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MacSharry or Dunkel: Which Plan Reforms the CAP?

by

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MacSharry or Dunkel: Which Plan Reforms the CAP?

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Introduction

The purpose of this paper is to explore the implications for institutional (policy) prices set under the CAP of two current vehicles for policy change. In May 1992 the EC adopted the reform package associated with the name of EC Commissioner for Agriculture, Ray MacSharry. This entails a significant lowering of prices for cereals and related products coupled with compensation payments on a hectarage or headage basis. A parallel reform package is that proposed by the GATT Director-General, Arthur Dunkel, in December 1991 in the context of the Uruguay Round of trade negotiations. This would oblige countries, including the EC, to convert non-tariff import barriers to tariffs; to reduce these tariffs over time; to create market access for given quantities of imports; to reduce both spending on export subsidies and the volume of exports subsidized; and to reduce the level of protection granted by those domestic subsidies deemed not to be production-neutral. Each package is considered below as to how it effects policy prices and support levels in the EC for the major farm products. The two are then compared to see which package is the most constraining on EC markets.

It would be convenient to be able to project future price scenarios without the use of a quantitative model of agricultural markets. Unfortunately, the policy scenarios considered here, particularly that of the GATT, link prices to quantities in a way which makes such a separation impossible. In particular,

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many of the constraints are expressed in quantity terms and need therefore to be "translated" into their price effect. There is no alternative but to dive into the murky waters of modeling future market conditions, with all the uncertainties of model structure and parameter choice that accompany such a decision. Our approach is to make the model simple and transparent and to hope that it is robust enough not to drive the results too much by arbitrary structural or parameter decisions.

This paper discusses the main features of the model used to project prices; the impact of the MacSharry Reform on future prices; the constraints represented by the Dunkel proposal; and the comparison of the two different policy scenarios to see which package is "binding" on the development of policy prices. A final section reports some conclusions, particularly with respect to the current GATT negotiations.

The Model

The numerical simulation of future prices contains separate sub-models for each of six commodities (wheat, maize, other coarse grains, milk, beef and sugar). The three cereal models have the same basic structure, which can be summarized as follows. [1] Cereal yield is a function of base period yield, changes in real producer price, and a time trend. Cereal hectarage varies also with real producer prices, but is subject to set-aside constraints when operative. Output elasticity is split between the yield and hectarage effect. Production is the product of hectarage and yield. Consumption varies with changes in real market prices (producer prices adjusted for any direct producer taxes and premia) and with a time trend (representing income, population and

[1] The annex describes the model in somewhat more detail.

taste effects). Net exports are calculated as production less consumption, thus ignoring stock changes. Imports are assumed to be a fixed proportion of consumption, leaving gross exports to be calculated as a residual item (i.e., net exports plus imports).

For the milk sector, the situation differs slightly. Desired production is calculated, using a base somewhat higher than the current quota. This desired production changes with variations in real producer price and over time. The size of the quota is entered as a policy variable. The actual production is then the minimum of the quota and desired production. In the case of beef, production is calculated directly from changes in real producer price (and a time trend): the numbers of male cattle and suckler cows (necessary to estimate payments of premia) are assumed to move proportionately to production.[2] Sugar output is calculated by assuming a level for the A and B quotas and allowing "C" sugar (i.e., that produced above the A and B quotas) to depend on changes in world price (as no export subsidies are paid on this above-quota sugar). Consumption varies with market price, and determines the level of quota sugar exported with the aid of subsidy. Imports of ACP sugar are assumed fixed, and other sugar imports vary with consumption. Thus total exports entail the surplus quota sugar, the equivalent of the quantity of imports and the above quota ("C") sugar.

Changes in the level of world prices are endogenous to the model, being calculated from changes in the (previous year's) EC net exports and an assumed "rest of world" import demand elasticity.[3] Institutional prices vary with the

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[2] No attempt was made in this model to link beef production to cattle ages and the dairy herd.

