

**Efficiency of Farm Programs,  
the Gains from Trade, and  
Compensation**

**A. Schmitz, S. Weyerbrock,  
and J. Vercammon**

***GATT Research Paper 92-GATT 16***

## **EFFICIENCY OF FARM PROGRAMS, COMPENSATION, AND THE GAINS FROM TRADE**

### **I. Introduction**

In a recent paper (Rausser, forthcoming 1992), Vercammen and Schmitz analyzed the relationship between efficiency of farm programs and their trade-distorting effects. They found that, in general, the more efficient a farm program, the lesser the trade-distorting impact. Exploration of the final link is now required; this is the relationship between efficiency of farm programs, compensation, and the gains from trade. Policymakers in the GATT process ultimately are interested in this question, since the larger the gains from trade liberalization, the greater the efforts devoted toward achieving freer trade. In addition, no link has not been explored between efficiency of farm programs and the degree to which compensation is needed to move from an inefficient to an efficient program. In other words, how much compensation is needed for the losers in order to achieve an efficient policy outcome?

This research focuses on the link between the efficiency of farm programs, compensation, and the gains from trade. We will show the conditions under which inefficient farm programs generate larger trade gains if freer trade is achieved. We will develop a theory establishing the relationship between the efficiency of farm programs, the gains from trade if these programs are made more efficient, and the compensation required to achieve such an outcome. We will use empirical methods to study the

European Communities (EC) wheat sector and will estimate compensation schemes for different policy options (e.g., acreage set-asides). The benefits from some policies which differ from those in existence will be shown to be significantly greater than the compensation required for the losers of changes in current EC policies.

## II. Theoretical Background

(a)

Figure 1 shows what is referred to as an efficient farm program. In the domestic market, the supply schedule is  $S_d$ , while demand is  $D_d$ . Under the no-trade case, price is  $P_1$ . Corresponding to  $S_d$  and  $D_d$ , the excess supply schedule is  $E_s$  and the excess demand relationship is  $E_D$ . If the good is exported and the free-trade price is  $P_T$ , exports will be  $Q_0$ . If, on the other hand, the good is imported, at a free-trade price,  $P_t$ , the amount  $Q^0$  would be imported. If a price support of  $P_T^*$  is introduced, it is inefficient since it causes excess production and inefficient resource use.

What are the "gains from trade"? If the good is exported, the gains are the cross-hatched area,  $P_a^T P_1$ . If it is imported, the gains are the cross-hatched area,  $P_1 b P_t$ . (From trade theory,  $P_a^T P_1 = cde$  and  $P_1 b P_t = dfg$ .) The gains from trade are net measures; that is, they are the gains after the losses to the losers are subtracted from the gains to the gainers. In the export case in Figure I, a movement from no trade to free trade results in a producer gain of  $PdcP^T$  and a consumer loss of  $PdeP^T$ . The difference represents the gains from trade as shown by  $P_a^T P_1$ . For an import good, if

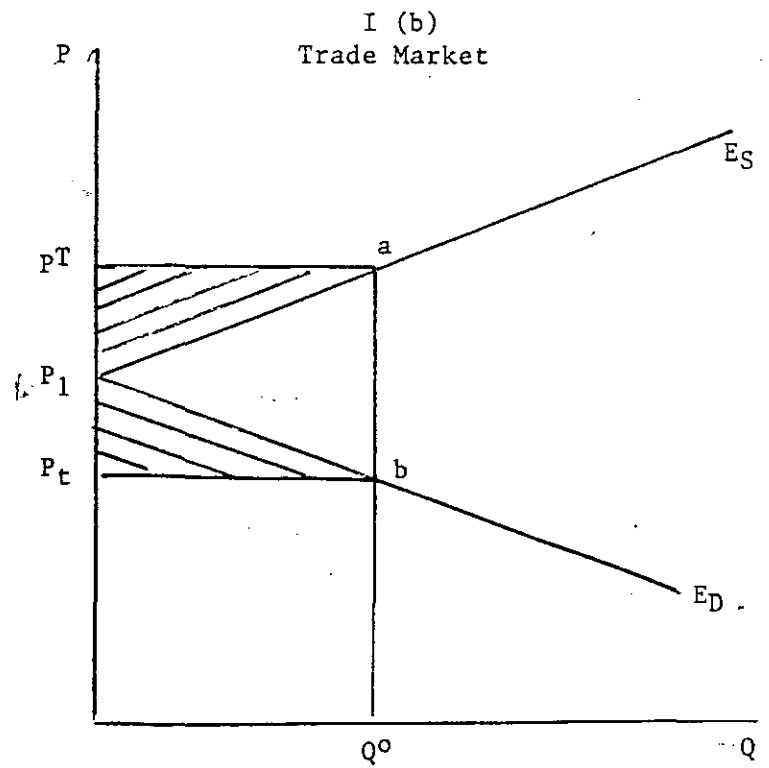
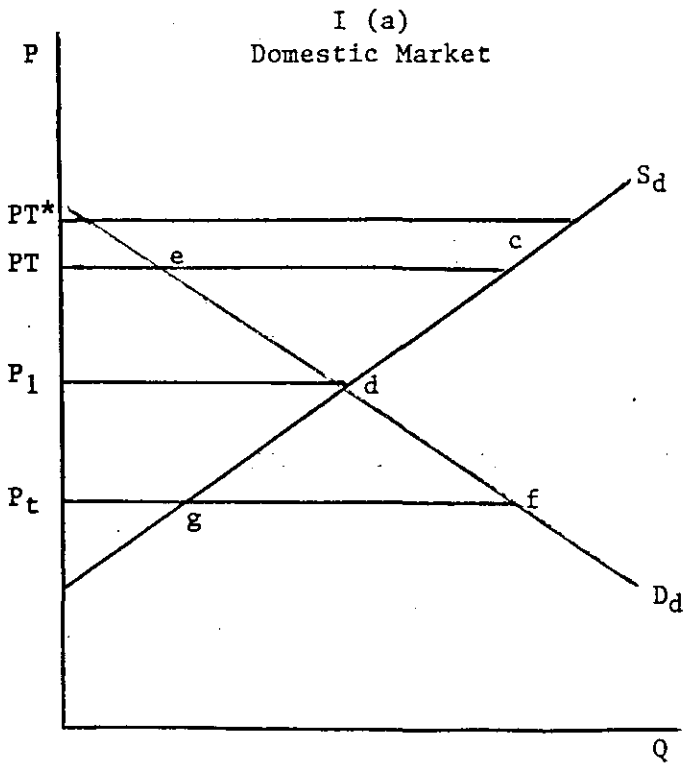


