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AGRICULTURAL POLICY, DEVELOPMENT AND INTERNATIONAL TRADE

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Trade liberalization and other desirable agricultural policy

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I was asked to prepare a paper on agricultural trade liberalisation, a subject that I have written about for four decades. And I will emphasize the importance of trade liberalisation for agriculture for all countries, including the developing countries such as Brazil. But I want to go beyond recommending trade liberalisation so that I may emphasize the positive role that government can play in creating the conditions for a growing, efficient and prosperous agriculture. There are many types of interventions that governments should avoid, and most interventions in markets are among those, but there are numerous interventions that have positive benefits and should be given priority.

So that there is no misunderstanding, let me be clear that trade liberalisation for agricultural products means more than removing tarrie at the border. It generally means significant changes in domestic fa policies since in the case of agriculture, interventions in internatio trade are a consequence of domestic farm policies. The border measures are used to assist in carrying out the objectives of the farm programs and not the other way round. Thus trade liberalisation requires that domestic farm programs be modified to reduce governmental intervention in domestic markets, either through price supports or price ceilings or by subsidies of various forms.

To be presented at the International Seminar on Agricultural Policy to celebrate the 45th Anniversary of the Institute of Agricultural Economics of the State of Sao Paulo and in honor of Ruy Miller Paiva, October 26-28. Sao Paulo, Brazil.

Significance of Trade liberalisation

If the current round of GATT Negotiations in the Uruguay Round is successful in reducing trade barriers for agricultural and manufactured products and services, the potential gains for Brazil will be substantial in their magnitude. While this paper will be concerned primarily with agricultural liberalisation, the long run benefits for Brazil will depend more on what is achieved in liberalisation of manufactured products and perhaps even for services. The reason is that while Brazil would gain significantly in the short run from agricultural liberalisation, agriculture's relative importance in the economy is declining and will continue to decline. Thus to an increasing extent, the real per capita incomes of Brazilians will depend upon highly productive and competitive manufacturing and services sector that have reasonably free access to markets anywhere in the world. Currently Brazil exports of manufactured products are of approximately the same value as its exports of agricultural products. As recently as 1960 89 percent of Brazil's exports were primary products, which meant mainly agricultural products. Thus Brazil has a growing stake in liberalisation of trade in manufactured products and services as well as in agricultural and other primary products.

Agricultural trade liberalisation has quite different implications for the industrial market economies and the developing countries, such as Brazil. In the industrial countries, where the commercial farmers who produce three fourths of total agricultural output have incomes substantially above the average family income of the countries, farmers are heavily subsidized. In developing countries where most farmers (though not all) have average family incomes much below the national average, farmers are

taxed in a variety of ways for the benefit of urban consumers and taxpayers.

Before turning to effects of agricultural protectionism, whether positive or negative, upon international market prices and upon national welfare, I shall present some information on the degree of governmental intervention in the markets for agricultural products. The measure used is the difference between the returns received by farmers and the appropriate border price for similar products. This difference is calculated to include subsidies as well as market price effects. In the case of developing countries the difference between returns to farmers and the border prices also reflect the effect of the overvaluation of exchange rates upon the purchasing power of agricultural products.

We shall first consider some representative examples of the degree of nominal protection provided farmers in developing countries. Data are given in Table 1 for 19 countries with estimates for an export crop and an import crop. The estimates of nominal protection have two components - the direct component which measures the difference between the producer price and the border price at the official exchange rate and the indirect component which reflects the combined effects of the overvaluation of the exchange rate and of the effects of trade policies in sectors other than the agricultural sector. An overvaluation of the exchange rate acts exactly like an export tax; it also serves as a subsidy on imports for those who are fortunate enough to have access to foreign exchange at the official rate. Similarly, as shown by Clements and Sjaastad (1984), import duties act as taxes on exports. Thus it is very appropriate in determining how a country's policies affect agriculture to take into account the exchange rate and trade policies that affect the costs of items that farmers purchase.

The data on protection of agricultural products in developing countries are based on a series of country studies organized by the World Bank and presented at the XX International Conference of Agricultural Economists in in Buenos Aires in August 1988 by Anne O. Krueger. The project was the most extensive and careful study of the effects of governmental policies upon agriculture that has ever been undertaken. Its detailed results, which will be published in 1989, are worthy of study by all who are interested in the welfare of farm people and the adequacy of the food supply for all. The data are for 1980-84 and the farm commodities are divided into those that are exported and those that are imported.

There are several notable outcomes indicated in the table. In general, the negative protection of exportables is greater than for importables. This is true in every country for which there is both an exportable and importable, save one (Zambia). In several instances the differences are substantial. Such a case is Malaysia where rubber, which is exported, has a total negative protection of 29 percent while rice, which is imported, has a positive rate of protection of 58 percent. The difference between the treatment of export and import products is not quite so striking in the case of Brazil, yet soybeans are more significantly discriminated against than wheat, which is imported.

A second important feature of the data is that in the majority of the cases the indirect effects are substantially greater than the direct effects. This is true for a small majority of the export crops and for all of the import crops except one (grapes in Chile). Neglect of the indirect effects upon agriculture of currency overvaluations and protection of the nonagricultural sectors has all too often left the impression that agricultural policies were only moderately biased against farm people and in favor

of consumers and the nonfarm sector generally in the developing countries. But what is clearly revealed in Table 1 is that this impression is highly erroneous, especially for the most productive sectors of agriculture that are able to compete in world markets. The third notable feature is that the majority of the highest rates of taxation, and that is what negative nominal protection rates amount to, are for tropical products that are grown on trees. These are products that face modest trade barriers in importing countries but as Table 1 indicates this is small comfort for the producers of these products since their governments have seen to it that the producers do not realize the advantages of relatively open markets.