[3] This elasticity value was derived from a formula which included the EC's share of world markets and the response of other countries to world price changes. In addition, the world prices were increased in the "Dunkel" scenario to take into account the impact of policy change in other countries.

policy scenario, as described below. Domestic market prices are determined by either the threshold price (if the EC is a net importer) or the intervention price (if the EC is a net exporter).[4] A future inflation rate is assumed for the calculation of deflated prices, and a future conversion rate between "green ECUs" and commercial ECUs is also assumed. To assist in comparison among the runs, calculations are made of the Aggregate Measure of Support (AMS) based on the price gap between domestic and world price times output; the producer compensation payments and coresponsibility levies; and the expenditure on export subsidies.

The Policy Assumptions

The two policy scenarios differ in their assumption about the outcome of the GATT Uruguay Round and of the current debate on CAP reform. The "MacSharry" scenario also assumes no GATT resolution is reached which would directly impinge on EC price decisions, (see Table 1), but postulates adoption of the agreed plan for reform of the CAP. This involves a drop in the prices of cereals, with corresponding adjustments in oilseeds and protein crops, offset by payment of compensation based on regional yields and actual farm hectarage. Dairy quotas are assumed not to be cut. However there is a limited dairy price decrease, and beef prices are reduced, to be offset in part by increased headage premia for beef cattle.

The "Dunkel" scenario assumes a GATT agreement following the details of the proposal of December 1991, as amplified in the draft schedule of obligations, but

[4] The model contains a provision by which these price bounds can be allowed to be approached gradually as the degree of self-sufficiency moves below or above 100 percent.

Table 1: Summary of Assumptions in Two Scenarios

MACSHARRY	DUNKEL
No GATT agreement	GATT agreement as proposed in December 1991
CAP trade policies remain as in 1992	EC policies changed only insofar at required by the GATT agreement, except that co-responsibility levies are dropped from 1993
MacSharry reforms introduced in 1993	
Cereals, oilseeds and protein crops	Market access improved
Target price reductions over 3 years for cereals (and oilseeds and protein crops) to 110 ECU/ton	Tariffication of non-tariff border measures
Intervention price reduced over 3 years to 100 ECU/ton	Existing tariff and non-tariff equivalent reduced by 36 percent over 6 years
Threshold price reduced over 3 years to 155 ECU/ton	Minimum access opportunity rises from 3 to 5 percent of consumption over 6 years
Co-responsibility levies and stabilizer penalities dropped in 1992	Export competition controlled
Compensation payments based on hectarage up to 45 ECU per ton equivalent	Reduction in outlay on export subsidies of 36 percent over 6 years
Set-aside requirement for commercial farms of 15 percent	Reduction in quantity of exports subsidized of 24 percent over 6 years
Lower limit of commercial farm 92 tons equivalent of output	Domestic support included
	Reduction in overall support, as measured by the AMS, of 20 percent over 6 years
Diary sector	World prices rise
Cut in butter prices 5 percent over 3 years	World prices assumed to rise with the reduction in support in other countries (5 percent, cereal; 15 percent milk; 10 percent beef; 20 percent sugar)
Co-responsibility levies dropped after 1992	
Cut of 1 percent in quota in 1994	
Beef sector	
Cut in beef price of 15 percent over 3 years	
Special premium (male) increased by 50 ECU per head	
Beef cow premium (suckler) increased by 70 ECU per head	
Sugar sector	
No change in A or B quotas	
No change in sugar prices	

no reform of the CAP other than that needed to fulfill those obligations.[5] Market access is improved by the imposition of tariffs in place of non-tariff border measures (such as the variable levy) and the tariff rate is then reduced by 36 percent (see Table 1). Minimum access opportunities are established as a share of domestic consumption in those areas where market access is presently small. Reductions are undertaken in both the cost of export subsidies (36 percent) and in the quantity of exports subject to subsidies (24 percent). The overall level of support is reduced by 20 percent as a way of capturing the impact of domestic support. It is further assumed that world prices rise as a result of the application of Dunkel rules to all other GATT parties in addition to the impact arising from EC trade liberalization.