Figure 1. The Gains from Trade

the free-trade price is  $P_t$ , a movement from no trade to free trade results in a consumer gain of  $P_1dfP_t$ , but a producer loss of  $P_1dgP_t$ .

(b)

Consider now an inefficient farm program—a price support system used by an exporter (Figure 2). The free-trade price is  $P^T$  and the support price is  $P^S$ . With the support price, exports increase from  $Q^0$  to  $Q^S$ . Note, however, that to export the increased volume  $Q^0Q^S$ , the export price has to drop from  $P^T$  to  $P^m$  (the  $E_D$  is the schedule for the importer of the good). What are the effects of the support price,  $P^S$ ?

1. There is a gains from trade effect for exporters of  $PS_{ab}P^T$ .
2. There is a gains from trade effect for importers of  $P^TbcP^m$ .
3. There is a treasury cost of  $PS_{ac}P^m$ , which is paid as a deficiency payment to producers.
4. There is a net welfare loss to the world as a whole of the cross-hatched area, abc.
5. There is a cost to the exporter of  $P^TbacP^m$ .

There are several important points to note:

1. Price supports are an inefficient policy instrument for exporters, since the treasury costs of running such a scheme exceed the gains from trade generated from the increased exports.<sup>1</sup>

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<sup>1</sup>This is the context of the Schmitz, Sigurdson, and Doering (1986) paper on farm policy and trade gains. Even though the trade gains can be positive, the program in place can be costly if the treasury costs exceed these gains.

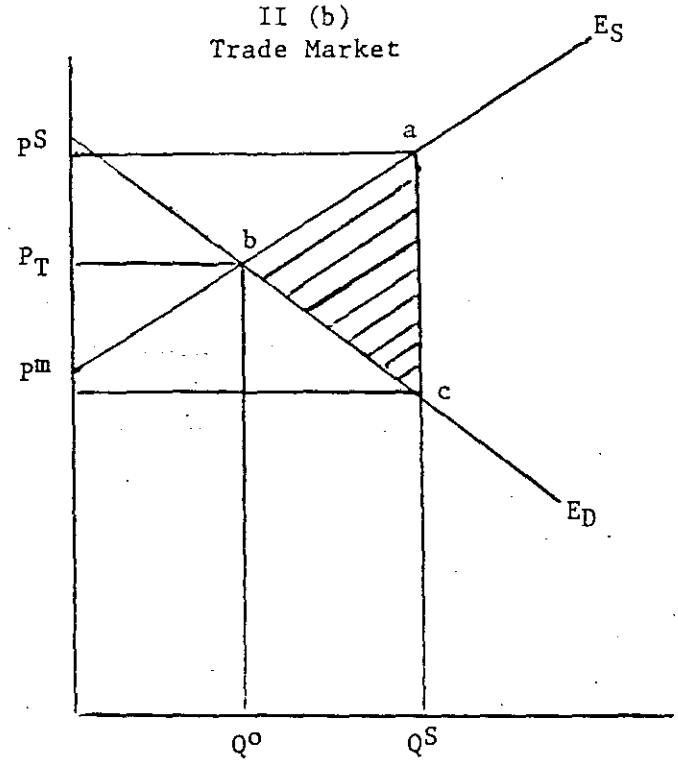
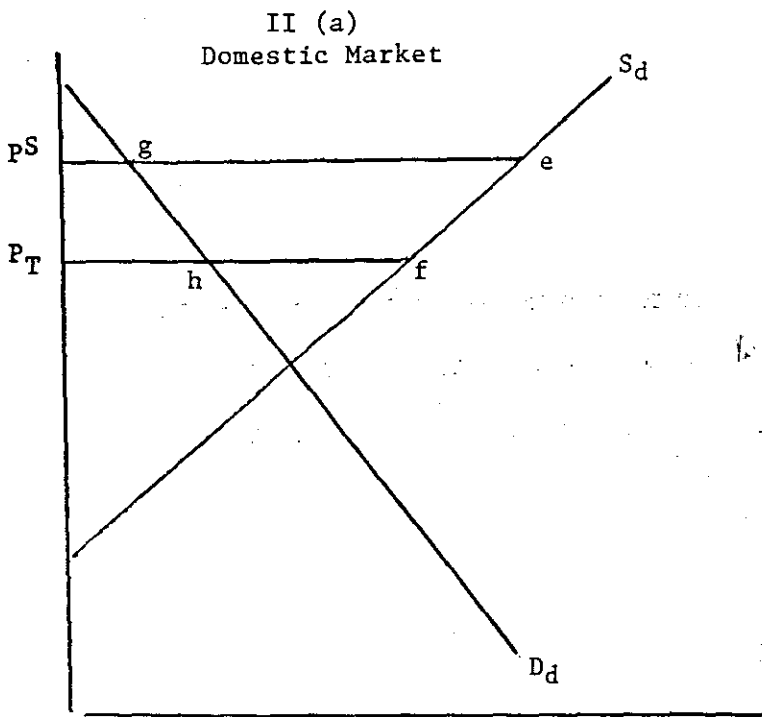


