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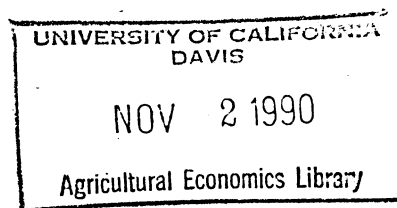
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EXPORT ENHANCEMENT, EXPORTING FIRMS,
AND EFFICIENCY OF INTERNATIONAL COMMODITY MARKETS

Nicole S. Ballenger
National Center for Food and Agricultural Policy
Resources for the Future
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Abstract

The large grain-export firms lobby against a U.S. export subsidy program that has paid nearly \$3 billion in bonuses. This paper discusses the program characteristics that limit arbitrage opportunities and hinder traders' assessment and management of risk. These firm-level effects have implications for the international marketing system.

EXPORT ENHANCEMENT, EXPORTING FIRMS, AND EFFICIENCY OF INTERNATIONAL COMMODITY MARKETS

Since the 1985 inception of the U.S. export enhancement program (EEP) exporting firms have received almost \$3 billion in bonuses in exchange for exporting at subsidized prices to targeted countries. Most of the bonuses have been meted out for wheat exports, although some feedgrains, vegetable oils, and other commodities have been included in the program (Seitzinger and Paarlberg; USDA). By Spring 1988 approximately 69 firms had received bonuses, but about 60 percent of the total value had gone to only four large and well-known, grain-export firms (Congress). Little is known about the economic rents generated by the program and captured by these firms. Firms receive the bonuses and have probably moved larger volumes of grain through the U.S. export system, but they must export at discount prices, take on the transaction costs of conforming to program regulations, and, as market middlemen, can face higher domestic purchase prices possibly resulting from the export subsidy program. Despite the large bonuses received by the large exporters (about \$.5 billion to each of the top two exporting firms by Spring 1988), these firms have been among the principal critics of the program (Cargill Bulletin; Cloud; Conversations with export industry officials).¹

This paper proposes and examines a set of EEP characteristics unfavorable from the perspective of the large grain traders. These characteristics include: the uncertainty of EEP announcements, direct government intervention in export pricing, and the market segmentation brought about by the program. The discussion helps us understand why these firms fail to lobby in support of this particular export subsidy program. These issues are not just concerns of these firms: they have implications for theoretical and empirical analyses of the welfare effects of export subsidies and of the efficiency of the international grain markets.

¹One official stated in a personal interview that if cost-saving measures are needed in the new Farm Bill, the EEP should be the first program to be eliminated. Another stated that his firm had, in private meetings with members of the Administration and Congress, opposed EEP from its very beginning.

Previous Literature

Two recent strains of the literature have revisited the traditionally-accepted welfare effects of export subsidies. Abbot, Paarlberg and Sharples argue that a targeted export subsidy can be welfare increasing for the exporting country. This result rests on the ability of a large exporter to price discriminate, that is, leverage a small, targeted subsidy into a large increase in exports by taking advantage of cross-country differences in price and income elasticities. Brander and Spencer lead the second strain: they argue that an export subsidy to an oligopolist can raise national income. The subsidy, due to its cost-saving effect, allows the subsidized domestic firm to make a credible threat of expansion leading the rival foreign firm to contract. Profits to the domestic firm rise by more than the amount of the subsidy so that national benefits exceed the cost of the subsidy. This result rests on a number of simplifying assumptions, including the lack of a domestic consumer of the subsidized product. Neither strain considers the specific form of export subsidy, that is, the mechanism by which the subsidy is determined and allocated.

The political economy literature is also of interest. Rodrik, for example, shows that the usual conclusion that production subsidies are welfare superior to tariffs can be reversed when policy is endogenous. This result flows from the public-good nature of tariffs which induces individual firms to lobby more vigorously for firm-specific subsidies, thereby introducing higher levels of unproductive, profit-seeking activities into the system. On the surface, an analogy to EEP might be drawn since EEP subsidies are firm specific. Firms with a favorable probability of winning the subsidy might be expected to favor the EEP system over a more globalized subsidy and lobby in its support. These might be low-cost firms or possibly those with a broad distribution of regional and commodity sales (if commodity/country targets are not preannounced). The largest traders presumably fit this profile but actually disfavor the program.

