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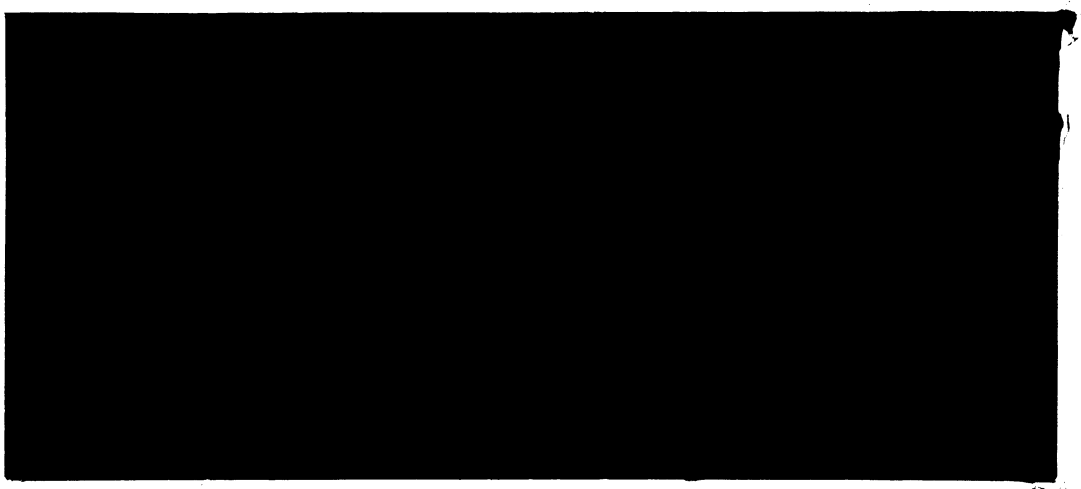

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ALTERNATIVE AGRICULTURAL TRADE STRATEGIES

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Many papers have now been written which indicate that U. S. agricultural trade is both important and growing. As a result, there has been an increasing emphasis on designing an optimal trade strategy for the United States. The primary purpose of this paper is to present the structural characteristics of international trade and discuss alternative trade strategies using the structural dimensions as a base.

1. The Gains-from-Trade Argument

It has been generally accepted that, from a combined nations point of view, there are gains to be had from international trade. Some estimates of the gains from freer trade in agricultural products are given in Table 1. At least the estimates made by the U. S. Department of Agriculture suggest that the gains are substantial. As the results show, the gain from having freer trade with Japan is far greater than that resulting from greater trade liberalization vis-a-vis the European Economic Community (EEC).

It is important to note that Table 1 presents figures on the gain to the United States from trade liberalization. However, what do major importers gain or lose from maintaining tariff and nontariff barriers to trade? At the moment the world is far from a free-trade situation--the results in Table 1 show some possible effects if the world moved in that direction. Table 2 shows how the nations importing major U. S. products may be benefiting from their protectionist policies. For wheat alone, Carter and Schmitz[1] have shown that importers have gained over $3 billion through their use of optimal tariff policies. As the results show, consumers, producers, and government

TABLE 1

Alternative Estimates of Increased Imports Resulting from Complete Removal of Agricultural Trade Barriers

Importing area and products	U. S. Department of Agriculture	Food and Agriculture Organization	Cline and others
	million dollars (U. S.)		
EEC-9			
Beef	1,022	a/	135
Wheat	646	1,275	411
Feed grains	1,935	1,322	843
Soybeans	1,005		0
Total	4,608		1,389
Japan			
Beef	6,199		42
Milk (dairy products)	5,109	169	50
Wheat	90	80	234
Feed grains	1,623		45
Soybeans	889		0
Total	13,910		371
United States			
Beef	- 189		98
Dairy products	929	1,420	76
Total	740		174
Grand total	19,258		1,934

a/ Blanks indicate not available.

Source: A. Schmitz et al., Chapter 7, p. 171.

TABLE 2

Welfare Gains to Wheat-Importing Nations with the Imposition of the Optimal Import Tariff

Welfare effect	Net gain million dollars (U. S.)
1. Loss in consumers' surplus	-9,439
2. Gain in producers' surplus	5,971
3. Import tariff revenue	7,202
4. Net gain (3 + 2 - 1)	3,734

Source: C. Carter and A. Schmitz, p. 520.

revenue are affected by the tariff. The direct loss to consumers from tariffs is far less than the combined gains to producers and to the government when the latter obtains the tariff revenue. The results in Table 2 clearly show that, for a single country or group of countries, tariffs can yield economic gains.