Figure 2. Price Supports and Trade Gains

2. Through lower prices, the exporter subsidizes not only the domestic producer, but also the importers. This is why the cost of the program can be large relative to what domestic producers gain. (In Figure 2 the net gains from trade are only  $PS_{ab}P_T$ , but the treasury cost is much larger— $PS_{ac}P^m$ .) Thus, the percentage of a commodity that is exported is a major factor in analyses of farm programs.
3. The cost of the program depends on the elasticities of the excess supply and demand schedules. The more elastic the supply schedule and the more inelastic the excess demand curve, the greater the cost of the price support program.
4. The more inefficient the program, the smaller the exporter gains from trade relative to the treasury deficiency payment costs.

(c)

We now discuss the issue of gains from trade and compensation. At the support price,  $P^S$ , the program is inefficient because, in moving from  $P^S$  to a free-trade solution,  $P^T$ , there is a net gain since the gains from trade loss is less than the amount of treasury savings. Suppose policymakers want to achieve a free-trade outcome beginning from a starting point with price supports of  $P^S$ . With no compensation, (1) producers lose  $PS_{ef}P_T$ ; (2) domestic consumers gain  $PS_{gh}P_T$ ; (3) there is a gains from trade loss of  $PS_{ab}P_T$ ; and (4) a treasury savings of  $PS_{ac}P^m$ . In moving from  $P^S$  to free trade,  $P_T$ , clearly the gainers (consumers and taxpayers) could compensate producers such that all could be made better off with free trade. This is the case, even though there is a reduction in the gains from trade in moving to free trade. Whether or not compensation should actually be paid is a value judgment; however, if it is not paid, there will generally be no political support for free trade from farm groups. In our opinion, the past failures surrounding GATT negotiations partly revolve around this issue.

In the above model, the following is the case. The more efficient a farm program becomes, the smaller the gains from trade, but these are more than offset by domestic consumer gains and treasury savings. In addition, even though the gains from trade are reduced as a program becomes more efficient, the losers (namely, domestic producers) could be adequately compensated for their losses by the gainers such that everyone can be made better off by making programs more efficient. Likewise, the converse is true. Introducing price supports upon an already efficient program leads to positive trade gains, net costs to society, and the inability of the gainers from price supports to compensate the losers.

(d)

Consider the following case, where a country's policy does not affect the world price. In Figure 3, the free-trade market price is  $P_f$  and exports are  $Q_f$ . The gains from trade are  $P_f ab$ . Now, examine a price support system which establishes a price support at  $P^F$ . Exports increase from  $Q_f$  to  $Q'_f$ . There is a positive gains from trade effect of  $P_f ac P^F$ , but an associated treasury outlay of  $P^F cd P_f$  in the form of deficiency payments to producers. The net cost of the program is the cross-hatched area,  $acd$ .

The same general principle holds as before. As the program is made efficient by moving to free trade, the gains from trade are reduced, but so are treasury outlays. These savings are greater than the gains from trade losses. In addition, domestic consumers gain. In aggregate, the gainers from free trade (taxpayers and consumers) could compensate the losers (the producers), such that all could be made better off from trade versus a producer price support system. In this model, the gainers cannot



