand curve more price inelastic. In the case of quotas or minimum import price schemes, such as the variable levy system of the EEC, the import demand curve is perfectly price inelastic over the range of prices (usually wide) for which these mechanisms are operative.[22/] The increased price inelasticity of import demand relations will add to instability in world prices of commodities unless there are compensating increases in the price elasticity of the supply of exports.

The existence of substantial stocks of agricultural commodities can help stabilize prices if they are used to achieve that end. The Nixon-Ford administrations have worked diligently to reduce U.S. government-owned stocks of major commodities, notably grains. There has not been a compensatory increase in privately held stocks. Since 1972 there have been insufficient stocks to cushion the price swings that have resulted from variations in U.S. production and foreign demand.

Policies to reestablish reserve stocks of grain were promoted at the World Food Conference held in November 1974. Little movement has occurred in this area because of disagreements among countries as to who should carry these stocks and how they are to be managed.

Another source of instability is the sudden shifts in food and agricultural policies of countries that are large enough to significantly

[22/] Martin E. Abel, "Price Discrimination in the World Trade of Agricultural Commodities," Journal of Farm Economics, Vol. 48, No. 2, May 1966, pp. 194-208.

affect world prices by their actions. The most recent and notable example of such a shift was the change in the food and agricultural policies of the USSR which thrust them upon the world market in a large and unpredictable way. It is not the policy change per se, but the suddenness of it which is important. The formation of a common agricultural policy by the EEC represented a major agricultural policy change for a large trading bloc. However, this change occurred gradually and in a predictable manner Other countries had time to adjust to the EEC actions. This was certainly not the case with the Soviet Union in 1972.

Development Assistance Programs

Since World War II the development assistance programs of national governments, international agencies, and private organizations have had a major impact on the world food and population scene. These programs have been directed at improving living conditions in the less developed countries by promoting economic growth, increasing agricultural output, reducing death rates, reducing rates of population growth, and improving the distribution of income and wealth.

The numerous development assistance efforts have had uneven rates of success in achieving all of these objectives in all developing countries. Some countries were either unreceptive to outside assistance or used it inefficiently. At times the development assistance programs of some countries and some international organizations, aided and abetted by national policies in recipient countries, were directed toward activities that contributed little to improving the food situation in developing countries; e.g., military assistance, heavy emphasis on industrialization and the neglect of agricultural development, and rapid reduction of

death rates, which resulted in a population explosion. And, development assistance programs did not always recognize the complexity of the problems which they were trying to solve.

Few would deny, however, that the development assistance programs of the last 30 years were a grand and noble effort that improved the lives of countless millions of people in the less developed world. Per capita food supplies have been increased through the development and adoption of better farming practices; increasing the yield potential of crops and livestock; expanding irrigated area and reclaiming land; increasing the availability of modern agricultural inputs; and bringing more and more people into the process of agricultural modernization through extension efforts, development of transportation and marketing facilities, etc. Health conditions have been improved through the reduction or elimination of ravaging diseases and increasing the availability of medical services. Education levels have been increased substantially, particularly with respect to skills required for development. Institutional capacity has been built so that many countries are better able to deal with their development problems. And, we have learned a great deal about the complexity of the issues involved and how to deal with them; e.g., we have learned that agricultural technology can not be effectively transferred from developed to developing countries but must be developed to fit the ecological, factor, and cultural endowments of the developing countries; that land reform is easier to write about than to actually achieve; that problems of income distribution and poverty are strongly rooted in political and cultural characteristics of nations; that changing economic policies has its

opponents as well as its proponents; and that changing these and other aspects of societies and economies is a slow, difficult process requiring wise and sustained efforts.

The capacity to assist developing countries is greater than it has ever been. The collective talents and resources involved in national development assistance programs, the World Bank, the regional development banks, the various United Nations development agencies, and private organizations is substantial. And, increasingly, the priorities of these various organizations is shifting toward solving problems of food, agriculture, population, and income distribution. These efforts can yield substantial improvements in the world food situation if they are sustained, if developing countries cooperate in realigning their policies to improve the efficiency and productivity of development assistance resources, and if other countries refrain from following policies that lead to immiseration in the developing regions of the world--such as unduly high prices of petroleum and overly restrictive trade practices.

The Net Effect of Policies

What can we say about the net effect on the current world food situation of all the policies discussed? It is doubtful that one can make precise quantitative estimates of the effect of policies on the level of world food production, its distribution among and within nations, and the stability of production, prices, and trade flows. However, some judgments can be made about the direction of the effects of different policies on the world food situation.

The first judgment is that a great many developing countries are not producing nearly as much food as they could. Partly this is due to

their own policies, some which lead to a neglect of investments in the agricultural sector--research, extension, infrastructure, development of soil and water resources, etc., and some which shift the terms of trade against the agricultural sector. Consequently, known ways to increase productivity and output are not adopted and there is little incentive to develop new sources of productivity growth. It is also true that the restrictive trade policies of the developed countries create distortions in world market prices which generally reduce prices of agricultural products (and other primary and labor-intensive manufactured products as well) and the incentives to increase output in the developing countries. There are a sufficient number of developing countries representing a wide range of resource endowments that have emphasized agricultural development and have made notable strides in increasing agricultural output to support our judgment that more can be done to increase agricultural production in other developing countries.

It is less clear what the net effect on world food supplies would be if the developed countries followed agricultural policies that resulted in less distortion of world market prices. Movement of more of the developed countries toward policies that meet income and social objectives without maintaining excessive resources in agricultural production would undoubtedly lead to lower levels or rates of growth of production in many importing countries and to higher levels of production in many exporting countries. But it is not clear if "rationalization" of agricultural policies among the developed countries will lead to greater, less, or about the same level of total production among these countries or to lower, higher, or about the same levels of world market prices for various

commodities. We do not yet have an adequate empirical base for drawing unambiguous conclusions about the effects of agricultural policy liberalization in the developed countries.

Much could be done by the developed countries, and the less developed ones as well, to reduce short-term price instability in world markets. One step would be the establishment of reserves for major commodities, such as grains, managed in ways that maintain price fluctuations within certain bounds. The World Food Conference proposed establishment of an international reserve for grains. Many countries, especially the United States, are wary of international efforts. They fear that international reserves will be managed in ways contrary to national policy interests. An alternative might be for several of the major producing and consuming nations--U.S., Canada, Australia, Japan, EEC(9), USSR, and PRC--to maintain reserves and informally coordinate their management. This approach might circumvent some issues related to loss of national sovereignty.

Other steps that could be taken to lessen short-run price instability in world markets center on the redesign of national agricultural policies that increase the price elasticity of export supply and import demand. The price effects of short-term fluctuations in demand or supply would be shared by a larger number of countries and would be less concentrated on policy-restricted world markets.

Countries which engage in major changes in food and agricultural policies should be encouraged to do so on an orderly basis, giving markets and policies in other countries time to adjust in a nondisruptive fashion.

Finally, development assistance activities will have to be accelerated and focused more sharply on food, agriculture, population, and income distribution problems. Ways will have to be found to achieve

closer coordination between national development priorities and foreign development assistance efforts in order to improve the effectiveness of such assistance. The difficult and long-term nature of agricultural and economic development should be more widely recognized and incorporated into development assistance programs of national governments and international agencies.