Table 2 presents estimates of the nominal rates of agricultural protection for nine industrial countries for 1980-82 and 1986/87. Two things are immediately evident. The first is that the positive rates of protection are of the same order of magnitude as the negative total rates of protection, with the exception of the very high rates for Japan. The second is that the nominal protection rates increased between the early 1980s and 1986/87. With the recent increases in international market prices, the protection rates are below 1986/87 but still not back to the levels of the early 1980s.

It is not only that the average nominal rates of protection are high in the largest industrial market economies, but the protection rates vary widely from commodity to commodity within each of the economies. For example, based on the average levels of nominal protection from 1982-86, the nominal protection levels for the United States varied from 6 percent for pork to 117 percent for dairy and 342 percent for sugar. For that period the average level of nominal protection was 33 percent. The average nominal protection coefficient for the European Community for 1982-86 was 55 percent

with a range of 18 percent for pork to approximately 80 percent for milk, beef, rice and oilseeds (USDA 1988).

In terms of effects upon an economy's imports or exports, the variations in the levels of protection are as significant as the average level of protection. Differential rates of protection influence the pattern of production in the protected sector and this influence the pattern of trade. Since the elasticities of supply for individual farm products are significantly greater, on average, than the supply elasticities for all agriculture, variations in protection levels have an important effect upon the composition of trade and thus of the consequences for those who wish to export to the country or who have to compete with it in the international markets.[1]

Consider the following. In a recent model used to estimate the effects of trade liberalisation by the industrial market economies upon international trade and prices, Roningen and Dixit (1988) estimated the price elasticity of supply for all U.S. farm products for the intermediate term (approximately five years) at 0.29. If there had been no effort at supply management in the United States from 1982-86, the nominal protection of agriculture of 33 percent would have meant that total farm output would have been somewhat more than 9 percent larger than if the U.S. farmers had produced in response to international market prices. The price elasticity of supply for the EC was estimated to be 0.28 and with a nominal protection coefficient of 55 percent, the output effect compared to what output would have been at international market prices was approximately 15 percent.[2] But the elasticities of supply of individual commodities with respect to their own prices were substantially higher than the average. For example, the supply elasticities for individual commodities in the United States were

estimated to be as follows: Soybeans, 0.60; wheat, 0.60; corn, 0.48; beef, 0.65; pork, 1.00; dairy, 0.80 and poultry, 0.65. While we need more information than the elasticities of supply with respect to own price to determine the differential output effects of different levels of nominal protection, it is obvious that since dairy has had a very high level of protection and pork almost none, dairy production has been increased while pork production has been reduced from the level that would have prevailed under free trade. Even though there was a small positive protection coefficient for pork, the average for all other farm products was so much higher that resources were pulled away from pork production to products with the higher levels of protection. The United States exports significant quantities of dairy products and it would be a large net importer with low or nil rates of nominal protection while it is a large net importer of pork products.

Differences in rates of protection affect the composition of farm output and trade because the most highly protected sectors are able to bid both traded and nontraded resources away from the less protected sectors, including especially those sectors with high negative rates of protection. While it may not be too surprising that a sector, such as agriculture, will seek protection, is it not a little odd that in the United States, for example, that pork producers do not protest the high rates of protection provided for dairy or, perhaps even more surprising, why the beef producers have not objected to protection of dairy since higher dairy prices adds quite directly to the beef supply? Or why do Brazil's soybean and beef producers not contest the more favorable treatment given to wheat? More directly, do soybean producers resist the high rates of protection afforded the domestic processing industry by the export tax on soybeans? These are questions that need

more attention by all who are interested in better understanding the formulation of agricultural policies.

International Market Effects of Agricultural Protection

There have been several studies of the effects of the elimination of agricultural protection by the industrial market economies and by all market economies. Studies have been done the International Institute of Applied Systems Analysis (IIASA), the Organization for Economic Co-operation and Development (OECD), Tyers and Anderson of Australia, and the Economic Research Service of the U.S.Department of Agriculture. These studies, except for IIASA's are partial equilibrium studies that consider responses to the potential price changes within agriculture with no consideration of the impacts of output and price changes upon the rest of the economy.[3] The models do include several different agricultural product groups, generally from 10 to 20 groups.

But something new has been added recently, namely a number of general equilibrium studies that include the effects of agricultural protection upon the economy as a whole. These studies reveal much larger adverse effects of protection than do the partial equilibrium studies. Traditional partial equilibrium studies have shown that the loss of national output due to protection was quite small, generally less one or two percent of the sector's output. The transfer of income from consumers and taxpayers to farmers, including those who own agricultural resources but do not farm, and to input industries, such as fertilizer, machinery and storage, have been several times as large as the losses in real national output. And the income transfers, even though they have almost universally transferred income

from relatively low income consumers to relatively high income farm families, have been accepted by the political process.[4]

Those who have seen the results of the first group of studies may be puzzled by some of the results, especially the results that indicate the elimination of agricultural protection would have very modest effects upon international prices. The studies that used the levels of nominal protection that prevailed in the mid-1970s (IIASA) or the early 1980s (OECD) obtained modest price effects for grains and sugar and an average effect in the range of 5 to 10 percent from full liberalisation of agriculture by the industrial market economies. In their study for the World Bank and included in the World Development Report 1986, Tyers and Anderson obtained international price effects similar to those obtained by IIASA and OECD since the protection levels were those of 1980-82. Only for dairy products was there projected to be a large increase in international market prices due to trade and policy liberalisation by the industrial market economies. These three sets of studies projected price increases of40 to 80 percent, The projected increase in ruminant meat (primarily beef) was from about 18 to 25 percent. In interpreting these results, it is necessary to recognize that agricultural protection levels for the United States and the EC were relatively low in the years around 1980.

