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International Agricultural Trade  
Research Consortium

Grain Markets and the United States:  
Trade Wars, Export Subsidies, and Price Rivalry\*

by

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Working Paper #87-8

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\*Presented at II World Basque Congress, Bilbao, Pays Basque, Spain, November 6, 1987, "The Basque Primary Sector in the Twenty-first Century."

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December 15, 1987

GRAIN MARKETS AND THE UNITED STATES:  
TRADE WARS, EXPORT SUBSIDIES, AND PRICE RIVALRY\*

This paper looks at three related, controversial, and very current topics in the agricultural trade policy of the United States -- trade wars, export subsidies, and international grain markets. The possible head-on collision of the United States and the Community over these three matters provides us with a rare opportunity to examine the economic aspects of these issues as they actually unfold. My goal in the pages that follow is to illuminate some basic economics of these highly political issues in a non-technical but sensible way. I will assume that readers are reasonably familiar with the basic agricultural trade relationships between the United States and the European Community and also with the underlying policy controversies about which so much has been written and spoken in recent months.

First, we will examine the economics of trade wars, both the traditional variety involving importers and exporters and the newer variety involving exporters struggling to supplant each other in third-country markets. The United States and the Community have been edging towards both varieties of trade wars against each other in the late 1980's.

Next we will look at how export subsidies and international price rivalry are being used by both sides in the quest for larger world grain markets. We will attempt to identify gainers and losers in a rather simple but useful way. As a part of this examination of the economics of grain export subsidization, we will examine the special character of the relatively new U.S. export subsidy scheme which features payments in kind to participating trading firms for sales to selected markets.

## 1. Trade Wars

Before we attempt to describe the characteristics of a trade war, a few preliminary observations are in order. Despite strong theoretical arguments and empirical evidence about the broad benefits of increased international trade, its occurrence in any particular country often will impose hardship on some industries and some people. Those affected often argue successfully for specific protection against the full force of international competition. Deliberate actions to accomplish this include tariffs, import quotas, domestic content regulations, packing and labeling requirements, sanitary restrictions, variable import levies, export controls, export subsidies, and so on. This web of specific government decisions forms the core of a nation's active trade and commercial policy. (For the purpose of this paper, we will visualize the European Community as a single nation, at least insofar as agricultural trade policy toward non-member countries is concerned.)

The main reason that such a protective web evolves within every nation, is because the large benefits of additional trade are spread widely and thinly among numerous individual consumers and vigorous industries, but the costs and hardships, although smaller in total, tend to be focused on relatively few workers and firms. These few usually can articulate their problems clearly and press for help from their government. This disparity in the incidence of economic costs and benefits is crucial to understanding why countries do what they do in both trade policy and domestic policy, especially agricultural policy.

## The Traditional Trade War

When proponents of increased protection or price support are successful, the trading nation in question may accommodate the new policy regime by restricting imports or by artificially expanding exports. Such maneuvers, once undertaken, can cause trading partners or competitors to retaliate with new trade restrictions or subsidies of their own. A further reaction by the originating nation can set off a chain of continual reactions and retaliations by trading partners against each other's products. This state of affairs can be called a trade war of the "traditional" type.

When one nation retaliates against another in a traditional trade war, the reprisal falls on sectors other than the one which gained from the first protective actions. The industries that take the counterblows are chosen by the retaliator. These are export industries in the target nation and are generally among the most efficient in that country. So more income may be lost and resources idled than were saved in the first instance by the initial protective action. Because the hallmark of a trade war is reaction and retaliation, inefficient industries are subsidized and efficient ones are punished throughout the affected trading world. National income and output will tend to fall in trade-warring nations or grow less rapidly than otherwise. Prices in relation to income will rise, especially for imported goods and their domestic counterparts. The selection of available products will dwindle as foreign-made items become scarce.

In a trade war, as with any conflict, it is usually difficult to know who actually fired the very first shot. Yet once begun, a trade war, like

any other, can feed relentlessly upon itself. For instance, one reason that total international trade volume was cut by half in the early 1930's is that depression-induced tariff increases by the United States were met with new, retaliatory tariffs by other nations. This led to another round of US tariff increases, and so on. This action, reaction, and further retaliation strangled world commerce, intensified the Great Depression, and heightened international distrust and tension prior to World War II. History suggests that economic conflict, political discord, and military conflict are, all too often, cruel partners.