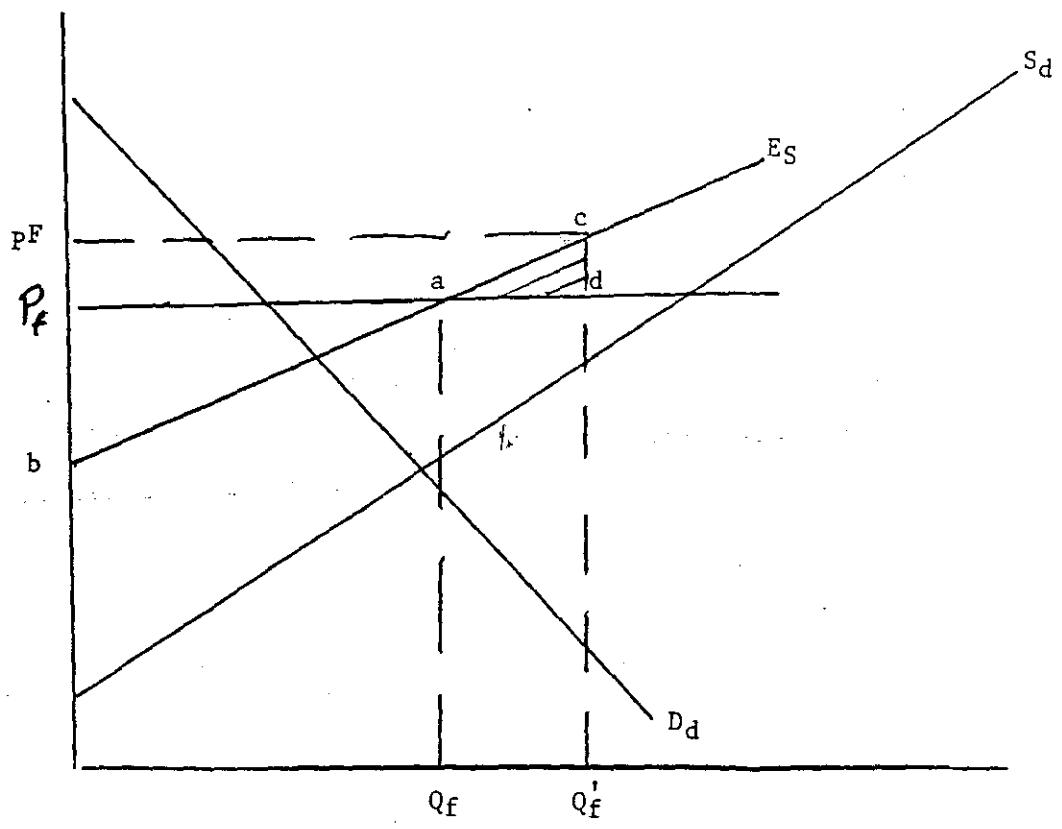


Figure 3. Gains from Trade (Small Country)

compensate the losers in moving from free trade,  $P_f$ , but they can in moving from  $P^F$  to  $P_f$ .

(e)

The cases above use free trade as a benchmark and a country's policy distorts this free-trade outcome. What if, however, the market price faced by an exporter is distorted through other countries' farm subsidies. For example, in Figure 3, what if the world distorted price is  $P_f$  and producers lobby government to introduce a price support of  $P^F$  in order to receive free-trade prices (we assume the free-trade market price is  $P^F$ )? In this case, there is a net cost of achieving a free-trade solution price if, in fact, introducing  $P_f$  has no effect on world price. (If this action causes other countries to reduce subsidies so price would increase to  $P_f$ , then there is no cost to the program.) The net cost arises because producers gain less from the support program than it costs the treasury (i.e.,  $P^F c_d P_f > P^F c_a P_f$ ). This is the case, even though the gains from trade of introducing a deficiency payment are positive. This model, like the earlier ones, shows that price supports are an inefficient policy instrument, regardless of whether they are applied in a free-market situation or a distorted market where world price is below the true world free-trade price. Price support programs are not capable of offsetting price-depressing trade-distorting policies of other countries. -

It is interesting to combine the large-country and small-country export cases into the following framework. Suppose the large country uses price supports to support producers, with the effect of lowering world prices (Figure 2). As already demonstrated, this policy is inefficient. Now,

suppose the small-country exporter responds by propping up prices with a deficiency payment scheme. As shown in Figure 3, this policy response is also inefficient. Not that, for the small country, price supports are inefficient regardless if introduced with reference to a world free-trade price or a distorted world price.

(f)

Consider the case of an importer. In Figure 4, the free-trade price is  $P_f$ . The domestic supply is  $S_d$  and  $D_d$  is domestic demand. ED is the excess demand schedule. The entire cross-hatched area is the gains from free trade versus no trade.

If the country imposes a quota which drives up the internal price to  $P_E$ , there is a gains from trade loss of  $P_E abc$ . Producers gain but consumers lose (even if the quota rents go to the importer, quotas impose a net cost). In this case, there are negative gains from trade associated with a net welfare cost of the program—the opposite of the export good cases considered earlier. In addition, the gainers from quotas cannot compensate the losers so as to make everyone better off. This follows from the fact that quotas are inefficient relative to free trade.

Suppose that other countries subsidize production, which causes world prices to fall below free-trade level. The country in Figure 4 responds with a quota. For analytical purposes, assume  $P_f$  is the distorted price and  $P^Q$  is the free-trade price. In this case, quotas are also inefficient. They are inefficient regardless of whether or not the free-trade price is distorted. Note that the same was true in the small-country case for an export good.