Tyers and Anderson (1988) have projected the levels of protection for 1995, based on trends in protection levels during the 1970s until the mid-1980s, and for all industrial market economies indicated that the average level of nominal protection would increase from 40 percent in 1980-82 to 80 percent for 1995. With this average level of nominal protection, liberalisation would result in projected price increases of 25 percent for wheat, 18 percent for rice, 43 percent for ruminant meat, 10 percent for

nonruminant meat, 95 percent for dairy products and 22 percent for sugar for a weighted average of 30 percent.

Roningen and Dixit use a model to project the effects of liberalisation from the levels of protection that prevailed in 1986/87. Their model differed from the others since they included measures that were intended to reflect the effects of the U.S. supply management programs upon output and world market prices. Under liberalisation, the supply management programs would be abandoned and output of grains and cotton would increase. Their projected effect of liberalisation by the industrial market economies upon international market prices was an average increase of 19 percent, with the largest increase of 50 percent for dairy products and the smallest increase of 7 percent for oilseeds. Grain prices were projected to increase by 23 percent (coarse grains) to 30 percent (wheat).

A. Valdes and J. Zietz (Valdes 1986) made a number of estimates of the effects of a partial liberalisation (50 percent) by the industrial market economies upon developing country exports to those economies. Based on the relatively low rates of protection during 1975-77, the projected increase in exports of agricultural products for all developing market economies was $5.9 billion (1985 U.S. $) while import costs would increase by $1.4 billion. A study (Valdes and Zietz 1985) for just four commodities - sugar, beef, maize and wheat -indicated that full trade liberalisation would increase developing country exports by from $9 to $12 billion (1980 U.S. $). In terms of 1985$, the increase in export earnings from the four commodities would be approximately $11 to $14 billion. In 1980 the total value of developing market economies exports of agricultural products was $66 billion. Thus increases of the size indicated for the four commodities would be from 14 to 18 percent.

General Equilibrium Estimates of Benefits

Under the auspices of Centre for International Economics, Canberra, several general equilibrium analyses have been made of the economy-wide effects of agricultural trade liberalisation. These studies, by taking into account several factors not included in the partial equilibrium and single sector studies, reveal much larger real costs of agricultural protection. A study for West Germany, where agriculture accounts for just 2 percent of gross domestic product, estimates that liberalisation of agriculture would increase gross domestic product by 3 percent. What is perhaps even more striking was the estimate that with agricultural liberalisation 850,000 new jobs would be created and the unemployment rate cut from 9 to 5 percent. One argument for agricultural protection (any protection for that matter) is that it saves jobs; in this case quite the opposite. For the whole of EC a study by Stoeckel and Breckling indicates that the Common Agricultural Policy has cost the EC 3 million jobs (Centre 1988).

A study of the effects of industrial market liberalisation of agriculture upon the developing countries revealed several significant effects. Based on the assumption that international market prices for farm products would increase by 10 percent, the general equilibrium model projected an increase of 2.1 percent in the GNP of the lowest income developing countries (other than China and India) and an increase of 1.1 percent for all market developing countries. The total increase in GNP for the developing countries was projected to be $26 billion; this estimate excludes China. Note that this is actually larger than the projected increase in agricultural exports by a factor of two or three. It is worth noting that the increase in international market prices used in the model was 10 percent; this was based on studies using protection levels of the early 1980s. Since

then protection levels have increased substantially in the industrial market economies and the projected increase in world market prices due to agricultural liberalisation in the developed market economies has been put at 20 to 30 percent. Thus the income gain to the developing market economies could well be of the order of $50 billion, a large fraction of the current annual cost of debt service.

Brazil and Trade Liberalization

The brief discussion of the potential benefits from trade liberalisation imply that Brazil has a great deal to gain from actively participating in the current round of trade negotiations in Geneva in terms of potential growth of exports. In particular, Brazilian agriculture has much to gain if it were permitted to freely export their products and to freely import inputs for use in agricultural production. Given the natural and human resources engaged in agriculture in Brazil, Brazil can compete in a wide range of agricultural products. While it is true that not every agricultural product now being produced will have a comparative advantage in Brazil, the range of natural conditions and the availability of ample resources means that with the proper domestic policies that Brazil has the potential to become a much larger exporter of agricultural products than it now is. This is true even though Brazil is now either sixth or seventh largest exporter of farm products in the world.

But Brazil's interest in trade liberalisation goes well bevond agricultural products. Many of the nontariff barriers that exist in the industrial countries are in areas that have both current and prospective significance to Brazil. I refer to trade barriers for labor intensive manufactured products, which now extend well bevond shoes and textiles to consumer

electronics and perhaps in due course to many machinery items, possibly including motor vehicles in the early years of the Twenty First Century. While Brazil is a major exporter of agricultural products, the value of exports of manufactured products in recent years have been of the same order of magnitude as the agricultural exports. And in the years ahead, manufactured exports will grow more than agricultural exports. Consequently Brazil must consider its changing roles in international trade as it prepares to participate in the current trade negotiations. It is no longer mainly an exporter of primary products.