The tariff revenue effect discussed above, which has often been excluded in discussions about the effect on U. S. trade due to tariff barriers, has also been estimated by Sampson and Snape.[2] "During 1976 the EEC imported US $3,462.4 million of wheat, barley, and maize from outside the community. The value of revenues raised via variable levies on these three grains alone amounted to US $1,575 million" (p. 1036).

First, clearly the EEC and Japan, as examples, gain from tariff policies while, as Table 1 shows, the United States loses. But, in addition, the United States likely loses more from world trade barriers than the numbers suggest. Table 1 gives results from static analysis where the effects of tariffs on price instability are not taken into account. As D. G. Johnson[3] has pointed out, the variable levy system of the EEC creates instability for exporters which, in turn, generates adjustment problems for U. S. agriculture. These adjustment costs, caused by price instability via trade, can be substantial. Second, it is clear why certain countries favor nonliberalized trade. It has often been asked why, if there are gains from trade in theory, do many nations follow protectionist policies? The answer has been suggested above. Nations in aggregate gain from trade but a part of this aggregate can gain from restricted trade, as the above results show, provided that the remaining countries do not retaliate.

To this point it has been suggested that importers exert monopsony power against U. S. producers of agricultural products via tariff and quota policies. Thus, in essence, one is arguing that, for its exports, the United States is faced with a "buyers" market situation rather than having the ideal "sellers" market advantage. On the U. S. agricultural import side, things do not look much brighter. For U. S. imports, such as sugar and beef, "voluntary" export quotas are used. They are voluntary in that the exporter agrees to keep exports to the United States below some specified level. But who gains from this type of trade arrangement? In a recent paper on voluntary beef quotas, Allen, Dodge, and Schmitz[4] have shown that the exporters actually gain on aggregate from voluntary quotas and the United States loses. Exporters collect the quota rent, and U. S. producers become better off than with free trade, but U. S. consumers pay higher prices. These higher prices work their way back to exporters in the form of quota rents. In the optimal tariff case described earlier, the U. S. producers are made worse off as is the entire nation; in the voluntary quota case, the U. S. producer is made better off but the nation as a whole suffers since the exporter captures the quota rent--not the United States. With a tariff, the rents go to importers, but with a voluntary quota, the rents go the exporters--the worst of all possible worlds for the United States.

The issues discussed above are important and should clearly be understood. The model in Figure 1 is highly simplified but illustrates the cases presented. Suppose D is the demand and S is the supply. One country imports and the other exports. Free trade is at price P_f, and Q_f is imported. Under the optimal tariff policy, the importer restricts imports to Q_f^*, pays the foreign producer P_1, and collects $P_t abP_1$ in tariff revenue--this revenue clearly more than offsets the consumer loss because of higher prices.