The Mechanics of the EEP: It Differs from the EC System

The EEP was introduced in a period when U.S. loan rates were high and supporting U.S. grain prices above world prices. With an export subsidy to bridge this gap the U.S. export regime

began to look, on the surface, a lot like the European Community's. The main components of the EC system are high internal support prices (protected with a variable import levy) and export restitutions to bridge the gap between domestic and world prices. Grain export firms, among them multinational firms also participating in EEP, have functioned within the EC regime for years.

Insights into exporting firms' positions on the EEP can be gleaned through a comparison of the U.S. and EC export subsidy programs. The EC actually has four separate restitution (that is, export subsidy) programs, but the principal one is the weekly restitution tender. This is an open tender for a specific quantity of a specific commodity, eg. wheat. Firms submit bids specifying quantity and restitution. The EC Commission examines the bids, determines if it will set a maximum restitution and quantity, and accepts bids accordingly. Winners are granted authorizations to apply for export licenses which, once awarded, expire within 5 months (Liapis; conversations with Allan Riffkin, FAS).

Fig. 1 depicts an anticipated EC export-supply schedule as derived from the restitution tender. The EC's export supply curve (XS^{EC}) is a locus of expected export prices and quantities (q_1) based

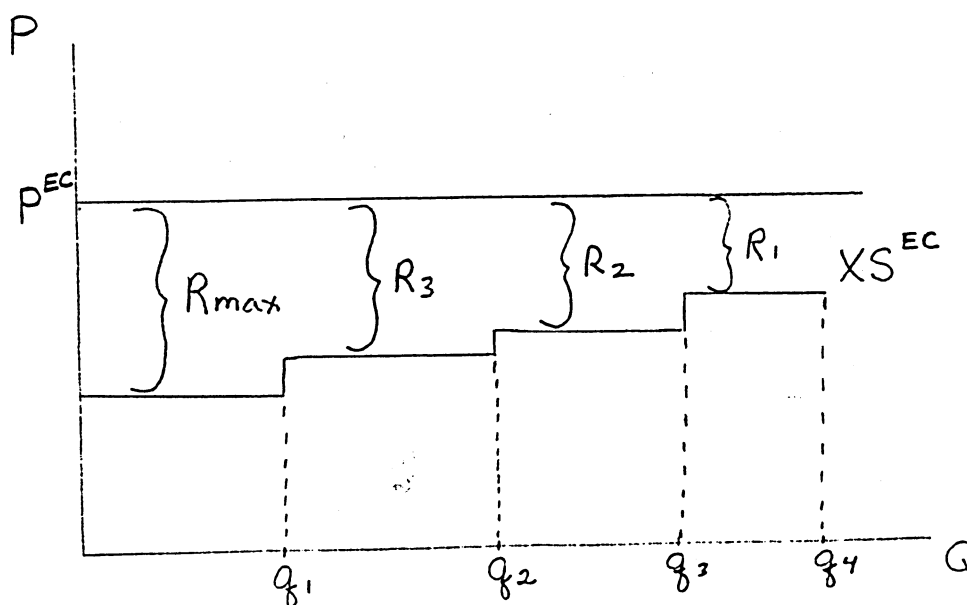


Fig. 1--EC Export Supply Based on the Weekly Restitution Tender

on the firms' restitution bids (R_1). The system gives the Commission considerable control over exports: it can set the restitution maximum to either restrict or encourage exports and it can ration licenses.² At the same time, assuming licenses are nonbinding, the weekly restitution tender gives the firms considerable flexibility: they can negotiate sales terms with their customers without interference from the EC bureaucracy. The promise of a specific restitution and knowledge of internal EC support prices establish their grain purchase costs over a 5-month planning horizon. Further, readily-available information on EC prices, stock levels, and the budget for restitutions probably facilitates anticipation of restitution awards.

The EEP operates differently, and it operates alongside an essentially free U.S. marketing system dominated by the private sector (McCalla and Schmitz). EEP announcements come at irregular and uncertain intervals. They begin as initiatives targeting a particular country for EEP sales of a maximum quantity of a particular commodity. The importer later tenders for U.S. export sales under the program. USDA determines a minimum EEP sales price, possibly based on negotiations with the importer, and then sets an acceptable range of bonuses to be bid for by exporting firms. Firms negotiate contingent contracts with the importer and submit these along with their bonus bids to USDA. Sales are awarded to those firms whose bids fall within the prespecified range and bonuses are paid upon proof of export sales.³ Firms may resubmit bids until the tender is filled, although acceptable bonuses may also be adjusted with each round of bidding.