But if Brazil is to have a significant role in the current trade negotiations, it is important that it develop a consistent trade policy for its entire economy. This would include the willingness to gradually reduce trade barriers in the manufacturing and service sectors. Further, trade liberalisation also requires that the exchange rate be at appropriate levels. An overvalued currency means, as argued earlier, the same as an export tax. But perhaps the more important problem with an overvalued currency is that it appears as a subsidy to imports - it makes the cost of imports appear low in terms of domestic currency. However, this is actually true only for those lucky ones who are given the right to import at what amounts to a subsidized price. But not every one who desires to import based on the overvalued currency can do so - there simply is not enough foreign exchange for every one who wants it. Thus the foreign exchange must be rationed or allocated; to do so means that government officials decide who is to get it and can place restraints upon its use. In effect, an overvalued currency becomes an excuse for direct protection measures and once such direct measures are put in place, they become hard to dislodge even if the currency is no longer overvalued. In fact, if the overvaluation is

eliminated and if the direct protection measures have been in the form of tariff duties, the duties become more protective because the subsidy that was inherent in the overvaluation of the currency has been eliminated.

Positive Roles for Government

The discussion has primarily emphasized the negative aspects of governmental interventions. It should be noted that the interventions referred to have directly affected commodity markets. Noting the negative consequences of market interventions by government does not mean that there is no constructive or positive role for government other than national security and maintaining civil order. Quite the contrary. There are many departures from laissez faire that would contribute to improving the lives of farm people in the developing countries. It remains a puzzle to me why governments tend to choose interventions that have such negative consequences and neglect others that have much to contribute.

How can governments act to improve the circumstances of rural people and to do so with attention to the costs and benefits of such efforts? Answers to this question requires a digression to a discussion of the factors that primarily determine the incomes of farm people.

The incomes of farm people are determined by three major factors: (a) the human and physical resources that they own; (b) the income level of the economy in which the farm people live and (c) the access that they have to the opportunities for employment of their resources in the nonfarm economy (Johnson 1973). In the industrial market economies, agricultural policies are guided by the erroneous notion that the level of output prices is a major determinant of farm family incomes. However, as I shall note later while the three factors that have been identified as determining the incomes

of farm people have universal applicability, in the developing countries low output prices can have a significant negative influence upon farm incomes.

For any one of us our income is determined by how many resources we have and the price, wage, interest or rent that we receive for those resources. Appropriate governmental intervention includes positively influencing both the amounts of resources owned by farm people and the access that farm people have to alternative uses of those resources outside of agriculture.

The emphasis upon the access that farm people have to nonfarm opportunities for the use of their resources follows directly from a universal and fundamental economic relationship, one that cannot be repealed and one that can be ignored only at the cost of great harm to farm people. In an economy in which per capita income is increasing over time, agriculture is a declining industry. By this I mean that agriculture's share of national output and of employment of labor declines as real per capita incomes increases. This outcome is due to the slower growth of demand for agricultural than for nonagricultural products and to the growth of productivity in agriculture that compares favorably with that of the nonagricultural sector. Put simply, the potential growth of the supply of farm products is greater than the growth of demand for those products. Consequently, resources and especially labor must be continuously transferred from agriculture to the rest of the economy. The experience of Brazil between 1960 and 1980 is fully consistent with the relationship, as is the experience of all developing countries. Between 1960 and 1980 agriculture's share of national employment in Brazil fell from 52 to 30 percent. For all upper middle income countries the decline was from 49 to 30 percent - almost exactly the Brazilian experience (World Bank 1986) It may be noted that the more rapid

is the increase in real per capita income, the greater will be the decline in agriculture's share of national employment. How far will the decline in agriculture's share of national employment go? One indication is that in the United States farm employment is approximately 2 percent of the total; it was more than 20 percent at the beginning of World War II.

It is not only that agriculture's relative share of employment falls but after a time the absolute number of workers employed in agriculture declined. Brazil is now at that stage and farm employment has probably started to decline absolutely. But even if the absolute decline has not yet started, national policy should be based upon the assumption that for the children now living on farms at least half of them will leave the rural area, probably before they reach the age of 21. The incomes of those who remain on farms will be greatly influenced by the economic opportunities realized by those who leave.

There are significant positive roles for government to assist farm people make the adjustments required by economic growth. Very briefly, these include providing rural people with the same access to education as is provided for urban people. During the current century governments have universally neglected rural education, at least while the farm population accounted for more than a sixth of the total population. Unfortunately developing countries continue to make the same mistake as the now industrial countries made while their farm populations were a significant part of the total. This neglect was a costly one. While not recognized by policy makers, an important reason for the low incomes of farm populations in recent decades in the industrial countries was that farm people had fewer years and poorer quality education than their urban counterparts of the same age. In other words, farm people possessed less human capital than urban

people. This meant that when farm people obtained nonfarm jobs, they were suited mainly for unskilled and semi-skilled jobs that had wages commensurate with the skills required. The fact that nonfarm earnings available to farm migrants were well below the average meant that the earnings of labor from farming was low compared to the national average. In the industrial countries the response to the low farm incomes was protection which was ineffective in increasing the returns to mobile resources - labor and capital.

The investment in rural people, through education, health facilities and nutrition, is a necessary condition for improving the welfare of rural people. But this investment may not be sufficient by itself. What is also required is that the barriers that limit the integration of agriculture and rural life with the rest of the economy be significantly reduced. These barriers include limited and expensive transportation and communication. Next to education, the highest priority government interventions in rural areas should be in the development of a road network to link farm people to the rest of the economy. This is important not only because it makes all agricultural resources more productive and lowers the cost of food to consumers, but because it contributes to breaking down the barriers that separate farm and urban life. Also important is the availability of low cost means of communication such as radio, telephones and mail delivery. Low cost transportation, including public bus transport, and ready access to information about urban life and opportunities contribute enormously to providing farm people with the same chances in life as are available to urban people.

Since World War II there has been a substantial increase in the relative incomes of farm people compared to nonfarm in the industrial countries.