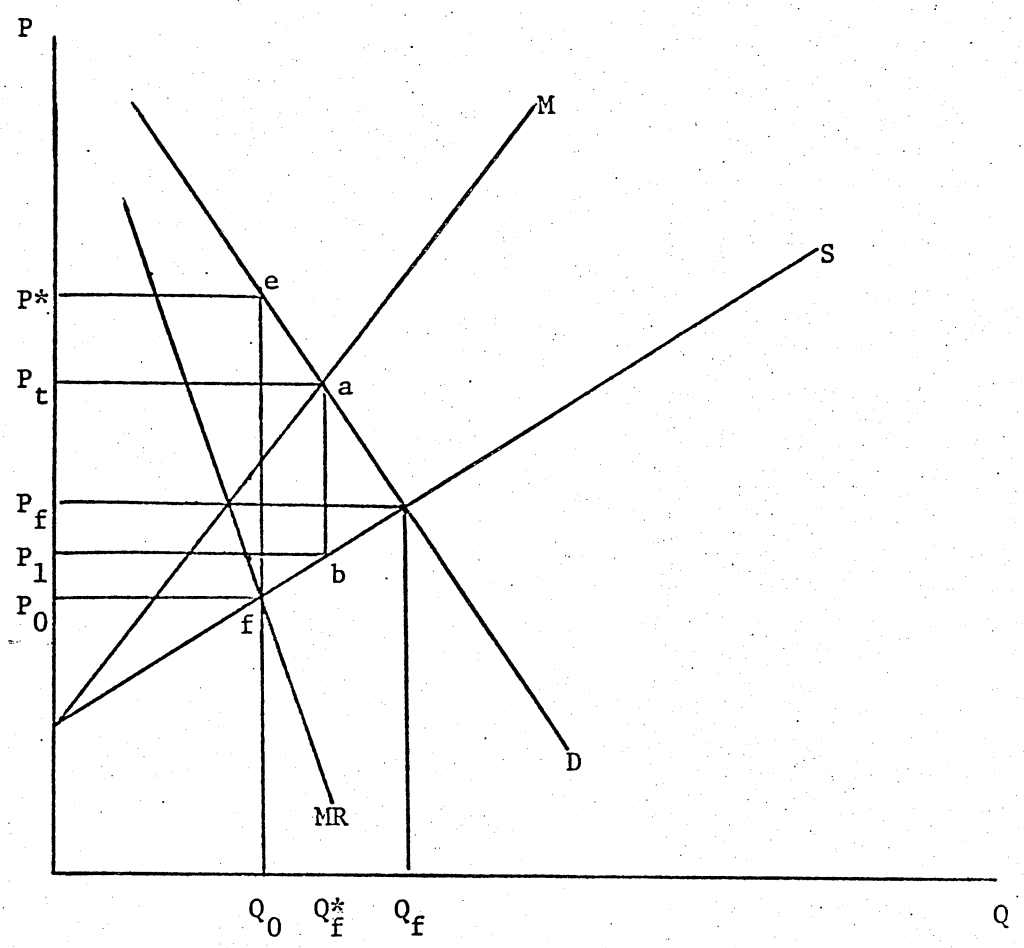

Fig. 1. Tariffs and voluntary quotas in trade.

Suppose now different countries and products (now let the good be x instead of y) are involved so that the exporter uses voluntary quotas to reduce exports. At the extreme, this is an export cartel solution. The exporter will charge price P*, reduce exports from Q_f to Q_0, and collect a quota rent or export tax of P*efP$_0$. It is clear that, in the tariff case, the importer collects the rent, while in the voluntary quota case the exporter collects it; the price P* paid by consumers (Figure 1) gets transmitted back to exporters. In essence, if the data are correct, the United States loses on its exports since importers collect the rent, but it also loses on its own imports since exporters to the United States collect the rent.

2. Market Shares, Growth of Export Markets, and Stocks

Tables 3 and 4 illustrate the U. S. export market share for the two major U. S. export grains--wheat and coarse grains, respectively. In the early 1960s, the United States had roughly 40 percent of the wheat export market. This percentage declined to under 30 percent in the late 1960s but increased again to 40 percent by the late 1970s. The United States, Canada, Australia, and Argentina generally have between 70 and 80 percent of the wheat export market. The United States has a larger export market share in coarse grains than in wheat. This share, also, has generally been increasing. In 1978, the United States had roughly 60 percent of the feed grain export market with corn being the major feed grain.

It is interesting to follow these data with projections on import requirements for major commodities. Table 5 gives the United Nations projections. As Sarris and Schmitz[5] point out, "An important conclusion that these data support is that the major new markets for expanded U. S. agricultural exports (and, in particular, grains, oil seeds, and cotton) will be the developing

TABLE 3

Exporter Market Shares--Wheat, 1960-1978

Year	Total exports	United States	Canada	Australia	Argentina	Exporters[a/]	France	Exporters[b/]
	million metric tons	market shares (percent)						
1960	43.9	40.8	21.8	14.8	2.5	79.9	3.4	83.3
1961	47.2	41.7	20.6	10.4	5.7	78.3	3.8	82.2
1962	45.8	37.8	19.6	13.3	3.9	74.6	6.6	81.2
1963	58.4	39.6	27.7	12.0	6.0	84.8	4.6	89.4
1964	54.5	35.4	20.0	13.4	11.6	80.4	8.4	88.8
1965	60.6	37.8	26.2	7.8	9.2	81.0	7.9	90.2
1966	58.0	35.7	24.1	14.7	3.8	78.3	5.2	83.5
1967	53.5	38.3	17.0	10.5	4.1	69.9	7.8	77.7
1968	49.8	28.9	16.7	12.8	5.0	63.6	12.6	76.0
1969	55.2	29.2	17.0	14.5	4.2	64.9	10.0	74.9
1970	56.4	35.1	20.9	16.1	1.8	73.9	5.7	79.6
1971	55.6	29.3	24.6	14.0	2.9	70.8	10.4	81.2
1972	71.6	42.9	22.2	6.1	4.5	75.7	12.0	87.7
1973	73.0	45.3	15.7	9.6	2.2	72.8	12.2	85.0
1974	68.4	40.5	15.6	12.4	2.6	71.1	12.5	83.6
1975	73.9	43.2	16.5	11.6	4.3	75.6	11.8	87.4
1976	70.6	36.5	19.0	13.5	8.4	77.4	9.6	87.0
1977	75.7	40.4	21.1	11.1	2.4	95.0	10.6	85.6
1978	81.6	39.8	16.0	12.9	4.7	73.4	11.8	85.2