The MacSharry Scenario

The MacSharry reform represents a combination of different approaches to policy reform. It involves four main elements:

- reducing cereal prices to livestock farmers and to consumers, thus increasing consumption, by lowering costs and by improving the competitiveness of cereals with respect to other feed ingredients;
- paying compensation for these price cuts so as to avoid sudden reductions in farm income;
- mandatory set-aside for cereals, oilseeds and protein crops on larger farms, in order to reduce quantities and program costs;
- weakening the link between support payments and yields, by basing compensation payments on regional average yields rather than those

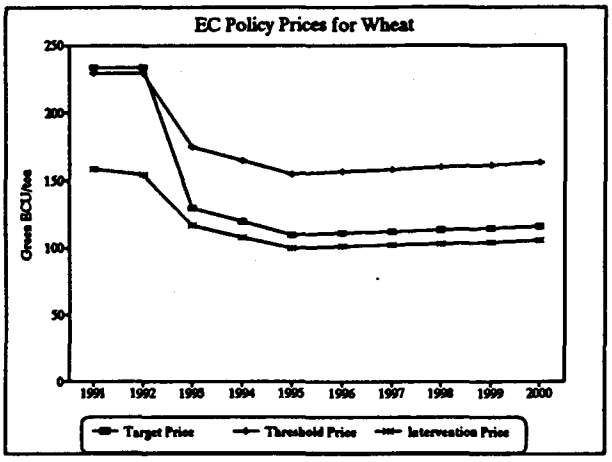
[5] Co-responsibility levies are, however, assumed to be removed after 1993, on the basis that such producer taxes would not be continued if the GATT package were agreed.

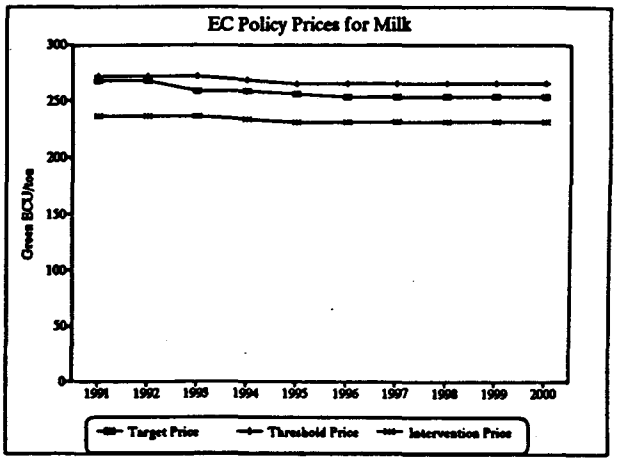
currently achieved by the individual farm.

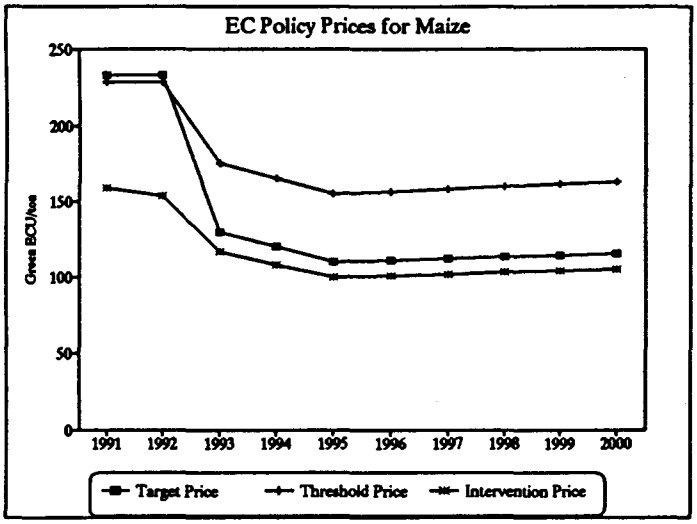
As such, it suffers from some internal inconsistencies, such as requiring farmers to keep hectarage in production of program crops, even at reduced yield, in order to qualify for payments and at the same time requiring land to be set-aside. A fully decoupled system of payments would not require any set-aside, as production decisions would be based on market prices which reflected the competitive position of EC agriculture. Concern over the possibility that the lower market price may still be above that which would clear the market without export subsidies or intervention buying presumably led to the inclusion of set-asides. Fear over possible depopulation of rural areas probably has led to the requirement that hectares be kept in production to receive payments. The combination of these two concerns leads to a somewhat incongruous policy.