²A maximum might be set low so as to encourage firms to bid for grain from intervention stocks, particularly when government-held stocks and stockholding costs are high. Under this system of sales from intervention stocks, stocks are sold to the highest bidder. Another restitution program, the 'droight commun' fixes restitutions (without bidding) for specific targeted markets. It would be worth investigating whether this latter system has become more important in order to retaliate against EEP sales to targeted markets.

³Bonuses are paid with generic certificates which can be traded or exchanged for commodities held in CCC inventory. Although this paper doesn't focus on this aspect of the EEP, generic certificates may be particularly advantageous to the larger exporting firms with broad marketing networks. In addition to being another tradeable instrument, they allow the firms to dip into CCC stocks held in low-priced regions and resell in higher-priced regions. Now that bonuses are so much lower than in earlier periods of the program (and that certificates are selling at a discount), benefits from this type of arbitrage have probably fallen significantly.

Figure 2 depicts a hypothetical export supply schedule in the targeted EEP market. $X S^{EEP}$ represents the net prices to the firms [P^{EEP} plus bonuses (b_i)] at which firms supply specific

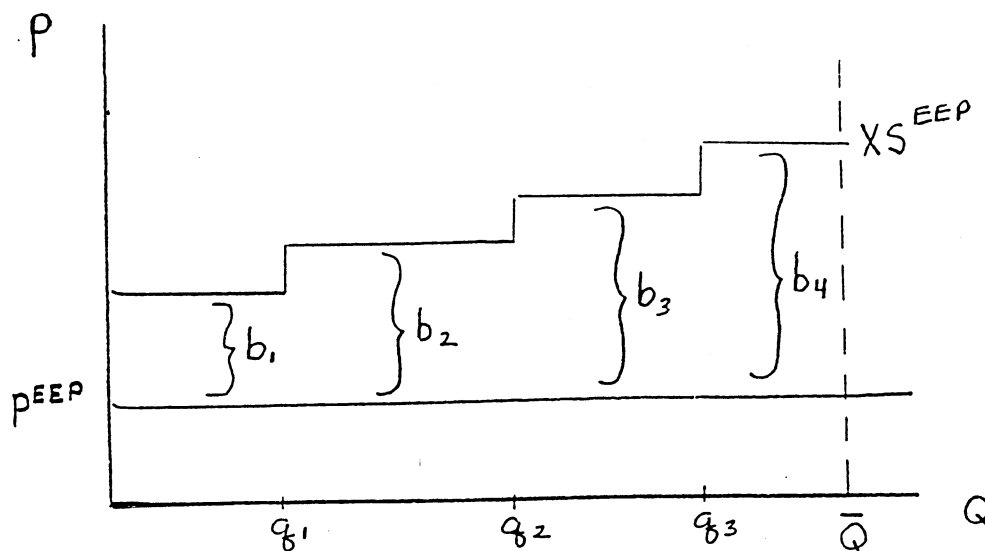


Fig. 2--Export Supply to the Targeted EEP Market

quantities (q_i) to the targeted EEP market. The USDA can intervene directly in the determination of the price specified in the EEP sales contract. This, along with the irregular timing of EEP sales and the bifurcation of exports into EEP and regular channels, sharply distinguishes the U.S. and EC export subsidy systems.

The Uncertainty of EEP Announcements

The number of countries targeted for EEP sales and the volume of grain represented by the initiatives have both fluctuated sharply over the course of the program, from a low of 16 countries in 1985/86 to a high of 50 in 1987/88 and from a low of 6.5 million metric tons of wheat in 1985/86 to a high of 30.2 million metric tons in 1987/88 (USDA). There are a number of reasons for these changes but one is the strategic, political value EEP sales have taken on.⁴

⁴Ostensibly, EEP sales are meant to counteract EC export subsidies, but this directive has been interpreted so broadly that EEP sales have often been made in markets where there has been little or no EC presence (USDA).