a/ United States, Canada, Argentina, and Australia.
b/ United States, Canada, Argentina, Australia, and France.

Source: U. S. Foreign Agricultural Service, Foreign Production, Supply, and Distribution of Agricultural Commodities (computer tape), 1980.

TABLE 4

Exporter Market Shares--Coarse Grains, 1960-1978

Year	Total gross exports	Market shares		
		United States	Exporters[a/]	Exporters[b/]
	million metric tons		percent	
1960	26.1	42.9	61.7	70.1
1961	33.8	45.0	61.8	71.3
1962	32.5	46.7	61.5	72.3
1963	36.1	46.0	65.6	71.5
1964	37.9	51.7	66.2	70.4
1965	47.4	54.2	69.8	73.4
1966	43.1	46.6	64.0	74.0
1967	44.5	46.5	60.4	69.9
1968	39.7	41.0	58.7	64.0
1969	47.1	40.1	62.0	67.9
1970	53.4	34.8	64.8	73.4
1971	55.5	43.4	62.1	72.8
1972	69.0	56.1	75.2	77.1
1973	81.1	50.4	67.6	74.6
1974	69.2	51.9	69.1	77.2
1975	88.2	56.7	74.3	78.9
1976	88.5	37.2	76.1	81.2
1977	95.0	59.1	76.5	81.4
1978	99.4	60.1	78.1	82.7

a/ United States, Canada, Argentina, and Australia.
b/ United States, Canada, Argentina, Australia, South Africa, and Thailand.

Sources: U. S. Foreign Agricultural Service, Foreign Production, Supply and Distribution of Agricultural Commodities, 1980 (computer tape).

TABLE 5

Projected Net Changes from 1975-1977 to 1985 in World Export Availabilities and Import Requirements for Major Commodities

Product	Changes in export availabilities				
	North America	Western Europe	Eastern Europe and USSR	Other developed countries	Developing countries
	thousand metric tons				
Wheat	4,876	1,470	1,204	2,004	2,468
Rice	653	135	0	76	1,054
Coarse grains	20,115	364	2,725	1,517	263
Meat	21	422	242	589	509
Milk and milk products	- 418	8,217	1,188	- 105	344
Fats and oils	1,010	0	900	- 120	2,930
Oilcakes and meals	970	- 80	0	- 70	2,030
Sugar	0	240	145	705	3,400
Cotton	483	- 15	69	5	- 64
Tobacco	91	31	- 8	0	218
Citrus fruit	- 363	639	0	- 116	4,302
Cattlehides/ calfskins	62	27	0	29	176

	Changes in import requirements				
	North America	Western Europe	Eastern Europe and USSR	Other developed countries	Developing countries
	thousand metric tons				
Wheat	0	-2,067	-3,102	1,066	9,966
Rice	29	- 37	- 256	54	2,431
Coarse grains	- 98	1,534	-5,737	6,485	24,624
Meat	356	- 256	- 183	211	1,834
Milk and milk products	-155	-2,535	- 322	946	9,675
Fats and oils	0	80	- 70	640	4,160
Oilcakes and meals	- 30	730	1,130	740	200
Sugar	835	- 825	-1,800	550	3,700
Cotton	- 2	- 54	69	53	627
Tobacco	0	- 2	64	85	113
Citrus fruit	388	688	643	68	757
Cattlehides/ calfskins	0	29	- 17	84	210

Source: United Nations, Food and Agriculture Organization.

countries, while the importance of many traditional markets, such as Western Europe, other developed economies, and the USSR, will decline in relative terms" (p. 832).