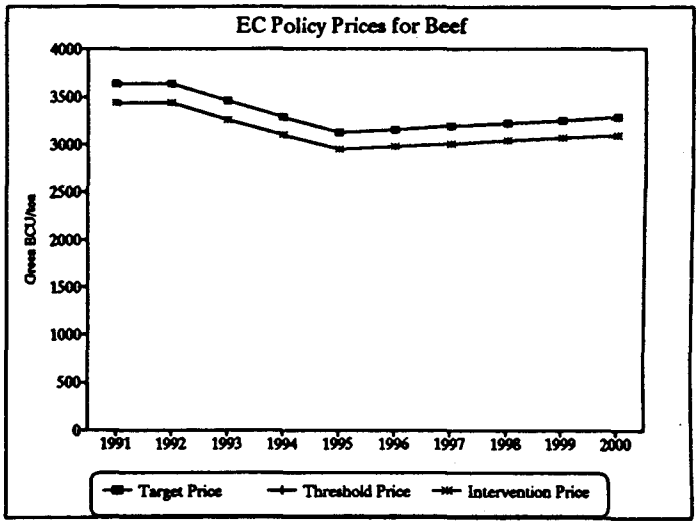
Whatever the motives behind the MacSharry plan for CAP reform, the impact of these changes can be modeled. Figure 1 shows the price paths implied by the current version of the MacSharry plan adopted in May 1992. Target prices for wheat are scheduled to drop to 110 ECU/ton over the three-year implementation period (1993/4-1995/6), as specified in the plan. Intervention prices would fall to 100 ECU/ton and threshold prices to 155 ECU/ton over this period. It has been assumed that no further major changes in policy prices occur after 1996, though they increase slightly to offset a part of inflation. The price to farmers inclusive of compensation takes a dip in 1993/94, but rises after that to be at or above the 1992 level. Farmers are not only compensated for the price drop but benefit as well from the firmer market prices in the EC in turn buoyed by higher world prices. Maize prices (and those for coarse grains not shown in Figure 2) also fall sharply, though farm returns including compensation payments stay at pre-reform levels.

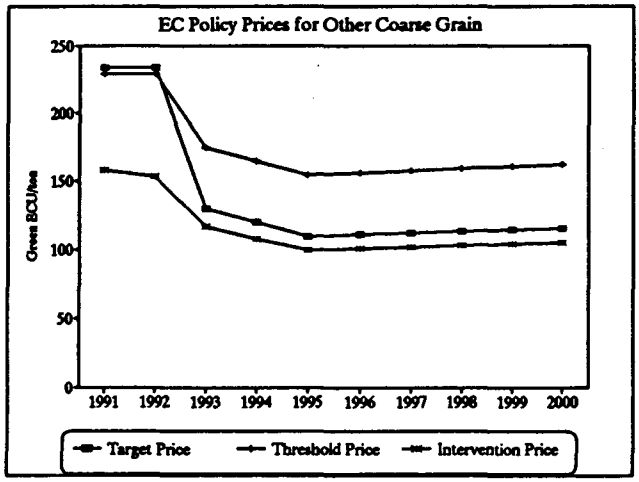
Figure 1: EC Policy Prices under MacSharry CAP Reform