Although initial EEP regulations precluded sales to the Soviet Union and China, these nations have since become the largest EEP buyers (Seitzinger and Paarlberg). Presidential envoys to these countries can produce new initiatives and/or sales, as might diplomatic trips to any number of smaller markets or deals struck between foreign agricultural attaches and importing agents. In this way, a new 'psychology' is introduced into the grain markets.

The EEP has also at times appeared to be as much a stock management tool as an export subsidy program. When Commodity Credit Corporation stocks (which must back EEP bonus certificates) have been tight, new initiatives and sales have slowed. This was observed in the post-drought period when representatives of the trade complained that the EEP postponed or even reduced U.S. export sales (Cloud).

The difficulty of predicting the volume and timing of EEP sales is particularly important to the exporting firms. Firm profitability rests heavily on the ability to assess and manage risk. This is because exporting firms operate on large volumes and small margins between purchase and sales prices such that even very small adverse price movements can mean very large losses (Atkin; Caves; Conklin). The ability to choose optimal positions in cash and futures markets--to hedge and speculate most profitably--rests on the firm's expertise at assessing both short and longer-term market trends. Little is published about exporting-firm profits, but studies have shown that large speculators make substantial net profits in commodity futures markets and that they do better when they know about the behavior of markets (Atkin; Houthakker). Unexpected EEP announcements or delays in large expected purchases cause unanticipated price movements. Further, futures market speculation on the 'psychology' of EEP might cause futures prices to move differently than spot prices, increasing firm exposure to basis risk. In short, the EEP clouds the clarity of market signals coming from the traditional price discovery mechanisms making it difficult for firms to use this information--so essential to the profitability of trading operations--to their advantage.

The CCC-stock management aspect of EEP can also cause deviations from the expected timing of export sales and, consequently, unexpected intertemporal price relationships. Further, the market smoothing, or price stabilizing, aspect of government stock management can be

problematic from the firm's perspective. Although unstable prices pose risk, instability is the essence of arbitrage and traders will find unstable prices a problem only when the path of instability is unknown (Atkin).

Government Intervention in EEP Pricing

When the EEP was first established Administration officials charged with program operation sought to make it as "market oriented" as possible. This meant that EEP export prices and other sales terms would be determined, as they are in the private commercial market, through negotiation between exporting firms and the importer. Over time, USDA has increased its role in setting EEP prices with firms (and other Government agencies) complaining that price determination is secretive and inadequately documented (conversations with Daniel Amstutz, former Undersecretary for International Affairs and Commodity Programs, USDA; staff of the General Accounting Office; and export industry officials).

Direct price intervention poses several constraints for exporting firms. One, their flexibility in adjusting to and taking advantage of rapidly changing conditions in both grain and transportation markets (which, given their extensive information networks and shipping ties, is their comparative advantage) is hindered. A succession of contract revisions until the USDA price (and bonus) are met can mean the loss of a number of profitable opportunities often based on only fractional price and transport rate movements. In essence, time and, thereby, opportunities can be lost while transaction costs are taken on.

Second, uncertainties and delays in EEP contract approval can complicate hedging decisions and increase risk exposure, particularly if EEP contracts are flat priced.⁵ Exporters are exposed to flat price risk from the time of the offer of an EEP sale. If the contract is approved by USDA and the sale made, the exporter risks a change in price until the sale can be covered with some combination of cash and futures purchases. Potential EEP sales, like other open offers, can be

⁵Flat priced contracts are commonly used by centrally-planned economies and government purchasing agents of developing countries, many of whom have purchased under EEP. Basis price contracts--where the price is with respect to a designated futures price--eliminate much of the price risk.

prehedged; but if the USDA rejects the contract the exporter is exposed to a flat price (Conklin).

Third, the EEP process may impinge on U.S. exporters' opportunities for coordinating profitable deals through foreign affiliates or subsidiaries. McCalla and Schmitz have argued that the foreign entity can make forward sales while allowing the U.S. parent company to begin purchasing grain prior to the legally-required export sales report and the market's response to the sale. They also argue that the foreign affiliate "could report to the home company in piecemeal fashion in amounts less than the minimum reporting requirement" (p. 209). Such transactions would presumably be inhibited by the EEP contract approval process.