This improvement has not been a consequence of agricultural protection or the traditional agricultural sectoral policies but has been due to increased integration of rural areas into the national economy and society. This integration has been due to low cost transportation made possible by the automobile, truck and bus and the completion of rural road systems, to improvements in the technology of communication that has given farm people access to the same information and cultural affairs as the urban population, and the improvement in the quality of rural education and the narrowing of the gap if not its full elimination in the difference in years of schooling. A consequence of these changes is that the returns to farm people for their labor adjusts rather quickly to employment opportunities and earnings in the nonfarm sector. The adjustment occurs through changes in farm employment. Recent studies of the elasticity of supply of labor to agriculture in the United States indicate an elasticity of about 3. This means that if nonfarm earnings increase 5 percent relative to farm earnings, over a period of a few years, farm employment would decline by 15 percent. Such a large decline would not occur since the actual decline in employment of much less than 15 percent would bring farm labor earnings back into the prior relationship to nonfarm earnings.

Prices Do Matter in Developing Countries

As noted earlier, in the industrial countries agricultural protection has no long run effect upon the return to farm labor and management. The reason was that farm employment was able to adjust quickly to earnings differentials. But it should not be concluded from this result that governments in developing countries can depress farm prices with little or no concern about the effects upon the incomes of farm people and the return for

farm labor. Unfortunately, in developing countries most rural areas are not well integrated into the national economy, consequently the farm employment response to earnings differentials is much less than is the case in the industrial countries. This difference reflects the lower levels of education of farm people as well as the relatively high costs of transportation and the limitations of communication. Put another way, it takes a much larger earnings differential between farm and nonfarm employment to induce a given percentage migration from farm to nonfarm areas than is the case in industrial countries. This is due not only to the factors already mentioned but because a given percentage reduction in farm employment in developing countries requires the availability of a much larger percentage increase in nonfarm jobs than would be the case in an industrial country. In France, for example, farm employment is approximately 8 percent of total employment. If three percent of the farm workers annually changed to nonfarm jobs, it would required the creation of an additional 0.25 percent in nonfarm jobs. But in Brazil, where 30 percent of the total employment is in agriculture, an annual transfer of 3 percent of the farm workers to nonfarm jobs in a year would require increasing nonfarm jobs by 1.3 percent each year over and above the amount required for the net additions to the labor force through population growth. Thus in developing countries the labor transfer from agriculture to nonagriculture is clearly more difficult than in the industrial countries. This is why it is particular relevant for governments in developing countries to utilize their scarce resources, both financial and administrative, to facilitate the transfer of labor from agriculture to the rest of the economy.

The Political Economy of Protection

Why do governments intervene in the markets for farm products? Why do some countries tax agriculture and others subsidize it? Why do pork producers in the United States and the European Community who receive little protection not protest the high rates of protection for dairy products? Or why do Brazilian soybean producers accept the much more favorable treatment of wheat producers as well as the export tax on soybeans to assist what is probably an inefficient soybean processing industry? These are some of the questions for which answers are required if we are to better understand the hows and whys of governmental intervention in agriculture. Governments intervene in response to certain interests and the incentives offered by those interests.

In this, an almost final section of my paper, I shall review some of the work that is relevant to understanding why protection rates vary widely from country to country - from very negative in low income developing countries to large positive in high income industrial countries. It has been a common assumption that agriculture's political influence is a function of the importance of agriculture in an economy. Importance could be measured either by population or by contribution to national income and employment. This view seems clearly inconsistent with two facts: (a) Agricultural protection has increased in industrial countries as the relative importance of agriculture has declined and (b) across countries at a given time agricultural protection goes from negative to positive as one moves from countries with low per capita incomes to countries with high per capita incomes.

Let me note in advance that there is no generally agreed explanation of why agricultural protection varies over time and from country to country.

However, in recent years, increasing attention has been given to finding explanations based upon interest group theory or the closely related theory of collective action. Interest group theory postulates that an interest group, in our case the producers of a farm product, will spend resources upon political influence or pressure only if they expect to earn a positive return. Where there are many producers, the fixed costs of organizing are large and it is unlikely that political organization would be profitable. The amount of gain or loss resulting from governmental intervention is a function of the size of farms and of sales per farm. Where the farms are large and relatively specialized, the probability increases that the gains realized from organizing are greater than the costs of organizing. As farms become larger, the costs of communication among them decline. In addition, the costs of communication and organizing decline as economic growth occurs. A number of regularities in protection levels have been discovered (Binswanger and Scandizzo, 1983 and Miller, 1986). Binswanger and Scandizzo estimated nominal protection coefficients for 17 developing countries with 57 different commodity-country combinations. Only 5 of the 57 protection coefficients were positive. In other words, in only 5 of the 57 instances were the prices received by farmers higher than they would have been under free trade. Why have developing countries and industrial countries treated agriculture so differently? The regularities that studies have found as related to the size of protection coefficients, which range from negative to positive; are as follows:

1. Positively related to the level of per capita income.
2. Negatively related to the percentage of a country's labor force engaged in agriculture or, alternatively, the percentage of the gross national product produced by agriculture.
3. Negatively related to the amount of agricultural land per capita.

4. Negatively related to the value of agricultural exports per capita (with imports counted as negative exports).
5. Positively related to commodities produced on larger and more specialized farms.
6. Negatively related for a product that is a tropical beverage.

Because per capita income levels and the percentage of the labor forces engaged in agriculture or the percentage of the GNP produced by agriculture are highly negatively correlated, the first two relationships are the same though with opposite signs. But both are included because one or the other of the two relationships is the most powerful of the possible variables in explaining the level of protection provided to an agricultural commodity. In effect, these relationships imply that as per capita incomes increase and as the relative importance of agriculture declines, the cost of a given level of agricultural protection declines as a share of national output. In other words, at high levels of per capita income agricultural protection becomes affordable and at low levels of per capita income, agriculture is an important source of government revenue. When the amount of agricultural land per capita is small, protection levels increase (other things equal). This relationship probably reflects increased concern over food security in counties that have little agricultural land relative to its population.