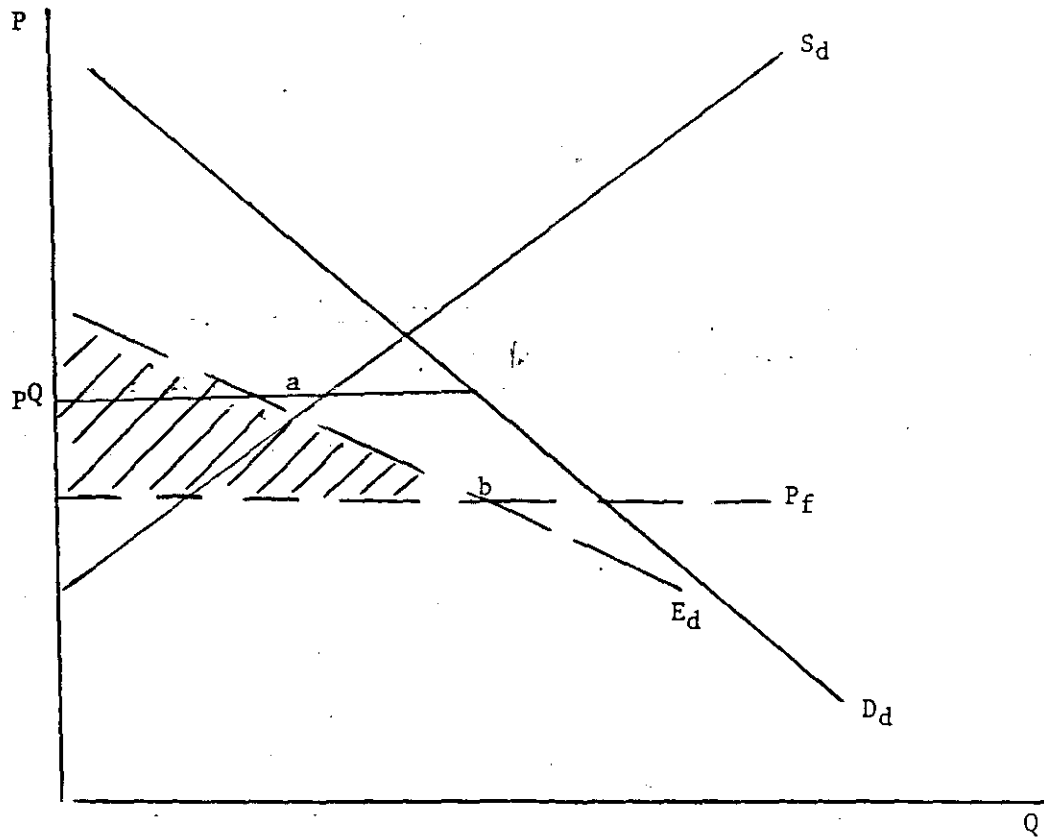


Figure 4. Quota Protection

### III. The EC Case

#### Introduction

The implicit goal of the EC's Common Agricultural Policy (CAP) is to redistribute income from consumers and taxpayers to producers. Whether this goal has been achieved in the past is a debated issue; however, today it is generally agreed that the CAP is facing a substantial crisis caused by budgetary and political pressures (de Gorter and Meilke, 1989). Farm spending accounted for 67 percent of the EC budget in 1989 (EC Commission, 1991), and Third Countries consider the CAP to be a major contributor to distorted world markets. The Uruguay Round of trade liberalization negotiations is deadlocked over the issue of EC agricultural price supports and export subsidies (*Financial Times*, July 10, 1991).

We evaluate and compare the economic costs and benefits of policy options that meet a specific welfare criterion while minimizing consumer/taxpayer costs. We examine whether the current EC cereal policy, which is based on a price-support scheme, or alternative policy options containing production reducing and/or price-support elements would be more efficient in redistributing economic welfare from consumers/taxpayers to producers. Specifically, our aim is to discover how much the EC would have to compensate its producers to make them indifferent to: 1) the current (more or less) unrestricted price-support scheme; 2) a free-trade system; or 3) a system featuring price-support and production-control elements. If some form of compensation is not made, any policy change is likely to be blocked by adversely affected special interest groups (Schmitz, 1988).

We chose to examine these specific policy alternatives because the CAP reform package currently under discussion at the GATT Uruguay Round contains price-reduction and production-control elements. The reform plan recently announced by the European Commission includes a provision for a 35 percent cut in cereals prices. Farmers would be fully refunded for the price reduction; a compensation scheme corresponding to farm size is envisioned. To receive compensation, farmers with more than 20 hectares would have to take 15 percent of their land out of production. Producers with less than 50 hectares would be compensated for the set-aside (*Financial Times*, June/July, 1991). Whether the EC Council of Farm Ministers will accept this reform package remains to be seen. Early reaction by EC Council members is negative.

### Graphic Model

To study the redistribution efficiency of different policy options for the EC wheat market, a static two-country, one-commodity model of international trade is used (McCalla and Josling, 1985). The model is based on the excess supply function of the EC and on the excess demand function of the rest of the world (ROW) facing the EC. This type of model was chosen to take into account the fact that the EC is a large actor on world wheat markets.

Consider Figure 5. Without intervention, equilibrium in the international market occurs where  $ES_0 = ED_0$ , yielding a world price of  $P_0$  and a trade volume of  $Q_0$ . From standard welfare economics, it follows that, as an exporter of common wheat, the EC realizes "gains from trade"