Market Segmentation

A peculiar feature of the current U.S. export subsidy system is that it has created two alternative U.S. markets: the EEP market and the normal, private channels. In fact, the EEP market might be said to be segmented into numerous individual country markets each, to varying degrees, insulated from parallel markets. Once an EEP allocation is made, the targeted importer no longer competes with other importing countries for the purchase of the earmarked quantity. Thus, the EEP might be said to instill the importer, however 'small' in the non-EEP market, with market power.

The U.S. Government is the sole supplier of the earmarked quantity but the targeted importer has no formal obligation to purchase under the program. Essentially, USDA must compete for the sale with other U.S. and non-U.S. suppliers. The USDA export sales agent (the Foreign Agricultural Service) may lack sufficient information (not being set up or staffed to act as a marketing board) to discover the "competitive" price in the targeted market.⁶ Further, FAS may face credible threats from the importer that it will buy from another country, while it may be under considerable pressure from Congress or Executive agencies to avoid risking sales losses;

⁶The price discovery process will differ by commodity and country depending on a number of factors, including how widely traded is the targeted commodity, the extent to which the targeted country is integrated into the commercial trading system, information and symmetry of information on both sides, political factors, and the role of the private exporters in price determination.

also, its vested interest in EEP administration may encourage it to maximize program sales rather than program efficiency.

Exporting firm profits on an individual EEP sale are a function of the EEP price and the EEP bonus, as well as the price at which it must purchase the EEP commodity. These variables are determined by the interaction of Government, exporter, and importer behavior in the negotiation and bidding processes.⁷ Despite lack of complete information on all of these, it seems clear that the distribution of program rents will be skewed toward the importer and away from the exporting firms the stronger the importer's bargaining power (or threat strategy), particularly when bonuses are limited by budget caps or the availability of CCC commodities. In the early phases of the program-- when Congress was encouraging (even demanding) higher EEP spending, commodity supplies were abundant, and competition for markets was keen--market segmentation may have been relatively unproblematic from the firm perspective. Current market conditions, including much lower stock levels, closer scrutiny of EEP spending, and stronger demand for U.S. exports, may well imply that the costs to the exporting firms of transferring market power to the importer outweigh the benefits of EEP bonuses.

Implications for International Market Performance

A number of features of the current U.S. export subsidy program are likely to be undesirable to at least the larger exporting firms. A closer look at these program details provides some insight into the apparent free-trade stance taken by some firms. Alternative export subsidy schemes might be more (or even less) desirable but the literatures' analyses of export subsidies tends to treat all export subsidies as equivalent. A major reason for this appears to be that exporting firms (and all middlemen) are either left out entirely or that trade models cannot capture the complexity of the profit-seeking behavior of exporting firms (which involves vast numbers of transactions in both cash and futures markets). This lack may be important because the exporting firms pass the

⁷Hillberg models EEP sales negotiations as a cooperative game involving firms, the CCC, and the targeted country. When firms are assumed to be price takers, the game reduces to one between the Government and the importer with the first pursuing a set of EEP-related objectives and the second maximizing utility from consumption of EEP and non-EEP sourced commodities.

effects of such programs back to the farm sector and onto the international markets.

The arcane activities of the large grain exporters generate suspicion inside as well as outside the agricultural economics profession. However, Caves and others point out that as intermediaries, arbitragers, and makers of both cash and futures markets, exporting firms contribute to the efficiency and performance of the international marketing system.⁸ Additionally, the making of a largely efficient futures market allows many U.S. farmers to hedge against risk to stabilize their own incomes. There is no clear evidence yet on whether EEP bonuses have been windfall profits for some exporting firms. There is evidence, however, that some firms view some specific aspects of the EEP unfavorably, particularly if they become permanent features of U.S. export policy. These aspects, discussed in this paper, interfere with traders' arbitrage opportunities, and with their ability to assess and manage risk. Ultimately, we might expect a government policy with these features to inhibit speculation by knowledgeable traders, thereby reducing futures market liquidity and hindering its vital price information role. In turn, a less efficient futures market means that exporters must bear larger risks, the effect of which may be passed along through prices to importers resulting, ultimately, in lower trade volumes. This would be a very different outcome than that sought by the supporters of U.S. export subsidies.

⁸In Canada, where grain marketing is monopolized by the Canadian Wheat Board, traditional price discovery mechanisms such as cash and futures markets do not exist or are ineffective (McCalla and Schmitz).

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