"RUBBER OR RICE?" --

THE DILEMMA OF MANY DEVELOPING NATIONS

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Many developing nations, whose people suffer from hunger or malnourishment, are significant exporters of food or agricultural raw materials. Is this a ridiculous paradox, implying that there should be an immediate and substantial transfer of land, labor, and capital from the production of export commodities to food for domestic consumption? If your response to this question is an immediate and unqualified "yes", perhaps you fail to appreciate the complexity and implications of such a transfer. You may have also forgotten your morning cup of coffee, the banana in your child's lunch, or that chocolate candy which tempts your dietary resolve.

The purpose of this essay is to explore the "rubber" versus "rice" dilemma (exports versus food production for domestic consumption) faced by many needy nations. Before proceeding, we must alert you to the fact that is all too easy to make sweeping generalizations in discussing this issue. For example, less-developed countries (LDC's) are often lumped together into a single stereotype of land-poor and overpopulated. Clearly Brazil, the Sudan, and Thailand represent low-income countries which have the resource potential to both feed themselves adequately, and produce a significant quantity of agricultural products for export. There is not always a dichotomy, or even the need to choose between agricultural production for home use and the international market place. There is an extremely complex tapestry of social, economic, political, and environmental factors within a country which bear on the trade-off between production for export and for domestic consumption. In any discussion of this trade-off there is inevitably a tendency to be overly simplistic or superficial. We will provide concrete information and illustrative examples, in an attempt to reach meaningful conclusions about the issue of rubber versus rice.

I. The Case for Exports

Economic theory suggests that by specializing in the production and export of products in which it has a comparative advantage, and importing

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products in which it has a comparative disadvantage, a nation can maximize domestic consumption. What exactly does this bit of economic jargon mean? The theory is deceptively simple, and its message can all too easily be overlooked. Stripped and streamlined, it states that a country wishing to maximize its consumption of food does not necessarily have to maximize its domestic food production. For example, if available resources are such that comparative advantage lies in the production of rubber, it is possible for a country to increase its food consumption by specializing in rubber, selling it on the world market, and using the proceeds to purchase rice.

Britain's economic growth in the 19th century provides an excellent example of the principle of comparative advantage. In Britain there was a shortage of fertile farm land. Industrial products were manufactured and traded to feed a growing population. Today we do not think of the West German people as being hungry. Yet Germany has only about one third of an acre of agricultural land per capita, and imports over 40 percent of her food requirements. Among the developing nations in the 1970's, South Korea and Hong Kong have followed the comparative advantage technique by exporting light manufactured goods and importing foodstuffs. Such nations are using international trade to make more food available to their people than would be possible by home production.

Many low-income countries, lying within the tropics, have a comparative advantage in the production of such commodities as rubber, coffee, tea, cocoa, bananas, coconuts, and sugar cane. They may have a comparative disadvantage in the production of rice, wheat, corn, and meat. In this case, the diversion of acreage from rubber to rice might be counterproductive to their quest for an improved diet.

The gains from trade outlined above derive from a highly simplified, static theory of specialization and exchange. In reality, several dynamic forces may be set in motion by trade which promote and facilitate the entire process of economic development, as well as adding to the available food supply. Trade may widen the market, increasing the scope for division of labor and raising the general level of work skills. Technical innovation may be stimulated, and the exporting country may benefit from increased efficiency in the use of its productive resources. The development of large-scale agricultural activities for export may serve as a vehicle for capital formation. Improvements in labor efficiency in agriculture can release workers for labor intensive activities such as road building and light manufacturing.

Many low-income nations lack the domestic capacity to produce vital goods such as hydroelectric turbines, transportation equipment, crude oil, and irrigation pumps. In addition, they may have to import costly technical assistance if they wish to achieve a higher standard of living. How are these goods and services to be paid for? Currently LDC's obtain approximately 75 percent of their foreign exchange from exports of food and raw materials. In fiscal 1976 the developing nations, when taken as a group, were in debt by over $36 billion. To simply pay the interest on this debt requires over $2.0 billion of foreign exchange earnings annually.