Today's US vs EC trade conflicts seem to fall far short of the 1930's variety. Yet our mutual, underlying problems, especially in agriculture, are deep-rooted and pervasive. The United States and the Community have slid to the brink of several serious traditional trade wars in recent years. The 1986/87 dispute over the access of U.S. feedstuffs into Spain and Portugal after these nations were included in the most recent EC enlargement is a case in point. Proposed retaliatory US tariff increases on wine, cheese, and other European food products were deflected by a political compromise only at the last moment. There are several other agricultural issues still unresolved between the two that could set off another traditional trade war confrontation -- the proposed EC consumption tax on vegetable oils, a possible unilateral closure of duty-free access of soybeans and protein meals to the Community, and the seemingly endless disputes about pasta products and wine.

To illustrate, suppose that as a consequence of a trade war between the United States and the EC, \$3.5 billion worth of farm exports from the United States to Europe were wiped out by new EC trade barriers. This is a

bit more than half of the annual 1986 and projected 1987 agricultural trade flow between United States and the Community.

Assume further that this \$3.5 billion is made up of U.S. oilseeds and related products, feed grains, food grains, and flour. Some unofficial analysis suggests that such a loss in exports would cost the United States about 70 thousand jobs in these relatively efficient agricultural sectors and elsewhere in the economy.<sup>1</sup> Many of these displaced workers would seek employment in other lower-paying jobs. Some would remain unemployed. About 7 million hectares of cropland would be idled or put to other, lower-valued use. This is almost five percent of the nation's harvested cropland.

Naturally, the United States would retaliate and cut approximately \$3.5 billion from Europe's export sales to this country as part of this hypothetical trade war. Some of this cut probably would be in food products and some would be in manufactured products. Additional jobs and domestic sales would spring up in these sectors as lower imports were at least partially replaced by domestic production. But this would be cold comfort to the displaced US workers and cropland owners victimized by the trade war. Similarly, the EC workers and business people displaced by lower sales of wine, cheese, and manufactured products to the United States would object to being punished for a seemingly unrelated dispute. Some calculations I have made in another paper suggest that a general trade war of this kind would produce negative net effects on income and employment across the whole economy [Houck, 1983].

## The Export Rivalry Trade War

In addition to traditional trade conflicts involving access to each others markets, the two trading powers (US and EC) are also involved in a relatively new (at least for them) conflict involving access to third country export markets. The case in point here is the rivalry for world grain markets, and it involves large export subsidies by both sides. The economic consequences of this kind of "export rivalry" trade war differ from those of the traditional variety and are more widely diffused.

In the first place, no one in either exporting country benefits directly from subsidized export rivalry except the exporting and merchandising organizations which handle the increased volume. Producers in the protected sectors of each nation benefit indirectly since surplus commodity stocks are typically moved out of costly, visible inventory and into trade channels. The main direct beneficiaries are the importing firms or national agencies that gain access to highly subsidized commodities or who buy on international markets where prices are pressed downward by subsidized sales elsewhere.

Whether or not consumers in favored importing nations are benefited by lower prices at retail depends upon the extent to which lower import prices are passed along to them. Sometimes the answer is "yes" (as with wheat in Egypt), and sometimes it is "no" (as with wheat in Japan). Where market prices inside importing nations are pressed downward by rivalrous export subsidies, domestic farmers may be adversely affected if producer prices and incomes are not supported.

Since rivalrous export competition puts more grain on world markets at lower prices than otherwise would occur, other non-subsidizing sellers of



the same or similar commodities likely will be damaged. They will face lower prices for their export sales and narrowed market outlets as previous customers turn to subsidizing suppliers for at least part of their takings. It remains a distinct possibility that aggrieved competitors might retaliate against the subsidizers. They can do this by engaging in traditional trade war tactics against other, quite different, trade goods exported to them by the subsidizers. Thus, Canada or Australia might retaliate against US or EC export subsidies by raising tariffs or other trade barriers against inbound shipments of any kind from these two antagonists.

This kind of a trade war does not pit protected inefficient industries against efficient export industries within and between the warring nations. It pits one nation's ability and resolve to provide export subsidies against another's. That some of the exports subsidies may be provided as payment-in-kind by one or the other seller adds an interesting dimension to the problem, but it does not fundamentally change the incidence of costs and benefits. The ultimate losers are the taxpayers in the subsidizing nations, competitive non-subsidizing exporters, and possibly farmers in target import nations. The direct gainers are in the importing nations -- the firms and state organizations which handle and manage inbound commodity flows and possibly the consumers -- and the international trading organizations which depend on the volume moving through the market system.

This second variety of a trade war probably has less potential to spread from one sector to another within and between the rival nations than the traditional kind -- therefore, it is less dangerous from a macro-economic and political point of view. However, its potential to cause

other non-subsidizing exporters to retaliate in some way against the subsidizers is serious and should not be overlooked.

