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COMPARATIVE ADVANTAGE AND U.S. EXPORTS AND IMPORTS OF FARM PRODUCTS

BY

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One of the outstanding intellectual discoveries of the classical economists was the principle of comparative advantage as a determinant of the commodities that would be traded among nations if there were no barriers to the trade. The principle is a very simple one, namely that the flow of trade will be determined by differences in comparative costs of the various commodities and services that can be transported. Only if the structure of comparative costs in all nations were identical would there be no trade; any difference in the relative cost structure of different nations would result in the export of commodities with relatively high comparative costs. The principle of comparative advantage also said something else of great importance, namely that differences in absolute costs of production or absolute advantage were of no significance in the determination of trade. Absolute advantage was not relevant for at least two reasons: First, it is not a meaningful concept since it cannot be measured if there is more than one input and, second, even if there were only one scarce input and its productivity differed uniformly from one country to another so that relative costs of various products were everywhere the same there would be no trade.

The principle of comparative advantage serves as the primary determinant of exports and imports only when there are no departures from competition, both within each nation and in influencing the flow of trade among nations. When there are departures from competition in either situation the flow of trade will not be what would be determined by the principle of comparative advantage and some goods may not be imported that would be if comparative advantage were the only criterion at work. And what is often ignored, when goods that are being produced domestically at a comparative disadvantage are not imported or imported in smaller volume, goods that are produced at a comparative advantage may not be exported at all or exported in a smaller volume.

The primary reason why a paper with this title is presented at this or any other meeting is that since there are departures from competition there is an interest in knowing what products would be at a comparative advantage or disadvantage if such departures from competition were eliminated. Another possible reason for interest in this topic is that it is anticipated that there will be or may be substantial shifts in national cost structures for some products that are of interest. While I will not entirely neglect the second, I will primarily address myself to the first of these.

Difficulties in Measuring Comparative Advantage for Farm Products

When governments intervene in the pricing of farm products, pay subsidies either to produce or not to produce particular products, erect tariffs or impose import quotas, and pay subsidies to encourage exports, the actual export or import of a particular farm product may tell us very little about the comparative advantage or disadvantage of production of that product in a given nation. The fact that the United States imported almost 825,000 metric tons of beef and veal in 1970 does not prove that the U.S. has a comparative disadvantage in beef and veal production. It is not altogether improbable that under something approximating free trade in all agricultural products that the United States might become a modest net exporter of beef if measured in value terms.

One of the minor inconveniences of the farm programs that this country has had for almost four decades is that the economist can not be sure whether certain farm products have a comparative advantage even though we now export such products in substantial amounts. The two most anomalous cases are wheat and cotton. In 1970 36 percent of the cash

receipts associated with wheat production was derived from government payments; in the case of cotton payments constituted 42 percent of the total. And when one adds the possible, but unknown, effects of P.L. 480 shipments it is even more questionable whether the United States has retained the comparative advantage in these two products that was so clear three decades ago. I do not want to be interpreted as saying that we have lost our comparative advantage; what I am saying is that our ability to export significant fractions of their output is not convincing evidence that we have maintained their comparative advantage. What we need to know, and I think we do not know, is whether the long run output of cotton and wheat would rise or fall if the farm programs that we now have were eliminated. If output were to increase in the absence of farm programs, then we probably have maintained their comparative advantage. It is generally assumed, but I think not proven, that if both acreage limitations and payments were eliminated that U.S. output of cotton and wheat would increase.

Another complexity of measuring comparative advantage is that it involves comparing measures that are similar to two or more yardsticks when over time the space between marks may vary on one or more or the marks may even change positions relative to each other on one or more of the measures. The comparative advantage of wheat, for example, in the United States depends not only upon its relative costs in this country but also upon relative costs of wheat in the rest of the world. If the relative cost of wheat should fall substantially outside the United States, due to the Green Revolution, for example, we could lose our comparative advantage even if the relative cost of producing wheat in the United States remained unchanged or even fell. In speaking of the

relative cost of producing wheat I am referring to its costs compared to costs of other commodities produced in the same country.

And it is not only the farm programs of the United States that makes it difficult to understand the comparative advantage position of our farm products. The farm policies of most other industrial countries have also significantly influenced the cost structure of agriculture. How much would the cost of beef decline in the European Economic Community if the price of land were reduced by lowering the internal price of grain? Or the cost of dairy products?