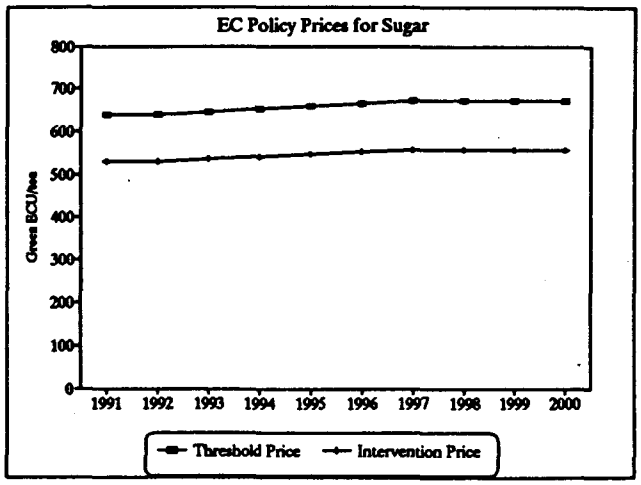










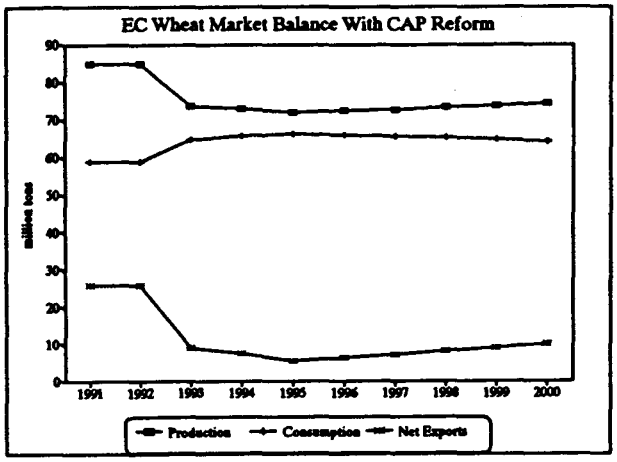


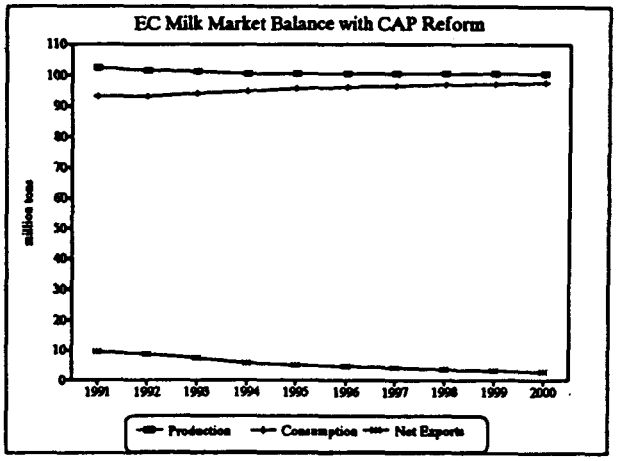
The original MacSharry plan also suggests price cuts for dairy and beef producers. In this case compensation was to be somewhat different. In the case of milk, a fixed sum was to be paid over a period of ten years as compensation for the quota cut. The price cut was designed to reflect the reduction in feed prices resulting from the cereal market price decline. In the event, no quota cut was agreed for the coming year, although the Commission will no doubt suggest such cuts later, and only a small price cut, 5 percent, in the butter price, was adopted. We have included a modest (1 percent) cut in quotas in 1994 to reflect the ongoing concern about milk surpluses. For beef, the 15 percent price cut was designed both to reflect the cereal price decline and to reduce the current overproduction of beef on the market. Compensation is to be made through increased headage payments on both male beef cattle and suckling cows. As can be seen from Figure 1, market prices can be expected to decline more substantially for beef as a result of the MacSharry reforms. The 1992 reforms included no new plans for the sugar sector. We have assumed no quota changes and only modest price adjustments to take account of inflation.[6]