## 2. Export Subsidies in Cash and In Kind

Let us now focus attention more specifically on the economics of export subsidies with emphasis on the recent experience of the United States and the European Community in grain. Both the United States and the European Community are subsidizing grain exports to third countries in order to maintain market shares, increase export volumes, and reduce domestic surplus accumulation.

The theoretical aspects of export subsidies have been explored in various papers for both general and partial equilibrium settings [see for example papers by Brander and Spencer, 1984; Grigsby and Dixit, 1986; and Paarlberg, 1984]. In this section, we will not develop the formal economic arguments about export subsidies. We will simply state these effects and relations primarily as assertions, leaving interested and skeptical readers to probe the previously mentioned papers or textbooks in trade policy economics for the underlying reasoning. [See, for example, Houck, 1986(b); Corden, 1971; Hufbauer and Erb, 1984.] First let us consider the general grain export subsidy situation as it now exists between the two major actors. Then we will investigate the specific similarities and differences between the two approaches.

### The Current Situation

Under the EC's Common Agricultural Policy (CAP), export subsidies (or restitutions) for grain are paid in cash to export firms negotiating foreign sales. Basically, these cash subsidies bridge the difference

between low international sale prices and higher internal EC market prices. The latter are held aloft by the CAP's target and intervention price system and protected by variable import levies. Export restitutions cover virtually all international grain sales made outside the EC. Export refunds in 1986 constituted 39 percent of all EC outlays for agricultural support, the equivalent of \$8.5 billion [Newman, et al, 1987, p. 55]. A large part of these outlays were for grains.

In March 1987, for example, the EC wheat export refund was an average value of \$168 per metric ton [Newman, et al, 1987, p. 47]. This subsidy covered the difference between the average internal market price of \$237 and the average export price of \$69. These data suggest that the export restitution for EC wheat was more than 70 percent of the internal market price at that particular time. The EC became a net exporter of wheat in 1974 and now accounts for 15 percent of world wheat trade. A similar price support and export restitution mechanism operates for the EC coarse grain sector. With Community enlargements and production increases operating, the EC became a net exporter of coarse grains in 1984 and in 1986 accounted for about seven percent of world trade.<sup>2</sup>

Across the Atlantic Ocean, the United States also operates an export subsidy scheme for surplus agricultural commodities. Established in 1985, this latest addition to the U.S. trade policy arsenal is a payment-in-kind export subsidy. Used mainly for wheat, flour, and barley, these commodity payments are being used to subsidize grain shipments into markets where international rivalry for sales and market share (primarily with the EC) is present or likely. This program is known as the Export Enhancement Program (EEP).

The EEP was first announced in May 1985 as a three-year, \$2 billion export bonus program, using government stocks. The major stated objectives of this effort were "first, to increase U.S. farm exports; and second, to challenge unfair trade practices of competitor nations" [Amstutz, 1985]. Additional authorizations have allowed the total sales value of the EEP to exceed \$2.1 billion as of mid-August, 1987 [U.S. Dept. of Agr., Aug. 12, 1987].

Although some other commodities are involved, the bulk of EEP sales have been wheat, wheat flour, and barley to 33 countries, mostly in Africa, Asia, and the Middle East, plus USSR and China. In the 26 months between June 1985 and August 1987, approximately 18.5 million tons of wheat and flour (grain equivalent) and 3.6 million tons of barley were sold under EEP. On an annual average basis, this is equivalent to 30 percent of U.S. wheat export sales in the period and 59 percent of barley exports. A recent forecast puts the EEP portion of 1987 wheat exports at more than 50 percent of the total.

Abstracting from operational details, the EEP program works as follows [Mendelowitz, 1986]. A import nation is selected and a target volume of U.S. commodity exports to that nation under EEP is announced by the U.S. Department of Agriculture (USDA). International trading firms negotiate privately with importing agencies on prices and quantities. Then the firms submit to USDA the agreed-upon sales price and their request for a specific subsidy payment (measured in dollars). The USDA accepts or rejects the bid request based on its own internal analysis of market factors including current U.S. and European prices. Successful bidders are re-imbursed directly with generic commodity certificates valued at market prices.

These certificates can be exchanged for physical products held in Commodity Credit Corporation (CCC) inventories.

The EEP subsidy values have varied over time and from sale to sale. For wheat, they have tended to be in the \$25 to \$45 per metric ton range [Mendelowitz, 1986]. This has amounted to an export subsidy of about 20-40 percent of US f.o.b. export values per ton.