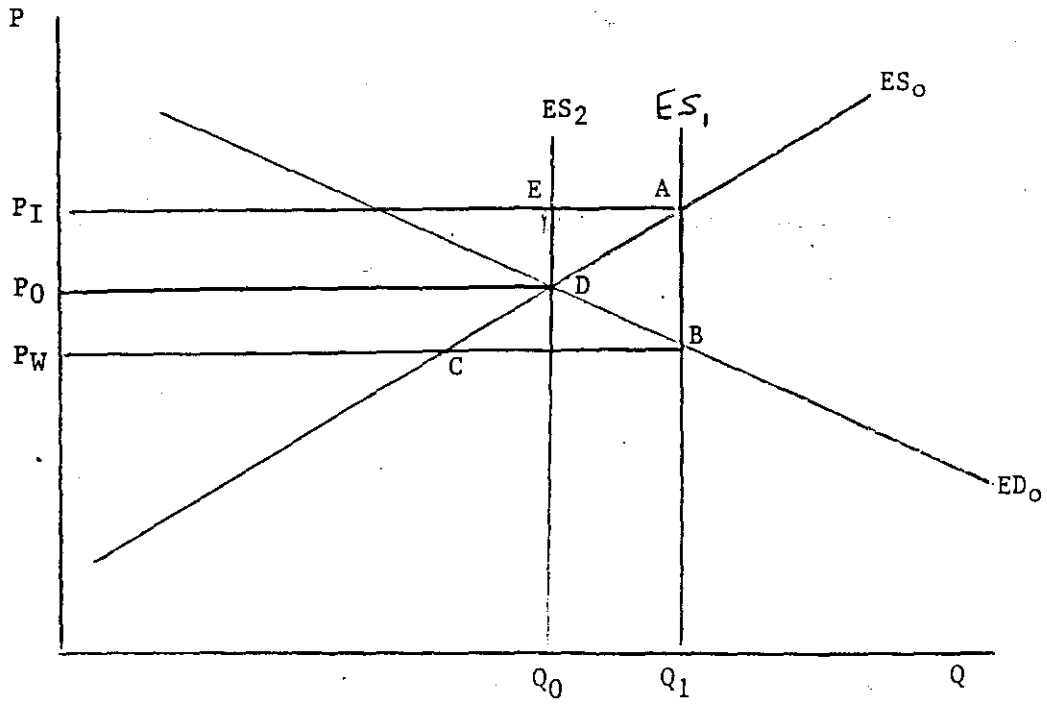


Figure 5. EC: The Wheat Case

of  $P_0DF$ . By analogy, the welfare gain of the ROW amounts to  $P_0DG$  (Schmitz, Sigurdson, and Doering, 1986).

However, world wheat trade is distorted due to the excessive use of export subsidies and import restrictions by trading countries. Figure 5 also captures the effects of currently implemented EC wheat policies. It takes into account the principal policy instrument applied, the domestic producer price support system. This system is based on (1) variable import levies; (2) obligatory purchases of grain by the Community at the buying-in price,  $P_I$ ; and (3) variable export restitutions. The recently introduced stabilizer mechanism is not modeled since institutionalized price decreases and co-responsibility levy payments are reflected indirectly by movements in the buying-in price. Furthermore, the voluntary set-aside program is neglected, considering its low participation rate. The ROW is assumed to take the policy choice of the EC as given.

A support price  $P_I$  above the market clearing price yields an increase in EC world wheat exports from  $Q_0$  to  $Q_I$ . World wheat prices fall from  $P_0$  to  $P_W$ . In fact, the implementation of a combination of fixed producer and consumer prices leads to a perfectly inelastic excess supply function  $ES_1$  above  $Q_I$ , since both producers and consumers are insulated from world market prices. In order to dispose of its exports on the world market, the EC has to grant export subsidies corresponding to the area,  $P_1ABP_W$ . Producers receive a Ricardian rent of  $P_1ADP_0$ . The net cost of the program, ignoring the tax excess burden, is reflected by  $P_0DABP_W$ .

Due to financial and political pressures, CAP policymakers face an urgent need to reform the EC cereals regime. In general, the first-best solution is to eliminate the price support system and to compensate farmers through direct income transfers. The elimination of the CAP price support



system reestablishes the free-trade excess supply curve,  $ES_0$ , as the relevant excess supply curve. A reduction in the internal price from  $P_1$  to  $P_0$  leads to a drop in EC wheat production and a decrease in EC wheat exports from  $Q_1$  to  $Q_0$ . World wheat prices rise from  $P_W$  to  $P_0$ . Since the price wedge between the domestic and international prices is eliminated, there is no need for further export restitution payments. The Community realizes a savings corresponding to  $P_1ABP_W$ . Consumers gain due to restricted wheat prices. Producers lose the entire Ricardian rent of  $P_1ADP_0$  and gain a corresponding compensation that can be easily paid out of the budgetary savings generated by the policy change. The move to a free-trade scheme from the currently (more or less) unconstrained price-support scheme yields a gain in welfare according to the Kaldor-Hicks compensation test (Just, Hueth, and Schmitz, 1982). According to this compensation principle, a policy change is recommended if the gainers are able to compensate the losers (only a hypothetical compensation is required).

Consider a second-best approach, proposing the introduction of a supply management scheme which restricts production to the free-trade level,  $Q_0$ , while maintaining the support price,  $P_1$ , for domestic and export sales. Among other options, tradeable production quotas or acreage set-aside programs may be used as direct supply management devices to attain this goal.

Suppose there exists a feasible direct supply management scheme, reducing EC production of wheat to  $Q_0$ , that can be represented by a move downwards along the excess supply curve,  $ES_0$ . Effects of a direct quantity control program on related product or factor markets are ignored. Then the new excess supply curve,  $ES_2$ , may be visualized as a vertical line above  $Q_0$ , since producers and consumers do not respond to world market prices.

Because the EC has a reduced amount of wheat to dispose of on the world market, the world market price increases from  $P_W$  to  $P_0$ . Export restitutions decline to correspond to the area,  $P_1EDP_0$ . In comparison to the current situation, the EC saves subsidies documented by  $P_0DEABP_W$ . Assuming that producers perceive themselves as being on  $ES_0$ , at point A—given the current cereals regime—they realize a loss in Ricardian rent of  $EAD$  when a quantity restriction is imposed. Given savings on export restitutions of  $P_0DEABP_W$ , a compensation of  $EAD$  may be easily paid. Adopting a combination of price-support and supply-management policies leads to a welfare gain according to the Kaldor-Hicks criterion.

The graphic analysis shows that the EC could achieve welfare gains by either adopting the free-trade price or enforcing the free-trade quantity of wheat. Either policy alternative would result in identical budgetary savings; however, the structure of the budgetary outlay would be different for each option. Adopting the free-trade price price of wheat would require only income transfers to farmers, but enforcing the free-trade quantity of wheat would involve a combination of export subsidies and compensation payments. The purpose of this paper is to explore the budgetary effects of these policy alternatives and related compensation payments required to make European farmers indifferent to a policy change.