At least in the short run, it seems imperative that LDC's continue to export agricultural products if they are to meet their development objectives and avoid further indebtedness.

A final reason why exports are important to developing countries is that in many cases they provide an important source of government revenue. For example, in recent years Malaysia has obtained over 30 percent of its total federal funding from export taxes. To curtail exports would seriously undermine the fiscal position of nations who are ill-equipped to levy and enforce alternative taxes on income or land.

II. The Case for Domestic Food Production

Many practical and knowledgeable readers will scan the above, nod, and then say "that may all be true when viewed from the alabaster pedestal of economic theory, but are these the really compelling issues in today's economic climate?" To many developing nations the export sector is viewed to be an offspring of colonialism. The international structure, which handles and prices products such as rubber, is seen as a vehicle of imperialism. Some nations, having recently shaken off the yoke of imperialism, view self-sufficiency in food production as their highest priority. They do not wish to be dependent upon the world market for their most fundamental need -- food, regardless of the compelling argument of comparative advantage. As the folds of the Bamboo Curtain part, they observe that Mainland China is feeding over 850 million people without heavy reliance upon trade. Is it not therefore reasonable to assume that food self-sufficiency is also within their grasp?

Leaders of developing nations view themselves as victims of intolerable uncertainty if they become deeply involved in the international market place. They feel that they are residual claimants on food moving in international trade, and can marshal strong evidence to support this position. The United States is the world's largest exporter of food. There is an imbalance in our international accounts which is only kept from monumental proportions by agricultural exports. We can ship to traditional cash customers in Europe or Japan, use food exports as an instrument of diplomacy in dealing with the Communist World, or provide food to an uncertain market of debt-burdened developing nations. Policymakers in low-income countries believe that they are on the low end of the totem pole when the United States makes decisions about food exports. They saw what happened in 1972 when the Soviet Union stormed into the world grain market for more than 21 million tons of grain. They watched the United States dispose of its grain reserves, and then embargo exports when domestic inflation became a major political issue.

Observers in the low-income nations need no sophisticated computer, only a piece of graph paper, to trace a path of world grain prices which resembles the Manhattan skyline. They complain loudly in international forums that uncertainty about price and availability of imported food, coupled with the experience of erratic export earnings, subjects them to an intolerable level of economic risk. A significant number of Asian

nations who have been purchasing grain in the world market have been hard hit by rising rice and wheat prices in recent years. It was felt that the Soviet Union-United States grain agreement of Ocotber 1975 would serve to dampen much of the unpredictability created by the "in-and-out" nature of Soviet grain purchases. Perhaps such confidence was premature, for it appears that the Soviet Union will import from 15 to 18 million tons of grain in the 1977-78 year. Confronted with the prospect of disgruntled wheat farmers and a significant build up in grain stocks, the U.S. government has apparently been willing to capitulate, allowing the Soviets to buy well above the 8 million ton upper limit specified by the contract. In addition, Mainland China is expected to purchase 9 million tons of wheat as a result of poor yields in the north-central region.

Part of the uncertainty facing LDC's is internally generated. Problems result from persistent oversupply of traded goods in the world market. Excessive planting of cocoa trees in the 1950's led to a long period of depressed cocoa prices in the 1960's. Uncertainty results from unexpected changes in the weather. Frost dealt a severe blow to Brazilian coffee exporters in 1975 and 1976. At the same time higher export prices were a bonanza for African coffee producers. Without organized control over production, marketing, and prices to ensure stability and market balance, the income of all exporters or individual exporting nations may fluctuate erratically. Due to practical and political problems, LDC attempts to introduce such control have not been particularly successful.