The relationship between agricultural exports per capita and the level of protection is negative implying two quite different things, depending upon the circumstances. In developing countries a large volume of exports offers the possibility of acquiring a substantial amount of revenue for the government through the use of export taxes. In high income countries with large per capita exports, protection of the exported products requires some form of subsidy and thus government expenditure. The subsidy may be an export subsidy or a general subsidy, such as the deficiency payments in the

United States. But the larger are the exports, the greater the government cost and thus there is some limit on the degree of positive protection in industrial countries.

The fifth of the relationships is directly supportive of interest group theory. Large and specialized producers can organize at much lower cost relative to benefits than can huge numbers of general farmers. It is much easier for the 10,000 rice farmers in the United States to organize and obtain a hearing for their concerns than it is for millions of rice farmers in either India or China or hundreds of thousands of bean producers in Brazil to similarly organize themselves.

The above considerations are helpful, I believe, in understanding why the demand for agricultural protection has increased over time and why countries may shift from taxing agriculture to subsidizing it - as Brazil probably will in the early years of the next century. As real per capita incomes increase, as the number of farmers declines and those who remain become larger and more specialized, as the ease of communications increases and the costs of organizing commodity producers falls, producers find the gains from increased protection worth the potential costs of acquiring the protection. But the analysis is rather less convincing concerning why there is, so to speak, an apparent increase in the supply of protection. The declining importance of agriculture and the diminishing share of income spent on food that occurs with economic growth means, as pointed out above, that consumers and taxpayers can "afford" a relatively high rate of agricultural protection with a constant or even declining share of their income devoted to the required interventions. But this still doesn't tell us why it is agriculture that becomes the object of political sympathy rather than

other kinds of small businesses, such as grocery stores or restaurants or automobile dealers.

Concluding Comments

This is a paper about governmental policies and I shall end it with a small number of policy prescriptions that I believe merit serious considerations in Brazil. I believe that it is clearly in the interests of Brazilian consumers and farmers for Brazil to make a significant effort to achieve reductions in barriers to trade in agricultural products in the current round of negotiations in Geneva. If Brazil is to insist that the industrial countries largely eliminate their barriers to trade in agricultural products, Brazil must be prepared to do likewise. In Brazil's case reducing trade interventions would mean increases in the prices of several farm products. The gains to consumers would come not from lower prices, though this might well be the case in the long run, but from greater security of supplies and stability of prices. There is abundant evidence that international trade is the most effective means for assuring adequate food supplies at reasonable prices (Johnson 1981).

But for the long run the interest of Brazil lie even more in achieving reductions in trade barriers for manufactured goods and for services. Brazil's future role in both export and import markets will increasingly move toward these sectors. And it will be through these sectors that the Brazilian economy, and especially the consumer and worker, will gain by Brazil's participation in world trade.

We are now seeing throughout the world efforts to reduce the role of government in the economy. This change has occurred to a remarkable degree in China and in New Zealand and reforms are under consideration for similar

changes in the Soviet Union and several of the Eastern European economies. Similarly in Western Europe, North America and Japan there have been significant economic deregulation and such efforts are continuing, especially in the service sector generally and the financial sector in particular. The European Community has embarked upon creating a Community without borders by 1992. If successful, this would achieve a remarkable reduction in governmental interventions in markets. In many countries there have been sharp reductions in the maximum marginal income tax rates.

I mention these significant trends in the role of government in the economy to note that the changes in policies and the reforms required for Brazil to become more fully integrated into the world economy are consistent with trends that seem to be sweeping the world. And it may well be that a nation that ignores these trends may well be left behind.

My final note is to emphasize the positive contributions that governmental intervention can make for the benefit of rural people. The issue is not whether government should intervene, but what responsibilities should it undertake and what should it avoid. My position has been that almost all market interventions have negative consequences, while government investments in education, in rural roads and transportation, in communications and in facilitating the integration of rural and urban life will have large favorable consequences. Obviously there are other areas, such as agricultural research, information gathering and dissemination, fostering competition and maintaining security of person and property, where government should have a major role.

FOOTNOTES

1. The U.S. Department of Agriculture has made estimates of the nominal protection rates for 17 countries, including Brazil, for 1982-86 (USDA 1988). For Brazil the USDA estimates of nominal protection rates differ significantly from those given in the World Bank Study and reproduced in Table 1 for soybeans and wheat. The estimation of nominal protection rates that reflect the World Bank study included the effects of nonagricultural protection upon agriculture as well as the effects of currency overvaluation and domestic subsidies, such as the credit subsidies that were so enormous in Brazil in the early 1980s. The USDA study did not include the effects of protection elsewhere in the economy but did include an estimate of the impact of the overvaluation of the currency in estimating the nominal protection rates. The USDA estimates of nominal protection ranged from a large negative for beef (-33 percent) to large positives for wheat and rice - protection rates of 100 percent or more. However, the rankings of the World Bank's total protection rates and the USDA's nominal protection rates are similar. For the discussion in the text, it is the relative and not the absolute protection rates that are relevant.

2. The estimation of the aggregate output effect of a given level of nominal protection of agriculture should be considered a rough approximation. It assumes that there is no significant protection in the rest of the economy. For the United States and EC the protection rates for agricultural inputs is very low and the overall rate of protection for goods and services is much lower than for agriculture.