### **Mathematical Model**

To establish the result, rigorously consider a model in which the excess demand and supply are represented by

$$(1) \quad ED = a - bP,$$

$$(2) \quad ES = -u + vP,$$

where  $a, b, u$  and  $v > 0$ . The respective price elasticities are

$$(3) \quad e^D = -(\partial ED/\partial P)(P/ED),$$

$$(4) \quad e^S = (\partial ES/\partial P)(P/ES).$$

The free-trade price and quantity are given by

$$(5) \quad P_0 = (a + u)/(b + v),$$

$$(6) \quad Q_0 = (av - bu)/(b + v).$$

The current and alternative policy schemes are indicated by subscripts: Subscript 1 denotes the unrestricted price-support system; subscript 2 denotes the elimination of price-support policies and direct income transfers; and subscript 3 denotes a combination of price-support and supply-management policies.

The export restitution payment required for an unconstrained price support scheme amounts to

$$(7) \quad ERP_1 = (P_I - P_W) Q_I.$$

If the price support system is eliminated, export subsidies reduce to zero ( $ERP_2 = 0$ ). Consequently, the EC saves  $ERP_1 = (\Delta ERP_2 = ERP_1)$ . Under the current scheme, producers receive a Ricardian rent of

$$(8) \quad R_1 = (P_I - P_0) Q_0 + ((P_I - P_0)(Q_I - Q_0))/2.$$

Adjusting the internal price to its free-trade level eliminates the Ricardian rent ( $R_2 = 0$ ). Producers lose  $C_2 = \Delta R_2 = R_1 - R_2 = R_1$ , and the corresponding compensation would have to be paid. Taking into account savings on export subsidies and the compensation, the EC would realize net savings of

$$(9) \quad NS = \Delta ERP_2 - C_2 = ERP_1 - R_1 \\ = (P_0 - P_W) Q_I + ((P_I - P_0)(Q_I - Q_0))/2.$$

If an adequate supply management scheme is implemented, export subsidies decline to

$$(10) \quad ERP_3 = (P_I - P_0) Q_0,$$

allowing for savings of

$$(11) \quad \Delta ERP_3 = ERP_1 - ERP_2.$$

With the proposed direct quantity control program imposed, the Ricardian rent corresponds to

$$(12) \quad R_2 = ERP_2.$$

Producers lose

$$(13) \quad C_3 = \Delta R_3 = R_1 - R_3 = ((P_I - P_0)(Q_I - Q_0)) / 2.$$

The net savings of this type of price/quantity policy correspond to

$$(13) \quad NS_1 = \Delta ERP_3 - C_1 = (P_0 - P_W) Q_I + ((P_I - P_0)(Q_I - Q_0)) / 2,$$

coinciding with the net savings obtained by adopting the first policy alternative presented.

### **The Data**

Data concerning excess supply and demand elasticities, EC internal and world market prices, and EC production, consumption, and exports were obtained. In 1989/90, the EC buying-in price for common wheat was set at 155.44 ECU/t (*CAP Monitor*, June 26, 1990). Using the ECU/U.S.-\$ exchange rate as of October, 1990 (1 U.S.-\$ = 0.735 ECU) (*New York Times*, October 25, 1990), this corresponds to 211.4 U.S.-\$/t. A world market price of \$4/bushel or \$144/t is considered. In 1989/90, the EC supplied 20.5 mil t of wheat and wheat flour at world markets (Sommer, 1989).

There are no elasticity estimates in the literature for the specific excess supply and demand curves examined. Therefore, five alternative scenarios are considered to explore the impact of the elasticity assumption. Scenarios A, B, and C consider an excess demand elasticity of the ROW facing the EC  $\epsilon^D$  of -0.5. To assess the significance of the excess supply elasticity of the

EC,  $\epsilon^S$  is assumed to be 3 (Scenario A), 2 (Scenario B), and 1 (Scenario C). Scenarios D and E feature a more elastic excess demand curve ( $\epsilon^D = -1.0$ ). This excess demand function is combined with both an elastic ( $\epsilon^S = 2$ ) and an inelastic ( $\epsilon^S = 0.5$ ) excess supply function.

## Results

The results are summarized in Table 1. For the most likely scenario, B, we calculate an EC free-trade price of 193.32 U.S.-\$/t and a free-trade export quantity of 16.99 mil t. By adopting market-clearing prices, the EC induces producers to request a compensation equal to their former Ricardian rent, or 338.80 mil U.S.-\$. Export restitutions are eliminated. Overall net savings amount to 1,042.90 mil U.S.-\$. The implementation of a price-support/supply management scheme leads to a decline in export restitution payments from 1,381.7 to 307.04 mil U.S.-\$. The Ricardian rent decreases for 338.80 to 307.04 mil U.S.-\$. A compensation of 31.76 mil U.S.-\$ makes producers indifferent to the policy change. By adopting a price-support/direct quantity control program which takes into account the necessary compensation payments, the EC saves 1,042.90 mil U.S.-\$.

Comparing scenarios A, B, and C note that, for a given excess demand elasticity ( $\epsilon^D = -0.5$ ), the higher the excess supply elasticity, the higher the free-trade price, and the lower the free-trade quantity. This also results in a lower export restitution payment (e.g., a decrease of payments from 507 mil U.S.-\$ to 221 mil U.S.-\$ in scenarios C versus A). The compensation payments necessary to support a policy change are also lower. According to scenarios B and D, a more elastic excess demand for a given excess supply elasticity ( $\epsilon^S = 2$ ), leads to a lower terms of trade effect. The world

TABLE 1: Effects of an EC Policy Change on World Prices, EC Exports, Export Subsidies—Required Compensation Payments and Budget Effects (in Millions of U.S. Dollars).