In meetings sponsored by the United Nations leaders of the Third World have pointed out that exports have typically been controlled by a small enclave within their economies. They have voiced the opinion that this is merely a vehicle for the commercial interests of industrial powers. Valuable foreign exchange has been used to further these interests, while the masses continue to live in abject poverty. They point out that while their countries have been significant exporters for decades, few of the promised developmental results have materialized. Marketing, transportation, and storage facilities still serve a handful of exporters, and provide little for the general public. The leaders of developing nations believe that they are price-takers, with the value of both their exports and imports being determined by industrial powers. They conclude that "what may apply in theory does not exist in reality."

The labor force in most developing nations has expanded rapidly as the result of soaring population growth over the past twenty years. If unemployment is ubiquitous, and production for export is an important source of national income, the export sector is not contributing its share of jobs. It is argued that if new jobs are to be created, income distribution must be improved. If domestic food production is increased, individual families may produce a salable surplus. This will provide income to purchase bicycles, farm tools, transistor radios, and other light manufactured goods. If these are produced domestically, it is expected that they will generate a considerable number of jobs. The LDC leadership feels that if exports are to play an important role in the development process, more emphasis should be given to labor-intensive light manufactured goods rather than agricultural products. This argument has

some merit, for in recent years exports of LDC manufactured goods have risen at an annual rate of nearly 8.0 percent. Although, it should be pointed out that if four nations: South Korea, Taiwan, Hong Kong and Brazil are excluded, the growth rate falls to 3.4 percent per annum.

Advocates of food self-sufficiency feel that when employment used to increase production is combined with the construction of farm-to-market roads, storage facilities, and schools, a very significant number of jobs can, and will be created. It is their judgment that a larger number of workers will be employed in the production of a million dollars worth of food for domestic consumption, than for a like value of goods entering overseas markets. It is recognized that some foreign exchange is necessary for vital imports; however, the most grinding problems are poverty and unemployment. If domestic food production generates more jobs and income than production for export, a shift to greater self-sufficiency would be a sensible development strategy. If increased domestic food production can be achieved with no decline in exports, then expansion may have the added benefit of saving valuable foreign exchange for essential imports.

III. Practical Considerations in the Choice between "Rubber and Rice"

In the first two sections of this paper, we have attempted to point out some of the theoretical and philosophical considerations in the rubber versus rice dilemma. In this section we will attempt to examine several practical questions which must be considered in weighing the decision. Pragmatic issues, bearing on both the ability of a nation to increase exports or switch productive assets towards increased food for home consumption, will be presented.

One of the most important requirements, in achieving expansion of either export or domestic agricultural production, is the provision of appropriate incentives for farmers. Unless they can see that a reasonable return for their efforts will result from an expansion of production, it is unlikely to be forthcoming. Although this may appear obvious, it is not always easy to achieve. In nearly all low-income nations the urban poor are a persistent and growing problem. Major cities contain festering slums, created by those who have migrated from the countryside in search of non-existent city jobs. In response to this problem, governments have frequently adopted a policy of holding down the price of food in urban areas, either directly through price controls and subsidies as in Egypt, or indirectly through concessionally priced sales such as those through "fair price" shops in India. Even though there are humanitarian and economic justifications for a cheap food policy, it does not stimulate increased domestic food production. Simultaneously maintaining a cheap food policy and adequate producer incentives, for example through production subsidies, may be very costly.

If a nation embarks on a concerted effort, either to promote exports or domestic food production, it may have to provide guaranteed producer prices. Tinkering with price relationships can be extremely hazardous. At one time the government of the Philippines introduced an attractive

price guarantee for rice. Farmers adjusted acreage in expectation of receiving this price, but at harvest time the government did not have the financial resources to keep its commitment. This experience has been repeated in other countries, with the result that many farmers are distrustful of any price support scheme. This makes the implementation and administration of a support program to bring forth added output very difficult. An alternative to guaranteeing the price of output is to subsidize the cost of agricultural inputs such as fertilizer or seed. As in the case of price guarantees, funds are often inadequate to carry out the program. In many cases where this technique has been tried, deliveries of seed, fertilizer, and agricultural chemicals have been tardy or non-existent as a result of inadequate transportation, storage, or trained personnel.