Supporters of EEP argue that this program has numerous advantages. Among them are expanding sluggish export markets for US farm products, reducing burdensome government commodity inventories, boosting farm prices, and striking back at other subsidizing exporters (mainly the EC). Skeptics in the United States believe that the perceived benefits of such a program are by no means real and might actually constitute a harmful intrusion into world markets.

In the next section of this paper, we examine some of these issues from the economic point of view. While the economics of cash export subsidies are quite well-known, the impacts of in-kind export subsidies are much less widely recognized. Cash and in-kind subsidies have many similar effects, but there are some important differences.

#### Cash Subsidy Effects

As a benchmark for comparison, let us first consider the main direct economic effects of an export subsidy paid in cash to competitive export firms or agencies by the government of a trading nation or a common market. As mentioned earlier, we will state these effects primarily as assertions.

A cash export subsidy either boosts or helps to maintain domestic prices at levels higher than they otherwise would be. Such a subsidy can be, and in the EC case is, a crucial component of a domestic price support

scheme. Hence, both domestic consumers and producers face higher prices, so more is produced domestically and less is consumed than otherwise. Thus, the subsidy generates or facilitates a larger volume of potential exports than otherwise. If these supplies actually flow onto world markets and if the nation in question is a large enough exporter in the total market, then the subsidy will tend to force down international prices. In general, a wedge will be created between domestic and world prices which is equal to the per unit rate at which the subsidy is applied to exports.

How the per unit incidence of this subsidy's price impacts is shared between the domestic market and the international market depends on the relative price elasticities of export supply and excess demand faced by the subsidizing nation. The more price inelastic side of the market will sustain the largest share of induced price changes.

The total treasury cost of the export subsidy is the per unit subsidy rate times the volume of exports eligible for payment. Having the subsidy available allows exporters to pay high internal prices for the product, in competition with domestic users, and receive lower world prices, in competition with other international sellers, without sustaining crippling financial losses. The national (or Community) treasury, hence the domestic taxpayers, are the willing victims in this scheme. They forego alternative goods and services that could be obtained publicly or privately with tax funds committed to the subsidy.

Other beneficiaries, besides domestic producers and handlers of the expanded export flow, are the firms and national agencies which import the subsidized grain. It is possible that lower world prices are fully or partly passed into the importing economy benefitting, in turn, local

consumers and damaging the interests of local producers. In general, all of this is well known to trade policy analysts and the international community at large.

### In-Kind Subsidy Effects

Let us now consider the corresponding economic effects of an in-kind export subsidy as exemplified in the EEP of the United States. For comparison, let us consider the requirements and effects of an EEP designed to maintain the same internal price to producers as a given cash export subsidy. We also must keep in mind that there is an important distinction in the export volume from the in-kind subsidizers. First, there are the "commercial" sales and, second, there are the in-kind subsidy payments that are turned over to the export firms for their disposal. For our purpose, we will assume that these in-kind subsidy payments are themselves sold on world markets to generate cash.

Only a few professional articles and papers have been published about the formal market-wide economic effects of in-kind export subsidies [Houck, 1986(a); USDA, Aug. 1987; and Kennedy, 1987]. So we are in relatively uncharted waters in this section. However, a few systematic observations can be advanced.

As long as internal prices and commercial export sales are the same with either a cash or an in-kind subsidy scheme, then the domestic effects are similar. To the extent that subsidy payments are made in-kind, the public inventory of surplus products will be lower otherwise. And it is certainly true that the very existence of an in-kind payment program presupposes the availability of surplus stock at the government's disposal. The fundamental difference in economic effects between cash and in-kind

subsidy schemes is that, in the latter case, additional quantities of the product in question are injected into the world market where they must be absorbed. The firms or other agents receiving the in-kind EEP subsidies must turn them into cash in order to obtain the intended and financially necessary benefits. This, of course, involves sales of these subsidy amounts at some price in some market. These additional sales signal the difference between the two schemes.

In an earlier paper, I argued that the ability of a broadly available EEP to enhance either domestic prices or commercial (non-CCC) export sales is severely limited [Houck, 1986(a)]. Despite the fact that an EEP will tend to reduce surplus stocks in the subsidizing nation, this scheme, if its benefits are available to all importers, will not maintain domestic prices or commercial exports unless (1) the relevant import demand function of buyers displays a price elasticity equal to or greater (absolutely) than  $-1.0$  and (2) substantial retaliation by other exporters does not occur. Even when the necessary conditions are met, the subsidized difference between the domestic and world price is wider than a purely cash subsidy would create for the same increase in commercial trade. This is because the subsidy quantities, paid in-kind, would have to be sold on that same market in order to generate funds for the exporting and handling firms which receive them. These sales will tend to push down all world prices for this product further than would a straight cash subsidy. It is easy to see why competitive exporters are much opposed to the EEP approach. Export firms get to handle larger volumes of trade than without the subsidy, but the increased complexity of negotiating deals internationally could be expected to leave them somewhat ambivalent about the EEP.