Given that the United States has a large market share--the highest being in feed grains--and that the growth in exports from the United States is from high-income countries, how can it be that the United States finds itself in the position described earlier? Through its market share and demand potential, it should be in the opposite situation. However, if it were, one doubts whether actual grain prices would be as low as those given in Table 6. These prices in real terms are at least as low as during the Great Depression--additional evidence that the United States has not exerted market power in trade.

In international trade analysis, which countries hold the vast majority of stocks also sheds light on who has market power in trade. Unlike in a world of complete certainty (with market power in the hands of importers), the volume of stocks held by importers can be substantial in a world of uncertainty.[6] In grains, however, most of the storage activity has been by exporters. These data support the import buyers' market power hypothesis. Why pay the cost of storage if exporters will pay the cost for you? It is interesting to observe that, prior to the formation of OPEC, relatively little crude oil was stockpiled by the United States. However, with OPEC, stockpiling crude oil by the United States became one of the instruments in an attempt to offset the power of OPEC. If this observation applies to grains, then, clearly, importers have the market power.

3. Coalitions in Trade

Even if a country is a major agricultural exporter, as is the United States, it is difficult to dictate prices and the terms of trade since, as

TABLE 6

Futures Prices: Wheat and Corn, Chicago Board of Trade

	Open	High	Low	Close
	dollars per bushel			
Wheat				
March	3.36	3.43	3.36	3.42
May	3.46	3.53	3.45	3.52
July	3.58	3.65	3.57	3.65
September	3.72	3.78	3.71	3.78
December	3.89	3.95	3.89	3.95
March	4.04	4.09	4.03	4.09
Corn				
March	2.55	2.58	2.54	2.57
May	2.66	2.69	2.65	2.67
July	2.73	2.78	2.73	2.76
September	2.75	2.81	2.75	2.80
December	2.79	2.86	2.79	2.85
March	2.93	2.99	2.93	2.99

Source: San Francisco Chronicle, Tuesday, March 16, 1982; prices for Monday, March 15, 1982.

Schmitz et al.[7] point out in their book, Grain Export Cartels, export cooperation is necessary. In other words, the United States cannot automatically follow an independent pricing and output policy. This is why many of the exporter associations of primary commodities which have been tried in the past have failed. However, a major importer, such as Japan, can impose tariffs without cooperation from regions such as the EEC. Since it is generally customary to protect domestic producers by tariffs, such devices are put into place without coalitions. Each country independently protecting its domestic producers from foreign competition can arrive at an optimal tariff or near-optimal solution close to what would be agreed upon if all importers decided jointly (i.e., an import cartel). Thus, an import cartel or association can evolve without coalitions being formed among importers; this is not the case for an export cartel or export association.

In terms of U. S. imports and the case of voluntary quotas, another interesting set of actors emerges. Why does the United States not replace the quotas with tariffs? From a U. S. producer's viewpoint, he or she is protected by either a tariff or a quota. A quota can be made equivalent to a tariff from a producer's protection viewpoint. In both cases, U. S. consumers pay higher prices. However, they are not equivalent in an aggregate sense as already shown. With tariffs, the tariff revenue goes to the importer, but with voluntary quotas the rents go to the exporter.

Clearly, there is an incentive for producers in both importing and exporting countries to promote a voluntary quota through their various trade associations. This is because both sets of producers become better off, especially if the producers in the exporting country collect the quota rent through a marketing board arrangement. In this case, producers in the United States do

not have to fear retaliation as would be the case with tariffs. From a government point of view, the U. S. consumers often complain about and lobby against high tariffs since they know that tariffs cause higher prices. However, with a quota, they still pay high prices but do not know about them. They feel that the exporter is being a good Samaritan by voluntarily reducing exports to reduce competition.

For whatever reasons, consumers in trading blocks such as the EEC accept high tariffs much more so than do U. S. consumers. As a result, import-competing U. S. producers can hide under the high-price umbrella in the United States if they form coalition groups with exporters and with domestic policy-makers in the United States to implement voluntary quotas in trade.