If we accidentally turn to the foreign affairs section of our favorite weekly magazine, we may see the statement "developing countries frequently maintain an overvalued currency in order to supply cheap inputs to their industrial sector." In essence, this means that a country has set an unrealistically high exchange rate between its currency and other major world currencies. Such a decision bears directly on our rubber versus rice dilemma. If a currency is overvalued, a country's exports are more costly than they should be. For example, an overvalued exchange rate might make bananas $.15 a pound when a more realistic price would be $.10 per pound. This puts a nation at a competitive disadvantage and serves to restrict banana exports. Why would a nation do this? There may be strong interest groups who want imported goods to be cheaper. The overvalued exchange rate might increase the price of exported bananas 50 percent above the realistic price, but it also serves to make an imported luxury automobile significantly cheaper. In some countries, the use of government-controlled marketing agencies or boards as revenue-raising devices has had a similar depressing effect on producer prices and exports of agricultural products. In Ghana, for example, the government-controlled marketing board siphoned-off 32 cents from every dollar's worth of cocoa exported during the period 1950-69.

If policies such as these are to be reversed in an attempt to expand exports, added stress may be placed on the urban population and existing development programs. If the price of an imported Lincoln Continental were lower than it should be as the result of an overvalued exchange rate, so was the price of rice imported for the urban poor. If a marketing board skimmed 10 percent off the top of export earnings, and used the funds to build irrigation facilities and schools, discontinuation of the practice may promote exports, but it may also curtail the revenue necessary for important public works projects.

A second important practical problem in the choice between exports and production for home use is the demand that each places upon available resources. Different agricultural products require different amounts and qualities of land, labor, and capital. Many developing nations have a shortage of fertile farm land. In making the choice they are likely to face the problem of diverting land from existing crops to new uses. It may appear relatively simple to change from cotton to wheat production,

or to uproot rubber trees and plant paddi rice. This may, in fact, not only be difficult, but detrimental from an environmental and social standpoint. We are only just beginning to learn how to manage the complex soils of tropical and sub-tropical areas in which the natural vegetation was dominantly trees and bush. It is interesting to note that the majority of the traditionally successful agricultural export crops in these areas have been tree or bush crops. This mirroring of the natural vegetation is not accidental; rather it is in conformity with an environment of heavy rainfall and porous soils from which plant nutrients are quickly leached to a considerable depth. Deep-rooted trees and bushes can reach and utilize such nutrients. To cut down cocoa, oil palm, or rubber trees and plant shallow-rooted cereals may well lead to erosion, and require continuous addition of costly chemical fertilizer. To intensify food production in areas where shifting cultivation or "slash-and-burn" agriculture is being practiced can lead to similar environmental problems.

The reality of such social issues as the size of land holdings and mode of land tenure must be considered when contemplating the choice between export and domestic food crops. Where land is owned in large blocks or plantations there are often deeply entrenched political forces operative. On paper it may appear feasible and desirable to break up large holdings, and replace them with small farms producing for the home market. In reality such actions may catalyze a revolution. Many point to the Chinese model as an example of what can be achieved by changing the system of land tenure. And yet it is doubtful whether any sort of parallel can be drawn between the social and political circumstances in China and most developing nations today. How many low-income nations have such a strong commitment to the rural peasantry, and leadership with the power and determination to effect viable land reform? In how many nations are the people willing to sacrifice their personal freedom and property ownership? The Chinese model of development seems to be working in China, but it is questionable if this model is transferable to many other low-income countries.