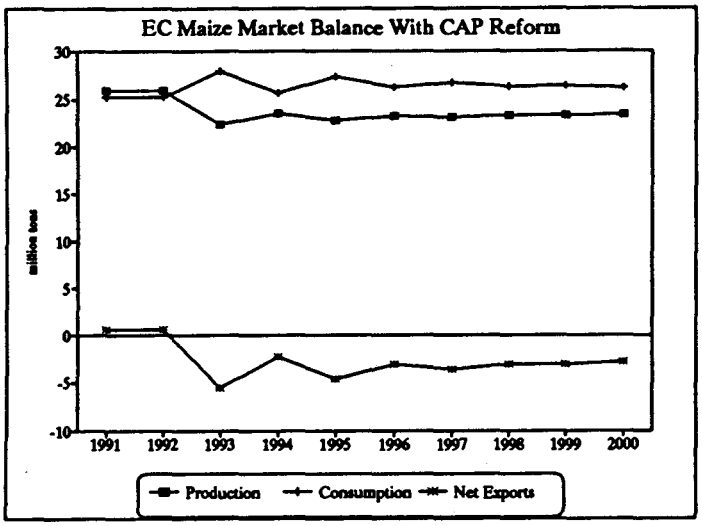
The possible market balance implications of these reforms are shown in Figure 2. The combination of a sharp drop in production, as a result of both the decoupling of yield and the introduction of set-aside at the EC level, together with an increase in consumption from the lower market prices, cuts substantially the exports of wheat from the EC. These exports build up again by the end of the decade, but never reach the levels of 1991/92. The same sharp change in market balance is seen in maize, where imports rise to over 15 million tons by mid-decade, and in other coarse grains where the EC is projected to switch from

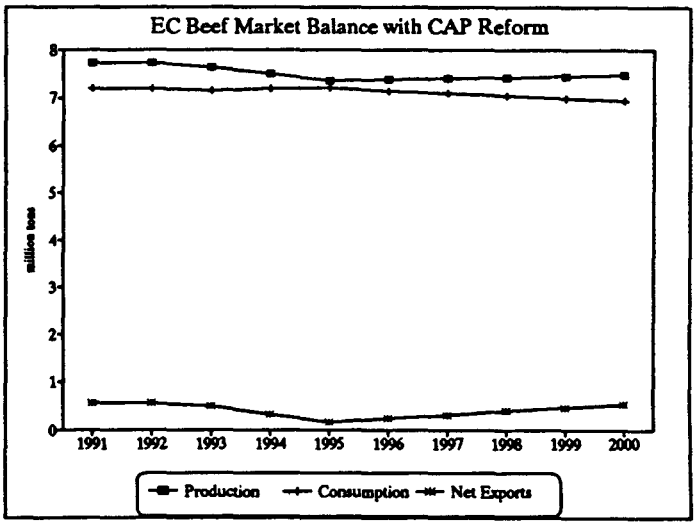
[6] The assumption is made that nominal prices increase by 2 percent less than the rate of inflation.

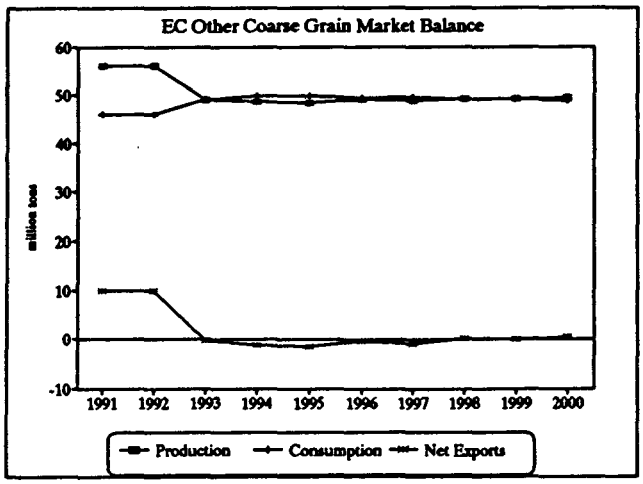
Figure 2: EC Market Balance under MacSharry CAP Reform