Also, there are other forces or coalitions at work which tend to strengthen the buying power of importers. As McCalla and Schmitz point out, most importing nations now state trade. This is also true for the large grain-exporting countries except for the United States and Argentina. The U. S. export trade is largely in the hands of the private firms which implement the "logistics" of the trade for many of the other exporters and importers. These private firms prefer volume and price instability. Thus, they form coalitions with those policymakers who promote production and trade through import subsidies, price supports, and export subsidies. They clearly do not support the notion of a grain export cartel, especially if the latter implies lower trade volume, greater price stability, and government interference in pricing. It is certainly not clear that the private trade only forms coalitions with U. S. grain producers.

4. Costs of Expanding U. S. Agricultural Exports

The United States has experienced a phenomenal growth in exports in recent years in spite of the international trade barriers which exist. However, expanding exports is not without costs. At various times throughout the history of U. S. agriculture, substantial subsidies have been provided both in terms of price supports and input subsidies. In Figure 2, some of these costs are demonstrated theoretically. Suppose a simple model is used where the industry's private marginal cost is MC_p and average total cost is ATC_p. Given input subsidies in agriculture such as subsidized water, there is a divergence between the private costs and the social costs; the social marginal cost is MC_s and the social average cost curve is ATC_s. Start with a domestic demand of D_d which is also the total demand since initially no trade is allowed. The equilibrium price is P, and quantity is Q. The resulting government input subsidy is (P*P)(Q). Now suppose that trade is allowed, and the excess demand curve facing the United States is ED_2. This yields the total demand curve, TD_2. Output increases to Q_1, and price rises to P_s. U. S. consumers become worse off and producers become better off. Now examine the amount and distribution of the input subsidy. Since domestic consumption falls to Q', the input subsidy to domestic production consumed locally is reduced to (P*P)(Q'). The input subsidy on the amount exported is $(P*P)(Q'Q_1)$. Thus, the importers pay less than the full production costs.

Consider now that price supports are used in addition to input subsidies. This can be modeled by assuming that, due to weather, government policy, or whatever, the excess demand curve shifts to ED_1. However, price supports are used to keep price at P_s and output at Q_1. In a Brannon-type plan, price would be reduced to P_1 and the cost of the price support to the U. S.