3. While the IIASA study is said to be a general equilibrium study, there are particular assumptions in the model that make the measure of economy wide effects unreliable. The most important of the assumptions is that the marginal productivity of resources, especially labor, in agriculture can be measured by money payments or wage rates without taking into account the large differences in unmeasured in-kind income between rural and urban areas. As a result, when real agricultural prices increase due to trade liberalisation, as they do for developing countries, and there is a relative shift of resources to agriculture, the model indicates that this shift reduces national welfare or income. What the model seems to be saying is that you can increase national welfare by taxing agriculture heavily, even when it is a major source of employment. This result is not only counter-intuitive, it is wrong.

4. In the United States in 1986 the 14 percent of all farms that sold 70 percent of all sales of farm products received 56 percent of all government payments. The average net income of the farm operator families on these large farms in 1986, from both farm and nonfarm sources, was in excess of $130,000 or about four times the national average family incomes. The average direct payment per family in this group was nearly $22,000 or about two thirds the average family income and double the poverty income level for a family of four (USDA Dec. 1987). While similar data are not available for countries in the European Community, the fact that about the same percentage of farms produce from two thirds to three fourths of total farm output indicate that the distribution of the income benefits of the farm subsidy programs would be quite similar to that found in the United States.

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Table 1

Direct, Indirect and Total Protection Rates for Selected Commodities, 1980-84, (percentage of international price)

Country	Exportables				Importables			
	Product	Direct	Indirect	Total	Product	Direct	Indirect	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Argentina	Wheat	-13	-37	-50	none	-	-	-
Brazil	Soybeans	-19	-14	-40	Wheat	-7	-14	-21
Chile	Grapes	0	-7	-7	Wheat	9	-7	2
Columbia	Coffee	-5	-34	-39	Wheat	9	-34	-25
Dominican Republic	Coffee	-32	-19	-51	Rice	26	-19	7
Egypt	Cotton	-22	-14	-36	Wheat	-21	-14	-35
Ghana	Cocoa	34	-89	-55	Rice	118	-89	29
Ivory Coast	Cocoa	-21	-26	-47	Rice	16	-26	-10
Korea	None	-	-	-	Rice	86	-12	74
Malaysia	Rubber	-18	-10	-29	Rice	68	-10	58
Morocco	None	-	-	-	Wheat	0	-8	-8
Pakistan	Cotton	-7	-35	-42	Wheat	-21	-35	-56
Philippines	Copra	-26	-28	-54	Corn	26	-28	-2
Portugal	Tomatoes	17	-13	4	Wheat	26	-13	13
Sri Lanka	Rubber	-31	-31	-62	Rice	11	-31	20
Thailand	Rice	-15	-19	-34	None	-	-	-
Turkey	Tobacco	-28	-35	-63	Wheat	-3	-35	-38
Zambia	Tobacco	7	-57	-50	Corn	-9	-57	-66

Source: Anne O. Kreuger, presented at XX International Conference of Agricultural Economists, August 24-31, Buenos Aires.

Table 2

Nominal Rates of Agricultural Protection for Six Industrial Market Economies, 1982 and 1986[a]

(Percent)

	U.S.	Canada	EC	Japan	Australia	New Zealand
1982	21	26	41	199	15	55
1986	56	76	99	367	15	15

[a]Based on Producer Subsidy Equivalents for major agricultural products in each country; nominal protection rate calculated by dividing the policy transfers to farmers by the value to producers minus the policy transfer. This is approximately equivalent to dividing the value to produers by the appropriate border price. Since some of the subsidies included are for administration and to lower costs incurred by farmers due to methods used to ennance farm prices and income, the measures of protection are somewhat too high.

Source: U.S. Department of Agriculture, Economic Research Service, Estimates of Producer and Consumer Subsidy Equivalents: Government Intervention in Agriculture, 1982-86, ERS Staff Report AGES880127, April 1988.

Programa II. Geração e Transferência de Tecnologia

O Programa de Geração e Transferência de Tecnologia é a resposta do IICA a dois aspectos fundamentais: (i) o reconhecimento, por parte dos países e da comunidade técnico-financeira internacional, da importância da tecnologia para o desenvolvimento produtivo do setor agropecuário; (ii) a convicção generalizada de que, para aproveitar plenamente o potencial da ciência e da tecnologia, é necessário que existam infra-estruturas institucionais capazes de desenvolver as respostas tecnológicas adequadas às condições específicas de cada país, bem como um lineamento de políticas que promova e possibilite que tais infra-estruturas sejam incorporadas aos processos produtivos.

Nesse contexto, o Programa II visa a promover e apoiar as ações dos Estados membros destinadas a aprimorar a configuração de suas políticas tecnológicas, fortalecer a organização e administração de seus sistemas de geração e transferência de tecnologia e facilitar a transferência tecnológica internacional. Desse modo será possível fazer melhor aproveitamento de todos os recursos disponíveis e uma contribuição mais eficiente e efetiva para a solução dos problemas tecnológicos da produção agropecuária, num âmbito de igualdade na distribuição dos benefícios e de conservação dos recursos naturais.

INSTITUTO INTERAMERICANO DE COOPERAÇÃO PARA A AGRICULTURA

O Instituto Interamericano de Cooperação para a Agricultura (IICA) é o organismo especializado em agricultura do Sistema Interamericano. Suas origens datam de 7 outubro de 1942, quando o Conselho Diretor da União Pan-Americana aprovou a criação do Instituto Interamericano de Ciências Agrícolas.

Fundado como uma instituição de pesquisa agronômica e de ensino, de pós-graduação para os trópicos, o IICA, respondendo às mudanças e novas necessidades do Hemisfério, converteu-se progressivamente em um organismo de cooperação técnica e fortalecimento institucional no campo da agropecuária. Essas transformações foram reconhecidas oficialmente com a ratificação, em 8 de dezembro de 1980, de uma nova convenção, que estabeleceu como fins do IICA estimular, promover e apoiar os laços de cooperação entre seus 31 Estados membros para a obtenção do desenvolvimento agrícola e do bem-estar rural.