Exports--Prospects and Dangers

Feed grains, including byproducts, and oilseeds and products accounted for more than 45 percent of U.S. commercial exports of farm products in 1970/71. Together feed grains and oilseeds and products accounted for more than 60 percent of the growth of commercial farm exports between 1960-64 and 1970/71. These are two groups of products in which the United States now has a comparative advantage and I can see little reason why this should be eroded during the present decade. While large payments are made under the feed grain program, it should be noted that for the past several years more than 60 percent of all feed grains have been grown on farms not participating in the feed grain program or consists of feed grains not included in the program. Thus for this large fraction of total feed grain output, farmers are producing in response to international prices. And except for one brief aberration, pricing policy for soybeans has not interfered with production decisions or the flow of products into international commercial markets.

The greatest danger to further growth in feed grain exports is the grain price policy of the European Economic Community. The threat to our

exports comes from the continued expansion of wheat production in the EEC and the use of much of the added wheat production as feed and from the expansion of feed grain production in France. The enlargement of the EEC will add to these prospective difficulties because of the higher consumer prices of meat and milk in the United Kingdom, thus reducing the demand for feed, and the rather substantial expansion of grain production in the U.K. due to the increase in UK farm prices. These fears are based upon the presumption that the EEC price and trade policies for grains will remain unchanged for most of the current decade.

Offsetting the dim prospects for feed grain exports to the EEC is the prospective growth of exports to Japan. It is generally agreed that Japanese imports of feed grains will continue to grow, in part because of income growth and in part because Japan has no significant domestic feed grain sector to protect. It is also probable that Japan will continue to produce a very large fraction of her meat domestically and she can do so only by expanding feed imports. Whether we retain a major share of Japan's feed grain imports will depend upon our prices and our ability to deliver.

A somewhat surprising potential and substantial market for feed grains may be the Soviet Union and Eastern Europe. In recent months the Soviet Union has contracted for the delivery of about 5 million metric tons of feed grain by July, 1972. This is in addition to slightly larger food wheat import of about 3 million tons. The expansion in grain imports follows a record grain crop in 1970 and a crop in 1971 that was probably the second largest on record. These are not imports forced by bad crops, such as followed the crops of 1963 and 1965.

I make no claim to understanding what is behind the recent commitment

of foreign exchange for large scale feed grain imports. It seems to me there are three possible explanations: (1) Soviet estimates of grain production have been exaggerated; (2) grain stocks have been depleted to an unsatisfactorily low level and imports are being used to rebuild the stocks, or (3) the growth in demand for meat, especially beef and poultry, is outstripping the amount that can be produced from domestic feed supplies. If the latter explanation is the most nearly correct, it implies that substantial feed grain imports may occur over the next several years. If recent grain crops have been record and near record, as claimed, it is highly probable that feed grain imports two or three times the amount purchased this year will be required in one or two years out of the next five to prevent the liquidation of livestock herds, especially hogs, such as followed the poor crops of 1963 and 1965.

Meat prices are high in the Soviet Union and yet large scale producer subsidies are being paid. The planned subsidies on meat for 1970 were 9.3 billion rubles and this was approximately three fourths of the retail value of all meat sold in the state retail trade network. Soviet officials appear to have committed themselves to trying to improve the meat situation. And grain imports may be the only avenue now open to them.

As noted earlier the comparative advantage of the U.S. in soybeans is substantial and there does not appear to be any development on the horizon to modify that circumstance. It should be remembered, however, that part of our exports of soybeans or oilmeal to the EEC is to some degree an artifact of their trade policy. With soybeans entering free of duty and corn facing a variable levy of about 70 percent, EEC farmers are using more oil meal per ton of grain fed than are U.S. farmers--in fact almost three times as much. Factors other than relative prices are

involved, but a large part of the difference in feeding practices can be explained by the very low relative price of oilmeal in the EEC. If the EEC should move to a more modest level of protection of grain and thus to lower livestock prices, the increased production of meat would result in an increase in total feed requirements and while the relative importance of oilmeal would decline, the absolute quantity used would fall less. And this effect would offset in part or in whole the effect of the decline in relative importance of oilmeals in feeding rations upon the absolute level of oilmeal imports.