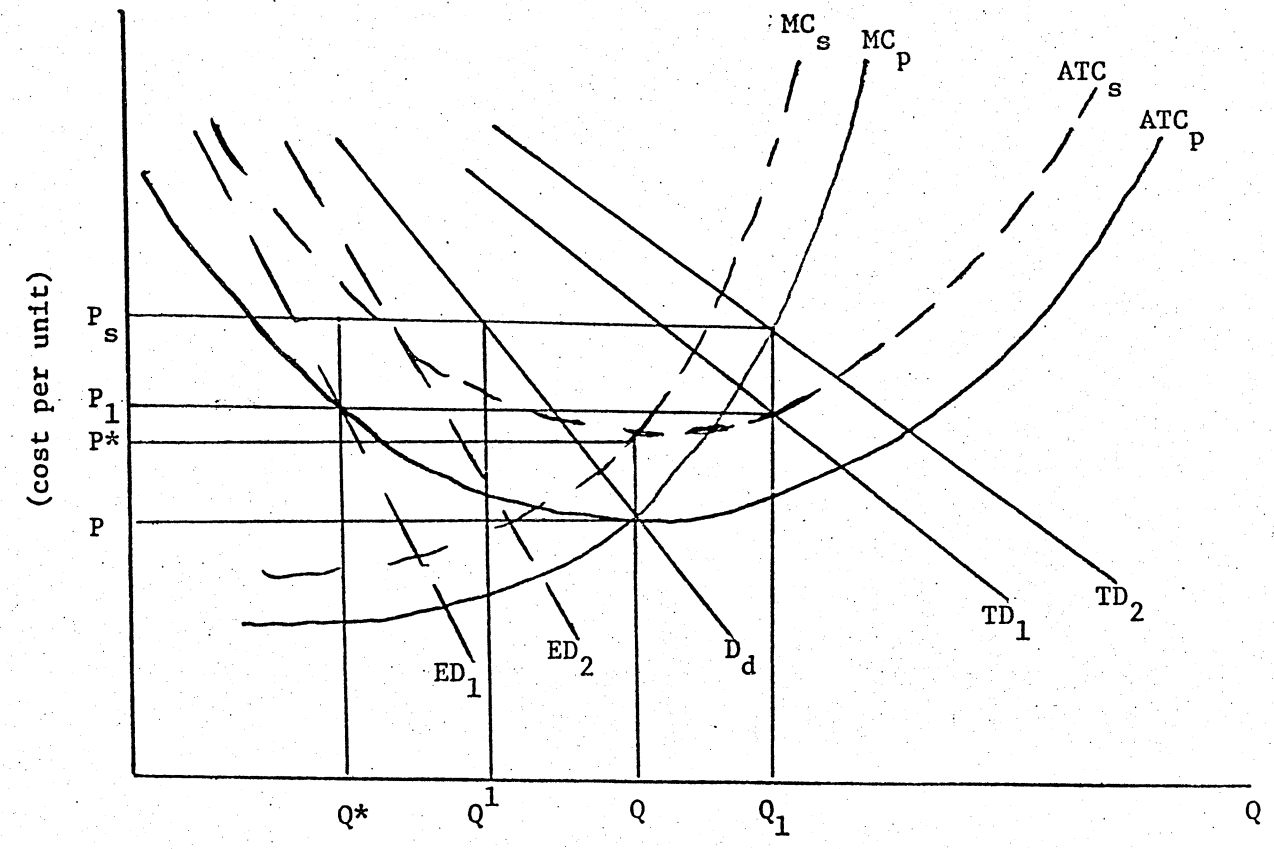

Fig. 2. U. S. subsidies and export expansion.

treasury would be $(P_s P_1)(Q_1)$. However, the government has the additional subsidy of $(P^*P)(Q_1)$. Hence, the total government subsidy needed to produce output Q_1 is $(P_s P_1)(Q_1) + (P^*P)(Q_1)$. Note how there has been an increase in the subsidy to foreign consumers. Prior to the price-support policy, the U. S. government subsidy on exports was $(P^*P)(Q'Q_1)$. Now it has grown to $(P^*P)(Q^*) + (P_s P_1)(Q^*)$. Thus, even though the demand for U. S. exports has shifted to the left from ED_2 to ED_1, the export subsidy increases since the government used price supports to keep prices and output at the level corresponding to TD_2.

The framework used in Figure 2 is not as farfetched as it first might appear. The need to incorporate input subsidies is apparent. Also, price supports are at times binding and at other times they are not. This is clear from the period 1971 through 1981. The period ending 1980 could be assigned an excess demand of ED_2 and the period ending 1981 assigned ED_1. The attempt to support price at P_s is obvious.[8]

When one analyzes the effect of trade in this context, it is clear that situations can arise where there are no net gains from trade even though trade will affect the income distribution. At price P_s with demand TD_1 rather than P with demand D_d, U. S. producers are better off, U. S. consumers are worse off, and the taxpayers are worse off. If the input subsidy was set slightly above P*P, there would be no gains from trade since the producer gain is offset by both the consumers' and taxpayers' losses.

The model in Figure 2 raises some interesting questions about the effect of trade on producer incomes--especially land rents. (If the growth in trade is treated as a marginal increment to total U. S. demand, then the value of the marginal product generated from trade should be compared to the marginal factor cost of production; we have shown that the latter exceeds the former.)

The extent of the producer gain from trade depends in part on the nature of the cost curve for U. S. agriculture. If the marginal cost curve is relatively steep, the producers gain in economic rent from trade is much greater than if the marginal cost curve or supply curve is highly price elastic. Also, as exports expand, the chances that production will take place on the rising portion of the supply will increase; hence, a portion of producer rent can be attributed to trade expansion. In addition, the producer rents generated from domestic consumption alone can be much less than those generated from trade even though exports are less than domestic consumption (Figure 2).

To empirically quantify the subsidy component of U. S. agricultural exports is not an easy task. For example, it is difficult to know what to include as input subsidies. Should research costs include salaries of government employees who work on agricultural issues? Should drought assistance be included? In this regard, Sarris and Schmitz[9] have explicitly considered the effects of R and D for a product that is internationally traded. As the foreign demand for a product grows relative to the domestic demand, the rate of return from investing in R and D for the exporter decreases since the importer is obtaining more and more of the benefits from R and D (i.e., the importer buys the product at a lower price at the expense of the exporter). It is well known that the rate of return from hybrid corn research was high when it was first introduced. However, at that time very little corn was exported. For example, in 1960, long after hybrids were introduced, only 7.6 percent of U. S. coarse grains were exported; in 1978, the percentage was 27.5.