Com um mandato amplo e flexível e com uma estrutura que permite a participação direta dos Estados membros na Junta Interamericana de Agricultura e em seu Comitê Executivo, o IICA conta com ampla presença geográfica em todos os países membros para responder a suas necessidades de cooperação técnica.

As contribuições dos Estados membros e as relações que o IICA mantém com 12 Países Observadores, e com vários organismos internacionais, lhe permitem canalizar importantes recursos humanos e financeiros em prol do desenvolvimento agrícola do Hemisfério.

O Plano de Médio Prazo 1987-1991, documento normativo que assinala as prioridades do Instituto, enfatiza ações voltadas para a reativação do setor agropecuário como elemento central do crescimento econômico. Em vista disso, o Instituto atribui especial importância ao apoio e promoção de ações tendentes à modernização tecnológica do campo e ao fortalecimento dos processos de integração regional e sub-regional.

Para alcançar tais objetivos o IICA concentra suas atividades em cinco áreas fundamentais, a saber: Análise e Planejamento da Política Agrária; Geração e Transferência de Tecnologia; Organização e Administração para o Desenvolvimento Rural; Comercialização e Agroindústria, e Saúde Animal e Sanidade Vegetal.

Essas áreas de ação expressam, simultaneamente, as necessidades e prioridades determinadas pelos próprios Estados membros e o âmbito de trabalho em que o IICA concentra seus esforços e sua capacidade técnica, tanto sob o ponto de vista de seus recursos humanos e financeiros, como de sua relação com outros organismos internacionais.

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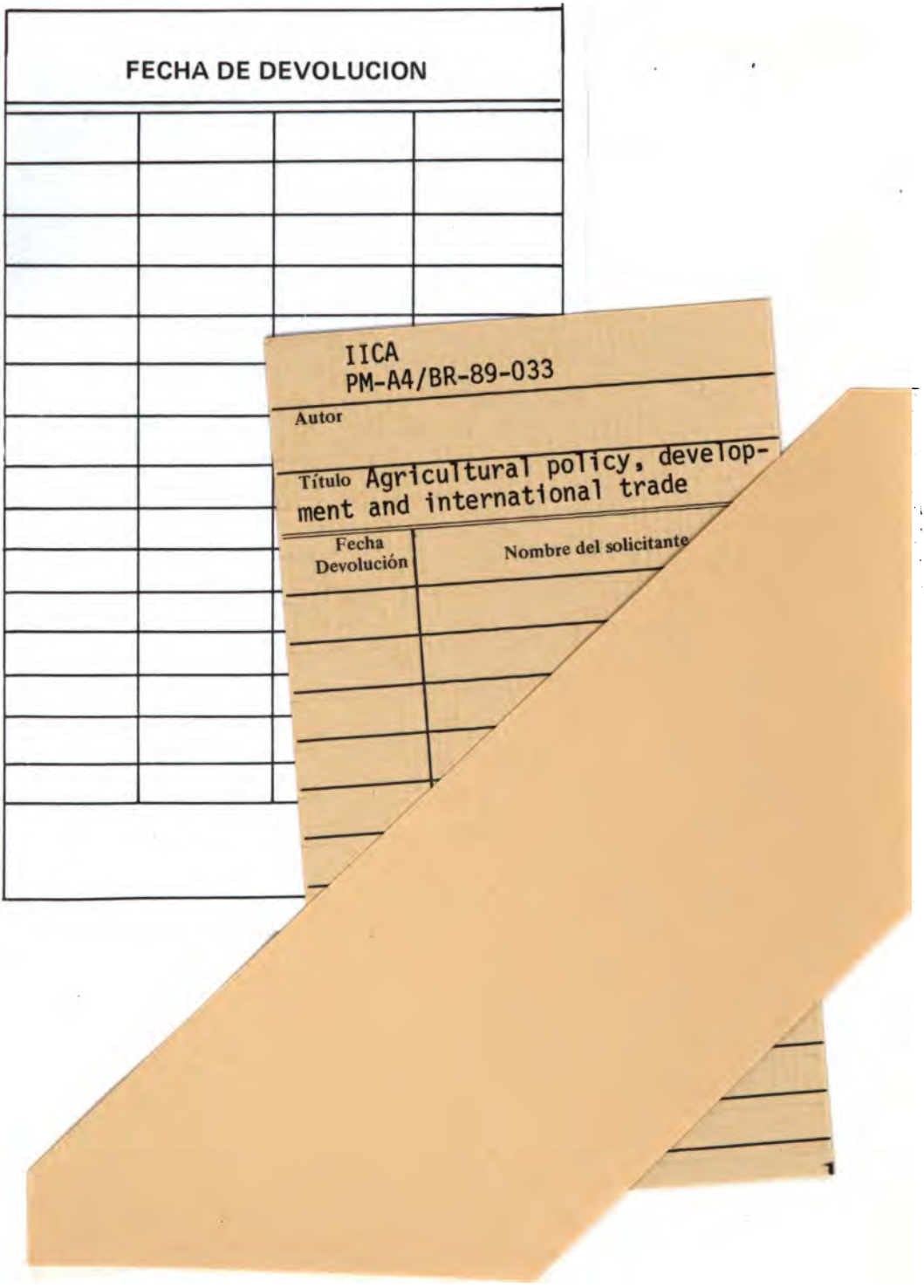
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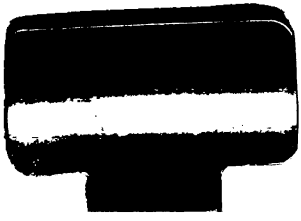

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