	Scenario A	Scenario B	Scenario C	Scenario D	Scenario E
	$\epsilon^S = 3.0$ $\epsilon^D = -0.5$	$\epsilon^S = 2.0$ $\epsilon^D = -0.5$	$\epsilon^S = 1.0$ $\epsilon^D = -0.5$	$\epsilon^S = 2.0$ $\epsilon^D = -1.0$	$\epsilon^S = 0.5$ $\epsilon^D = -1.0$
$P_I$	211.40	211.40	211.40	211.40	211.40
$P_0$	198.15	193.32	182.82	182.87	161.08
$P_W$	144.00	144.00	144.00	144.00	144.00
$Q_I$	20.50	20.50	20.50	20.50	20.50
$Q_0$	16.64	16.99	17.73	14.96	18.06
$ERP_1$	1,381.70	1,381.70	1,381.70	1,381.70	1,381.70
$ERP_2$	0.00	0.00	0.00	0.00	0.00
$ERP_3$	220.51	307.04	506.85	426.74	908.91
$\Delta ERP_2$	1,381.70	1,381.70	1,381.70	1,381.70	1,381.70
$\Delta ERP_3$	1,161.19	1,074.66	874.85	891.96	472.79
$R_1$	246.07	338.80	546.39	505.78	1,031.58
$R_2$	0.00	0.00	0.00	0.00	0.00
$R_3$	220.51	307.04	506.85	426.74	908.91
$C_2$	246.07	338.80	546.39	505.78	1,031.58
$C_3$	25.26	31.76	39.54	79.04	61.33
NS	1,135.63	1,042.90	853.31	812.92	411.46

market price increases from 144 U.S.-\$ to 182.87 U.S.-\$/t, EC exports decrease to 14.96 mil t, and export restitution payments amount to 426.74 mil U.S.-\$ after the change to a price/quantity scheme. The compensation to make producers as well off as before the change is higher (79.04 mil U.S.-\$) for the more elastic excess demand curve. For the free-trade program, a compensation of 505.78 mil U.S.-\$ is required. The net savings for either alternative are 812.92 mil U.S.-\$.

Under all elasticities scenarios, a compensation of producers is possible if the adoption of a free-trade system or a price-support/quantity control scheme is considered. The data show that the more elastic the excess supply and the more inelastic the excess demand, the larger the gain in welfare.

### **Discussion and Comment**

There is an urgent need to reform the EC's Common Agricultural Policy, and particularly its cereal regime. This need stems from both EC internal budgetary pressures and the external pressure of nations that are adversely affected by the CAP. This paper analyses the current EC system, as well as two alternative schemes, by assessing how effectively each policy achieves the current income goal of producers. The alternative policies considered are: 1) elimination of the price-support scheme, including export subsidies and import levies; and 2) a program featuring a mix of price-support and direct supply management elements, designed so that EC exports are reduced to their free-trade level. Both policy alternatives are shown to be superior to the current EC program. Under a likely elasticity

scenario, the EC saves more than one billion U.S.-\$, even after compensating producers.

The savings incurred by implementing either of these alternatives seem surprisingly high and may be attributed to the very stylized model used. A more comprehensive analysis would require that the indirect effects of these programs on factor markets and related product markets be explicitly taken into account. Furthermore, the both approaches assume away the political-economic transaction costs arising in the policy formation and implementation phase. Among these are bargaining and policy decision costs, as well as benefits and costs emphasized in the rent-seeking literature, and program administration and enforcement costs (Zusman and Rausser, 1990). For example, free trade is generally considered the first-best approach, but the transparency of direct income transfers may make it politically infeasible.

It now seems possible that the GATT contracting parties might settle on a compromise based on price cuts and/or supply management regulations. The results obtained in this study indicate that feasible policy alternatives exist which take into account the interests of European farmers, taxpayers, and eventually, consumers. There are sufficient gains from trade liberalization to compensate all concerned; however, because the EC has little experience in administering a direct supply management scheme for the cereals sector, lessons from the U.S. experience should be clearly documented. EC compensation mechanisms must also take into account the structure of European agricultural production.



## REFERENCES

- Bureau of Agricultural Economics. *Agricultural Policies in the European Community—Their Origins, Nature and Effects on Production and Trade*. Australian Government Publishing Service. Canberra, 1985.
- Commission of the European Communities. *CAP Monitor*. Brussels, 1990.
- Commission of the European Communities. *The Agricultural Situation in the Community 1987*. Brussels, 1988.
- de Gorter, H., and K.D. Meilke. "Efficiency of Alternative Policies for the EC's Common Agricultural Policy." *American Journal of Agricultural Economics*, 71(1989): 592-603.
- Gardner, B.L. "Efficient Redistribution through Commodity Markets." *American Journal of Agricultural Economics*, 65(1983): 225-34.
- Harris, S., A. Swinbank, and G. Wilkinson. *The Food and Farm Policies of the European Community*. John Wiley & Sons, (city?)1983.
- Hayes D., and A. Schmitz. "The Price and Welfare Implications of the Current Conflicts between Agricultural Policies of the United States and the European Community." In: Baldwin, R.E., C.B. Hamilton, and A. Sapir. *Issues in US-EC Trade Relations*. The University of Chicago Press, Chicago and London, 1986.