5. Alternative Agricultural Trade Strategies

In view of the previous discussion, one can argue that current U. S. agricultural trade policy is passive in that it is a response to protectionist

policies pursued by importers. In addition, the United States seems to be unable to adequately deal with the erratic nature of purchases by the Soviet Union--a source of instability referenced by so many other writers on this topic. Integral parts of the passive U. S. trade policy are input subsidies and price supports. Thus, the United States does not respond to trade barriers and the like by reducing output and exports in an attempt to raise prices and successfully negotiate lower trade barriers. In other words, U. S. policy does not contain retaliatory elements; but, instead, it helps the importers out even more than what the importers gain from tariffs since output and trade are expanded by the use of government subsidies. The United States subsidizes its exports to compete instead of effectively retaliating against importers to remove trade barriers.

If the United States continues an expansionary export policy through the use of subsidies, it at least could improve its economic position substantially by using, in addition to import subsidies and price supports, an implicit export tax. This is apparent from the theoretical model developed earlier. If output is maintained above equilibrium through price supports, instead of storing more of the good, use a two-price system where the price charged in the domestic market is below that in the foreign market--not the reverse which is often the case. It would still be possible to have P.L. 480 shipments to poor nations.

The implications of a two-price policy of setting the higher price in the export market are clear. One has to recognize in international trade policy in grains the interaction between the grain sector and the red-meat sector of the United States. The relatively low internal price could aid this sector. Also, a price band could be imposed for domestic usage of both feed grains and

bread wheat in order that the effects of supply shocks are partly borne by importers. In other words, treat the export market as the residual so that the degree of price instability in that part of the market is made to be greater than in the domestic market. At the moment, the United States is the recipient of price instability due to the importers use of import variable levies and the like; the export market is not now the residual but, instead, is the sector that moves the entire agricultural economy.

In view of the empirical studies available, the United States has a substantial amount to gain by free trade. The gains from expanding exports from tariff removal are clear. Also, the irony is that there may be a gain to the United States from removing its trade barriers. U. S. producers lose from doing away with quotas, but there is a net gain to the country as a whole. The question then becomes: is it possible to achieve freer trade? It was shown earlier why barriers to trade have emerged. Various coalitions see to that. The issue of grain export cartels has to be addressed in answering this question. In our grain cartel book,[10] the possible gains from a cartel were computed and found to be sizable. The gains to the United States exceeded $10 billion. The idea of a cartel is not to put in place the theoretical optimal export tax as OPEC tried to do. Rather, a cartel would, it is hoped, entice importers to lower or remove their barriers to trade so exporters can attain their fair share of the trade pie. In other words, the United States would be enacting a retaliatory policy with a cartel. As our discussion on coalitions suggested, an export cartel requires cooperation among major exporters. If there is no cooperation, a cartel will not work. If there is cooperation, then the cartel group which would be made up of the United States, Canada, and Australia should immediately set the export price at the EEC

threshold price and prevent importers, except the poor nations, from buying below this price. How the importers will respond is not certain. However, as is discussed in our cartel book, most likely the importers will lower trade barriers rather than heighten them. In this case, U. S. price supports and input subsidies would no longer be needed since they would be replaced by income generated from true trade expansion resulting from the world's resources which underlie the basis for trade.

Footnotes

[1]C. Carter and A. Schmitz, "Import Tariffs and Price Formation in the World Wheat Market," American Journal of Agricultural Economics, Vol. 61 (August, 1979), pp. 517-522.

[2]G. P. Sampson and R. H. Snape, "Effects of EEC's Variable Import Levies," Journal of Political Economy, Vol. 88 (October, 1980), pp. 1026-1040.

[3]D. G. Johnson, World Agriculture in Disarray (London: Macmillan and Company, St. Martin's Press, 1973).

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[6]G. Feder, R. E. Just, and A. Schmitz, "Storage and Price Uncertainty in International Trade," International Economic Review, Vol. 18 (October, 1977), pp. 553-568.

[7]A. Schmitz, A. McCalla, D. Mitchell, and C. Carter, Grain Export Cartels (Cambridge: Ballinger Publishing Company, 1981).

[8]There have been estimates of the extent of price subsidies in trade. For example, Sampson and Snape, op. cit., found that the producer subsidy equivalents for wheat produced in the United States were over 40 percent in both 1970 and 1972.

[9]Sarris and Schmitz, op. cit.

[10]A. Schmitz, et al., op. cit.