As outlined above, one of the most critical needs of LDC's is the creation of employment. The question of labor usage in export production and domestic food production is therefore of considerable significance. Table 1 contains estimates of labor requirements per hectare for various crops produced in Brazil. Products are divided into three categories: those produced primarily for home consumption, traditional exports, and those which have only recently entered the export scene. From the figures we can gain some insight into the effect of alternative food and export policies on employment. For example, a domestic food policy which increased production of groundnuts and rice, would generate far more employment than increased production of traditional food items such as beans and maize. From the same perspective an export policy emphasizing coffee, cassava, and cane sugar would be preferable to one emphasizing castor beans, soybeans, and especially beef. A policymaker wishing to develop a blueprint for maximizing employment, while simultaneously earning a given level of foreign exchange and increasing domestic food production, could use such statistics as a guide. It should be stressed, however,

Table 1. Labor Requirements for Selected Brazilian Agricultural Commodities

Commodities	Man Hours Per Hectare
A. Primarily for Domestic Consumption	
Beans	240
Groundnuts	467
Maize	277
Rice	430
B. Traditional Exports	
Castor beans	271
Coffee	600
Sugarcane	336 to 359
C. New Exports	
Beef	10 to 20
Cassava	484
Soybeans	260

Source: Adapted from Sorenson, Vernon L. International Trade Policy: Agriculture and Development. East Lansing, Michigan: Michigan State University Press. 1975. Page 231.

that gross labor requirements for the production of different commodities are only one aspect of the employment issue. Such factors as the seasonal nature of labor needs, and the demand placed on various members of a family labor force must also be considered.

When assessing the prospects for increasing production, either for export or for home consumption, the availability of capital must be weighed. In many countries with a history of reliance on export crops, the marketing and distribution system is not amenable to feeding the domestic population with food produced on small farms. A limited number of highways or railroads connect plantations with major cities and seaports. The rural population is largely oriented towards subsistence food production, and city dwellers are fed primarily from imports. Transportation facilities may be adequate to handle expanded export production, but are ill-equipped to deliver agricultural inputs to small land owners and collect surplus food from scattered farms for delivery to cities. New and expensive infrastructural investment may be needed to enable domestic food production to expand. This investment is unlikely to be forthcoming from private sources, and may require the diversion of public funds from industrial development projects, or the building of schools, water supplies, and irrigation facilities. Increasing domestic food production typically has to rely on domestic sources of capital, while export expansion may attract foreign capital. Multinational companies involved in the

export trade often provide producers with the resources to establish farms, plantations, roads, and storage facilities. In addition, they may supply specialized technical advice and a guaranteed market for output.

Very careful consideration must therefore be given to the input requirements of different products and the extent to which these can be met domestically. In many cases, the expansion of domestic food production may require imported capital goods; for example, transportation equipment, and hydroelectric turbines. In those countries which already severely constrain imports to conserve scarce foreign exchange, the achievement of additional savings, through further import restrictions, may be a painful and difficult process. A country which has adequate production of carbohydrates may wish to provide its people with more protein through increased livestock production. Expanded livestock output may simply generate increased demand for imported feed grains. From the standpoint of saving scarce foreign exchange, it might be better not to promote domestic expansion but to import livestock products directly.

The effects of changes in agricultural output on the use of land, capital, and the employment of labor are not confined to agriculture and closely related industries. As employment and expenditure in one part of the economy change, a wide variety of other industries may be affected. Distribution of income among individuals and among regions may be altered by the decision to emphasize exports or domestic food production. It is rarely possible to determine all of the secondary effects of change, but it is essential that the major linkages be traced and their consequences determined. The nature and magnitude of secondary effects prove of great importance in assessing the desirability of export or domestic food expansion.

A final consideration in the choice between exports and domestic food is the relative demand prospect for each. The mere fact that a nation has the physical and human resources to produce alternative commodities, skirts the question of whether or not they will be purchased in either the world or home market. Some clues to this problem can be found by examining the income elasticity of demand for various commodities in different markets. Tables 2 and 3 contain data on per capita consumption and income elasticity in three categories of nations. Table 2 relates to six commodities which have traditionally been exported by developing countries. Table 3 deals with five commodities which are not usually exported by developing countries but which may have future potential.