The analytical argument is somewhat different when EEP sales are specifically targeted to only a few nations widely scattered around the globe and where these sales can be somehow isolated from the broader international market. Here, in a single import market, the United States and the European Community can engage each other in head-to-head price rivalry, one with EEP and the other with cash restitutions.

Suppose that we imagine such a rivalry occurring for wheat sales to, say, Nation M, with the result that the two exporters split the market in half at a single import price for comparable wheats. Each export nation will pay subsidies equal to their respective acquisition prices minus the single, negotiated import price. The buyers in Nation M will be essentially indifferent between EC and US wheats because of the equivalent import price. Now if both sellers had employed cash subsidies then our discussion could be closed, with perhaps an observation about who paid more in order to hold a 50 percent market share in Nation M. However, because the firms negotiating the US portion of this deal were reimbursed in kind, the story is not closed. These commodity acquisitions will be disposed of in some other markets at some imminent moment. Their addition to the total free supplies available in world markets cannot help but apply at least some downward price pressure on markets quite far removed from Nation M. Moreover, such downward price pressure also increases the potential financial drain on the EC export restitution fund as the Community attempts to compete in these other markets.

With the EEP now accounting for a large and possibly growing share of U.S. grain exports, especially wheat and barley, the actual pricing situation in world markets is somewhere between the completely available

in-kind subsidy program, discussed first, and the narrowly targeted, more isolated program, discussed second.

### 3. Overview and Conclusion

The United States has been a sizeable net grain exporting nation since the 1860's. This 120-125 year period spans major eras in the nation's settlement, growth, and agricultural policy. Consequently, the export status of and world markets for US grain are viewed as permanent fixtures by most policy makers, agribusiness interests, and farm organizations. An expansionary philosophy dominates political thinking about today's and tomorrow's US grain markets abroad. Challenges by aggressive new-comers, like the Community, in world grain markets are met with concern and retaliatory trade policy schemes. That the major EC expansion as a subsidizing grain exporter occurred during a period of general weakness in world markets is unfortunate but was inevitable given the structure of the CAP and its associated grain price guarantees to farmers.

The United States has inaugurated a program of in-kind export subsidies partly because publicly held grain stocks were available and partly because federal budget pressures make cash subsidies seem very expensive. (The budget implications of EEP sales are also impressive but blurred and much less stark than straight cash outlays.)

The aggressive rivalry over grain markets clearly has been a major force propelling the two competitors toward a more serious and broader trade war. This is not really news to anyone, but the effects of rivalrous behavior in third country import markets is new and not well-analyzed by economists. The economic implications of the new in-kind export subsidies

under the EEP adds a perplexing dimension to the controversy which affects the entire world market for grains. Perhaps this paper will have shed a little new light on these matters.

Rivalrous behavior between the US and EC in world grain market, abetted by large export subsidies, is clearly a symptom of deep-seated agricultural policy problems and overproduction on both sides of the Atlantic. A central objective of the unfolding Uruguay Round of negotiations under the General Agreement of Tariffs and Trade (GATT) is to attack these policy and trade problems at their source -- national agricultural programs. To that end, the United States has presented a widely publicized proposal under which all parties would move to end all agricultural production and trade subsidies. The European Community has responded with a plan involving international market organization for major commodities and a less ambitious vision for eliminating agricultural subsidies.

In my opinion, successful adoption and operation of either approach or some compromise will deliver us all to a more favorable outcome than the present circumstances. The current rivalrous situation is extremely expensive, politically dangerous, and economically unwholesome. We should abandon it and agree on something else within the GATT framework. The sooner, the better.

## FOOTNOTES

\*James P. Houck is a professor in the Department of Agricultural and Applied Economics at the University of Minnesota.

<sup>1</sup>The basic aggregate analysis from which these estimates were developed was provided by Dr. Gerald Schluter, Head of the National Aggregate Analysis Section of the National Economy and History Branch, ARED, Economic Research Service, U.S. Department of Agriculture. He and his colleagues are gratefully acknowledged for their help, but they are not responsible for the specific figures in this paper.

<sup>2</sup>Unless otherwise indicated, statistics quoted in this paper are drawn from official USDA sources.

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