Together wheat and cotton accounted for 18 percent of commercial exports of agricultural products in 1970/71. I group these together because I doubt if we can any longer be certain that we have a comparative advantage in wheat and cotton. One strong basis for doubt is the study of the degree of effective protection of major U.S. farm products made by Larry J. Wipf of Ohio State University.[1] He found four groups of farm products with very high rates of effective protection in 1968--dairy products, sugar, food grains and cotton. A high rate of effective protection is consistent with net imports but is generally not considered to be consistent with exports being guided by comparative advantage. The rates of effective protection were very high--153 percent for wheat and 102 percent for cotton.

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[1] Larry J. Wipf, "Tariffs, Nontariff Distortions and Effective Protection in U.S. Agriculture," American Journal of Agricultural Economics, Vol. 53, No. 3 (August, 1971), pp. 423-30. The effective rate of protection is defined as the percentage difference in a commodity or industry sector's value added under protection and under free trade; the percentage difference is derived by subtracting the value added under free trade from the value added under protection and dividing this difference by the value added under free trade and converting the ratio to a percentage. The more frequent measure of protection reflects only the difference between domestic and world prices of a particular commodity and thus ignores both the effect of any subsidies and the fact that a large fraction of the output of any commodity is due to inputs purchased from other sectors of the economy.

Almost all of the high rates of effective protection for wheat and cotton result from subsidies paid in connection with the acreage control and diversion programs, though part of the effective protection of wheat was due to domestic marketing certificates for food use of wheat and the export subsidies that were paid in 1968/69.

It can be argued, and is, that the payments under these two programs are required to induce farmers to restrict the acreage they devote to the two crops. It can also be argued that compared to the output that would be produced under free trade and no government programs the combination of payments and acreage limitations result in a larger acreage of each of the two crops and probably a higher yield per acre. In other words, according to the latter position, some land is now being devoted to cotton and wheat because the cotton and wheat programs exist. I state these as two positions and I am unsure of which is the correct position. Until we have better evidence of which is the more correct position--the real situation could be somewhere in between--our bargaining position in international negotiations on agricultural products is weakened.

Imports

There are four major groups of agricultural imports that are most subject to both domestic and international concern--beef, dairy products, sugar and wool. Peanuts probably should be added to this group since Wipf's work indicates that its effective rate of protection in 1968 was 204 percent, second only to the 662 percent for sugar crops.[1] For four of these groups we impose import quotas and for the fifth--wool--we have moderate tariffs and direct payments to producers that now significantly exceed international prices for wool of comparable quality.

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[1] Ibid., p. 428.

Beef and Dairy Products

It is not possible to consider our comparative advantage position with respect to beef without considering governmental policies, both our own and others, for the protection of dairy products. Nor is the U.S. import and export position on beef independent of the beef price and trade policies of other countries, especially Western Europe and Japan. It is possible that if there were only moderate protection for both dairy products and beef in the industrial countries that the United States would have nil net imports of beef on a value basis. The current international market for beef is a seriously distorted one and U.S. imports of beef are due largely to the closing of other markets for beef by trade restrictions and the encouragement of beef production resulting from subsidies to dairy production so common among the industrial countries. A major consequence o the domestic farm price policies followed in Western Europe and Japan is a significant reduction of beef consumption.

In Western Europe beef production is primarily a byproduct of the dairy sector. In the United Kingdom perhaps a fourth of the beef is produced outside the dairy industry; in the rest of Western Europe the percentage is lower. Thus when domestic and trade policies increase dairy production, these policies simultaneously increase beef production. The same relationship holds in the United States but the dairy industry is now a relatively unimportant source of our total beef supply.

I have estimated that a 10 percent reduction of milk production in Western Europe would reduce beef production by 500,000 tons.[1] If the

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[1]These speculations are included in my paper "Agricultural Price Policies and Effects on Trade: Some Examples from the United States and Western Europe" given at the Fourth Pacific Trade Conference in Ottawa, Canada, November, 1971 (Office of Agricultural Economics Research, University of Chicago, Paper No. 71:13, Revised November 15, 1971).

United States produced milk only for fluid purposes plus a 50 percent excess to maintain adequate fluid supplies throughout the year, our production of beef would decline by 500,000 tons. If there were free trade in beef and grains in the EEC, it is probable that EEC prices of beef would decline by a third. The increase in beef consumption, assuming a price elasticity of demand of -0.6, would be 1.0 million tons. If Japanese consumption of beef had increased at the same rate as their consumption of pork since 1955 (beef consumption in Japan remained approximately constant at 1.1 to 1.2 kilograms per capita between 1955 and 1967), Japanese imports of beef would now exceed 500,000 tons. The total of these projected decreases in production and increases in consumption is 2.5 million tons. This is double the total beef and veal production of Australia and New Zealand and equal to Argentine production in recent years.