Before we proceed, let us make sure that we are clear about what economists mean when they refer to income elasticity of demand. This indicates the percentage change in the per capita consumption of a product which results from a one percent change in per capita consumer income. For example, the elasticity value for cereals in the developing nations is .13. This means that if per capita income were to rise by one percent in this group of countries, there would be a .13 percent increase in the per capita consumption of cereals. In this case, demand would expand (or contract) proportionately less than the change in income -- the product is therefore called income inelastic. If a one percent change in per capita income

Table 2. Commodities Traditionally Traded by Developing Countries--Per Capita Consumption and Income Elasticities of Demand in Three Categories of Nations

Product	Per Capita Consumption (kg/year)			Income Elasticity		
	Developed	Developing	Centrally Planned	Developed	Developing	Centrally Planned
Cereals	91.9	133.7	142.1	-0.24	0.13	-0.10
Sugar and Sugar Products	40.6	20.2	14.3	0.25	0.57	0.13
Coffee	4.0	0.8	0.1	0.34	0.32	0.89
Cocoa	1.4	0.1	0.2	0.39	0.84	0.83
Tea	0.7	0.3	0.2	0.28	0.59	0.22
Fats and Oils	19.9	5.4	6.0	0.14	0.55	0.38

Source: United Nations, Food and Agriculture Organization, Agricultural Commodity Projections, 1970-80. Rome 1971. Volume II, Part II, Statistical Appendix. Pages 130, 163, 274.

Table 3. Commodities not Traditionally Traded by Developing Countries--Per Capita Consumption and Income Elasticities of Demand in Three Categories of Nations

Product	Per Capita Consumption (kg/year)			Income Elasticity		
	Developed	Developing	Centrally Planned	Developed	Developing	Centrally Planned
Vegetables	107.8	39.8	62.7	0.46	0.45	0.25
Fruits	88.9	36.4	14.0	0.54	0.62	0.56
Whole Milk	117.1	27.2	41.1	-0.03	0.79	0.15
Meat	74.3	12.0	26.7	0.35	0.56	0.39
Eggs	14.1	1.5	4.7	0.26	0.78	0.42

Source: United Nations, Food and Agriculture Organization, Agricultural Commodity Projections, 1970-80. Rome 1971. Volume II, Part II, Statistical Appendix. Pages 130, 163, 274.

brought about a change in consumption of one percent or more, then demand for that product would be referred to as income elastic. Elasticity values in Tables 2 and 3 indicate that, for all the agricultural products considered, demand is inelastic with respect to income in all regions.

In the centrally-planned economies, income elasticities are high for two important developing country exports: coffee and cocoa. This suggests an important growth potential as consumer income increases, but from a small existing consumption base. Total demand may also be expected to increase as a result of population growth. Whether or not the export potential afforded by communist bloc nations can actually be realized, depends largely on the political factors which govern their import decisions. Recent history suggests that the economies of centrally-planned countries will become increasingly open to trade in the future.

In developing countries themselves relatively high elasticities exist for most products. This is especially true for meat, eggs, and milk. For all but two of the commodities listed, developing country income elasticities are the highest of the three country groups. This, combined with rapid rates of population growth, indicates the considerable potential which exists for increased demand for food within low-income nations. This demand can be met by increasing the production of food for home consumption, or through trade. Considerable potential exists for such trade between LDC's. A major problem will be to work out acceptable trading arrangements, so that developing nations can supply each other with needed food products of the right quality and in sufficient quantity.

Traditionally the major markets for exports of the developing countries have been in the industrial nations. Recently, over 71 percent of total developing country exports has been to such nations. We may then pause to reflect on the future growth potential of this market. Increased demand due to population growth is likely to be modest, and the principal determinant will be growth in consumer income. Income elasticity is highest for luxury items such as fruit and vegetables, and is also relatively high for meat, cocoa, and coffee. Income elasticities are low, even negative in some cases, for major sources of carbohydrates and fat. Overall, the figures suggest that, although some potential may exist for growth in traditional exports of developing nations, the largest potential exists for products which have not traditionally been identified as LDC exports.

Over the past two decades exports of food and agricultural raw materials from developing countries have grown at an annual rate of about 1.7 percent. This is a far smaller rate than in earlier periods and several contributory factors can be identified. Some important export commodities such as jute, hemp, cotton, and rubber confront stiff competition from synthetics. A modern radial tire may contain no natural cordage, and only a small quantity of natural rubber. Changes in tastes have, in some instances, worked to the disadvantage of low-income exporters. During the recent period of skyrocketing coffee prices, economists tried to determine how per capita consumption of coffee was being affected. It was not surprising to learn that a doubling of price exerted a negative impact on coffee drinking, but many were astonished to find that Americans were consuming about 25 percent less coffee per capita than they did in 1950.

Continuing with our coffee example, technology and packaging may also influence the demand for low-income country exports. A bag of coffee beans converted into freeze dried or other soluble form yields far more cups than if ground for home-brewed coffee.

In some products developing countries face direct competition from industrial nations. The United States is currently the world's largest exporter of rice. We have usurped the markets of several low-income exporting countries. Japan is a leading importer of maize for livestock and poultry feed. Thailand has increased its corn production in an attempt to enter the lucrative Japanese market. The United States with its vast resource base and tremendous technical know-how is in head-to-head competition with Thailand for the Japanese feed grain market.

Virtually every industrial nation has a heavily protected and subsidized domestic beet sugar industry. In the early 1970's it was estimated that developing nations were losing over $2 billion in export revenues annually as a result of quotas and tariffs on cane sugar imposed by industrial nations. There are many other examples of trade barriers, maintained by rich countries, which deny developing nations access to markets in which they have a competitive advantage. Recent estimates suggest that the elimination of these barriers for all agricultural products could lead to increased exporting earnings $5-7 billion (1974 prices) by the 1980's.

In some commodities developing countries may expect their position to improve. The escalation in crude oil prices may work to the advantage of several products hard hit by competition from synthetics. High cost of petroleum has made natural rubber more competitive with synthetic rubber.

Developing nations with tropical climates appear to have two distinct advantages. As a group they enjoy a monopoly position in a wide variety of products. If they can normalize marketings through commodity agreements and avoid cutthroat competition, the market for traditional tropical products should grow modestly and steadily. In this context it is interesting to note that the banana has displaced the apple as the fruit with the highest per capita consumption in the United States. Tropical nations may miss important opportunities if they rely solely on traditional exports. Many are in an excellent position to enter the lucrative off-season market for fruits and vegetables. Latin America and African exporters are placing quantities of fresh and condensed citrus products on the world market at prices competitive with those of U.S. and Mediterranean producers. Taiwan exports fresh, frozen, and canned fruits and vegetables to Japan, Western Europe, and the United States. In this case, highly developed technology has been combined with low-cost labor to full advantage. Speciality items offer many distinct possibilities. Cut and potted flowers from tropical exporters are making their appearance in North American and Western European cities. We are seeing an increasingly diverse array of tropical fruits in the supermarket. Papayas, mango, guava, mellons, and pomegranates have joined the pineapple.

One of the largest latent export markets for agricultural products of the developing nations may be through tourism. Tourists are spending hundreds of millions of dollars in developing countries, but unfortunately only a small fraction of this money remains within the host nation. An American staying in a luxury hotel in New Delhi, Bangkok, or Rio de Janeiro orders steak, vegetables, fruit, dairy products, and wine, most of which have been imported. Many of these items could be produced locally, and thereby allow the host nation to capture a "domestic export market."

In conclusion, practical considerations appear to indicate that if low-income nations wish to substantially expand their exports, it is important for them to identify products which are new, non-competing and non-protected. A considerable export market may exist in other developing countries. As the rubber versus rice decision is made, these considerations, plus resource availability and comparative advantage, must be kept in mind.