If the projected situation were to materialize prices of beef in international markets would rise significantly. While U.S. imports of lower quality beef would probably continue and might well increase due to the continued decline in domestic cow beef, it is likely that a substantial export market for fed beef would develop in Western Europe and perhaps also in Japan. Thus on a value basis we might not be a net importer of beef with free trade or moderate trade restraints on beef, dairy products and grains.

Any significant move toward determining international trade in beef on the basis of comparative advantage depends upon achieving a greater degree of economic rationality in the domestic and trade programs affecting dairy products in the high income countries. With the exception of New Zealand, all of the high income countries of the world interfere with the market prices of dairy products and even New Zealand isn't above a little tinkering in the name of price stabilization. However, New Zealand is the

only country with producer returns under $6 per 100 kilograms; three other countries have dairy product prices in the range of $6-8 per 100 kilograms --Denmark, Ireland and Australia. In the general range of $8-10 one finds the United Kingdom, Austria, France, Belgium, Canada and the Netherlands; between $1o-12 are Germany, Italy, Switzerland and the United States. The data are for 1970; since then the United States has moved to a price in excess of $13. In 1970 both Norway and Japan had producer prices in excess of $12.

Of the total OECD plus Oceania milk production of 200 million tons only a little more than 10 percent is produced without significant protection. High prices have restricted consumption and increased production in most of the high income countries. When this happens it is not surprising that international markets are flooded with highly subsidized exports and the international prices are largely without meaningful economic implications.

At the present time the international dairy situation is a chaotic one. The low cost producers are excluded from markets by all manner of restrictions and must in turn face highly subsidized exports. The high cost producers complain that they must restrict imports and engage in export dumping because almost every other country does so. So long as these attitudes are held there appears to be little prospect for any improvement in either domestic or international policies.

The sad aspect of the entire international dairy situation is that the magnitude of the quantitative disequilibrium is relatively small. If consumers in the OECD countries had the opportunity of purchasing milk products at international prices, it is likely that present producer prices would be viable in the sense that total output and consumption would be

in approximate balance and the amount of subsidized exports would be greatly reduced, if not eliminated. Furthermore, international prices would rise significantly and the treasury costs of such a program would be substantially less than is implied by the current differences between producer and world prices in the high income countries. The substantial increases in butter and cheese prices in 1971 due to lower production in New Zealand indicates how significant even a modest increase in consumption would be in increasing international prices. When one adds as a consideration the great importance of dairy products in the adequacy of diets in the high income countries to the other advantages of deficiency payments on milk and milk products, it would appear that this approach merits some consideration. Barring a move of this sort, it is clear that new trade negotiations for agricultural products start with at least one big strike against them.

Sugar

What can onesay about sugar? Since there is a great deal that can be said, the question might more appropriately be: What can be done about sugar? I fear that the answer is very little. Of all the temperate zone industrial countries apparently only two do not produce sugar beets--Norway and Luxemburg. The EEC is approximately self-sufficient in sugar and will remain so unless there is a change in policies. The United States still imports about 55 percent of its total sugar, even though since 1966 the quota system has reserved up to 62 percent of the market for domestic producers. However, domestic production has not been large enough to permit holding imports to about 40 percent of U.S. use.

The U.S. sugar program is very expensive; it has something in it for practically everybody except consumers. Foreign quota holders

appreciate the very high price in the U.S. market; producers of sugar have a stable and relatively high price, and refiners are protected by quotas against the importation of refined sugar in any significant quantity. Even under these relatively favorable conditions U.S. production of sugar has either remained stable or declined slightly in recent years.

Unless there is a substantial increase in the returns to domestic producers of sugar, it is likely that imports will increase gradually in the years ahead. Given the structure of recent sugar programs, consumers will derive little benefit from increased imports except as such imports are an alternative to higher prices. At the present time the sugar program imposes an additional cost of approximately $1 billion on consumers and taxpayers; this compares to total cash receipts from production of sugar cane and sugar beets in domestic areas of about $700 million in 1970. The cost to consumers is calculated as over and above the import cost of sugar and assumes that world marketprices would increase if the U.S. increased its imports of sugar. It is obvious that the economic losses to consumers and taxpayers far exceed any net gains to producers of sugar in the United States; it is equally obvious that both those now producing and consuming sugar could be made better off by other arrangements.