IV. Have We Looked at the Right Issues?

It is tempting to assume that the problem of hunger in the developing world can simply be solved through increased food production. Unfortunately the answer is not this simple. Economists frequently refer to the concept of effective demand. By this they mean not only a desire for products, but also the ability to pay for them. Many individuals in the developing countries clearly have a need for more food in order to achieve a minimum standard of well-being. They may not have the means of transmitting this need into effective demand in the market place. The production of more food is not the sole answer to the problem of these people. What they need is to become part of a viable economic system which both produces sufficient food, and provides sufficient income for individuals who need the food. The rubber versus rice issue is in fact part of a much broader problem. How can low-income nations develop an economic system, which both produces and distributes commodities in such a way, that their people are elevated to an acceptable level of living? To some extent the solution to this problem lies within the poor nations. They have to implement policies which will provide incentives for greater production, and ensure that income distribution is such that basic needs will be met for all. Part of the solution lies in the developed nations. They must provide the resources and know-how to facilitate expanded production within poor economies. The rich industrial nations must also open their marketplace in such a way that low-income nations can engage in profitable trade. The issue is not just one of rubber or rice, but the distribution of income and wealth, between rich and poor, within and between countries.

V. Conclusions

What conclusions can we draw from this discussion? Developing nations will undoubtedly continue to produce agricultural products for export. Financial, political, and environmental forces are so powerful and entrenched that it is impossible for them to do otherwise. They are, however,

rapidly acquiring the power and unity of action to demand a new economic order in the international arena. The developing nations will continue to press for far reaching changes relative to production, pricing, and trade. There is no doubt that the food output of developing nations will have to increase; however, we detect a growing concern among thoughtful observers that striving for food self-sufficiency can lead to strategies inappropriate to both the have and have-not nations. Developing countries already import 10 percent of their food requirements, and offer the most dynamic prospects for the products of such land-rich nations as the United States, Canada, and Australia. To forgo this growth would undermine the efficient use of agricultural resources. The possibility for alleviating global hunger and the prospects of increased interaction through trade may provide a first step toward a world order less prone to strife. There is no reason to presume that the 80 million tons of grain that experts project developing countries will have to import by 1990 represents a failure of the world food system. The bulk of this import demand will originate not in the poorest LDC's but in those that can afford to pay. Some of the rapid growth points for food imports within the developing world are South Korea, Hong Kong, Singapore, and Taiwan, as well as virtually all of the oil and mineral producing nations. United States farmers need these markets; we have the capacity to export, and the world needs the food.

Leaders of the industrial nations must realize that the degree to which LDC's are able and willing to use the trade option in their food strategy is dependent upon major changes in international trade policies. Developing nations must be convinced that two things will occur in the future: industrial countries will take action to allow LDC's to expand their foreign exchange earnings, and major grain exporters will adopt measures which lower the risks of relying on the world market for essential food supplies. If the rich nations are to realize the gains from an expanded food market in the developing nations, we must in turn allow them access to our market place. They must be able to ship sugar, shoes, palm oil, and pajamas without confronting trade barriers fortified by screams from union leaders that jobs are being lost. We must appreciate that if jobs are lost in domestic light manufacturing industries and in beet sugar fields, they are gained in the production of food and other exports. Last year nearly one million United States jobs were dependent either directly or indirectly on the production of agricultural products for export. From the viewpoint of LDC planners, the major uncertainties in the world grain market derive from the domestic food and trade policies of the industrial nations. Developing countries must be insulated from wide price swings in their food imports. They must be certain that they will not be denied supplies in periods of shortage, and convinced that food will never be withheld as an instrument of political compliance. These perspectives of the developing leaders must be considered as we contemplate trade policies and world security.

In the past few years the developing nations have been successful in shifting the subject of their poverty and hunger from the periphery of world affairs to the center. Developing countries are convinced that

their plight is more a problem of power than productivity, and nothing less than a complete overhaul of trading practices will lead to their emancipation.

Why have rich nations begun to take such allegations seriously? Several factors -- the success of OPEC in raising the price of crude oil; the relative ease of transmitting awesome nuclear power; and the increasing unity with which the developing nations speak at international forums. We are beginning to accept the fact that some of their claims are valid, and to realize that our policies have been designed to produce short-run gains, primarily for our population. It has been written that if food does not pass international borders, armies will. Something to contemplate.

FURTHER READING

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