Wool

For the past several months the international market for wool could be described as a disaster area. The market price received by U.S. farmers has declined to almost half the 1967 level. With the incentive price at 72 cents per pound for shorn wool, the deficiency payment in recent months was almost two and one half times the market price. The wool program,

while it is currently providing a high degree of protection for domestic producers, has the clear merit that wool users can benefit from low prices and consumption is not being restricted for that reason. U.S. wool production declined by approximately 40 percent during the 1960s and while such production would have declined more in the absence of the program, at least we cannot be accused of adding to the current surplus problem.

U.S. per capita wool consumption has declined dramatically in the last decade. While the recent lower prices may stem the downtrend temporarily, it is unlikely that these prices can be maintained since they are uneconomic for even the most efficient wool producers. The major problems confronting the wool producers of the world are not trade barriers but the increasing competition from synthetic fibers.

Trade Negotiations and Comparative Advantage

If it were possible to view the interests of U.S. agriculture as a whole--as if it were a single firm, for example--our stance at trade negotiations on agricultural products would be a simple one. U.S. agriculture finds itself as a component of the world's largest industrial nation and yet, on balance, it has a comparative advantage relative to the rest of the economy. This is in sharp contrast to the situation in the other major industrial nations of the world.

If our objective were to maximize the total gain to resources engaged in agriculture, with no regard as to how the gains and losses were distributed within agriculture, it is clear to me that would be achieved if there were free trade in farm products or only a modest degree of protection for agriculture in the industrial countries of the world. Such a policy, if it could be brought into being, would also provide very large

benefits to consumers and taxpayers in these countries. Under free trade in agricultural products I have argued elsewhere,[1] that feed grain prices would increase by about 10 percent, world wheat prices would approximate wheat's feed value but a virtually unlimited market would exist at that price, there would be a substantial increase in international prices of dairy products, and a modest increase in beef prices in international markets. The oilmeals would benefit from increased livestock feeding but would lose somewhat from existing trade preferences that tend to favor them. These projected changes would favor expansion of total agricultural output in the United States. They would certainly call for substantial reductions in our production of manufactured dairy products, sugar, wool and peanuts. These agricultural sectors would be faced with very large and painful adjustments if, by some miracle, something approximating free trade in farm products were achieved. But it is also clear that if we had the will that we could assure every individual now involved in the production of these commodities and their first processing that they would suffer no economic loss and consumers and taxpayers would retain a clear gain after such compensation were paid.

As I have watched the trade negotiation process for the past decade, I have occasionally but only very briefly wondered how the United States government would react if our trading partners in Western Europe and the Pacific Region offered us free trade in agricultural products if we would reciprocate. Unlikely as this event might be, I have never seen any evidence that we would be prepared to respond affirmatively. Or suppose that

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[1] D. Gale Johnson, "Free Trade in Agricultural Products: Possible Effects on Total Output, Prices and the International Distribution of Output," Office of Agricultural Economics Research, University of Chicago, Paper No. 71:9, Revised November 2, 1971.

we were offered a trade deal in which the average degree of effective protection for agriculture were 20 to 25 percent with the maximum for any particular farm product being twice that level? Wipf's analysis indicates that in 1968 the average degree of effective protection of U.S. agriculture was about 25 percent, but most of the trade distorting effects as seen by our competitors and suppliers occurred in a few sectors with relatively high rates of effective protection, namely sugar, dairy products, peanuts and wool. Some complaints have also been made against our high rates of effective protection of wheat and cotton, but as indicated earlier one cannot be certain whether such complaints are justified.

The fact that we have not been prepared to respond to either of these possible offers in trade negotiations has weakened our bargaining position to some degree. Our trading partners surely know that we would be in no position to respond and even though most of them would be less likely to make such an offer and mean it than would we, the fact that we have no politically viable alternatives to some of our existing farm programs means that they do not have to be very serious in responding to our protestations about high variable levies and high export subsidies on some of their major farm products.

We simply can't expect to have it both ways--to obtain significant reductions in trade barriers for those farm products for which we have a comparative advantage and to maintain high degrees of protection for those farm products that we produce under a comparative disadvantage. If we were to display greater imagination, both inside and outside the government, we should be able to meet the reasonable income expectations of those farmers who would be harmed by a consistent and gradual move toward free trade. If we are to be successful in realizing the great

potentials provided by those of our farm products that have significant comparative advantage, we must start soon to put our imaginations to work.