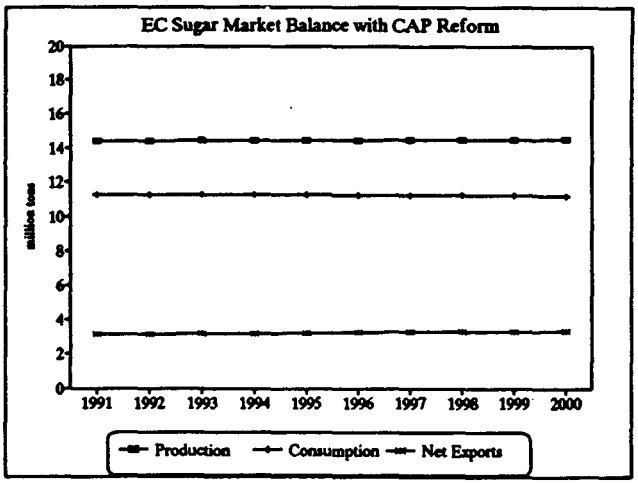












significant exporter to occasional importer. In practice, these changes might not show up as early as 1993, but the combination of set aside and price level changes will clearly improve market balance by the middle of the decade.

The corresponding changes in the market balance for milk are less abrupt, but appear also to reduce exports over time to a low level. By contrast, the beef market balance varies much less, with the small quantity of net exports rising slowly over the decade after the initial drop in production levels.

The implications for program transfers and the costs of export subsidies are shown in Figure 3. The aggregate measure of support (AMS) is calculated on the basis of the price gap between domestic producer prices and a world reference prices multiplied by production[7]. Compensation payments are those payable under the MacSharry plan to compensate for price declines (cereals and beef). Export subsidy cost, a major part of the budget costs for these commodities, is calculated as the gap between internal market price and world price multiplied by export quantities.

For wheat, the level of export subsidy payments is reduced rapidly, as a result of the removal of export surpluses, coupled with a movement of market price toward world price levels. The "price gap" portion of the AMS also is reduced significantly by the reform package. Compensation payments increase to keep the total subsidy levels at about the same level as before 1992. The same picture is repeated for maize, which retains some AMS protection as market price stays above world price levels, and for other coarse grains where the need for export subsidies disappears. Price fluctuations for these commodities, as the EC hovers around self-sufficiency, leads to annual changes in support transfers.

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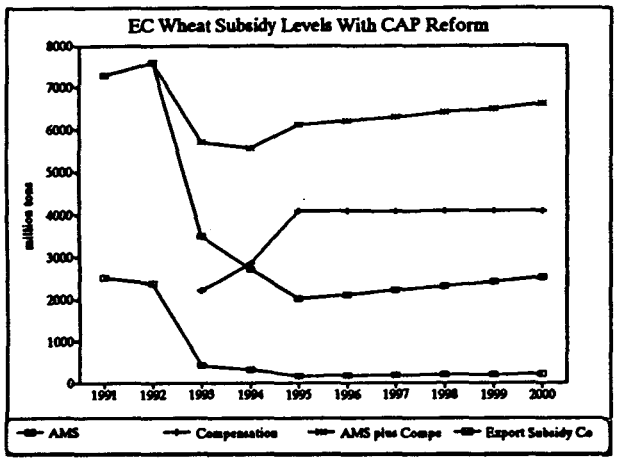
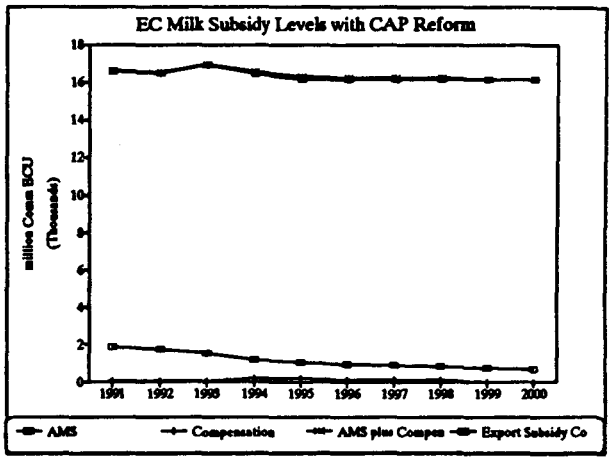
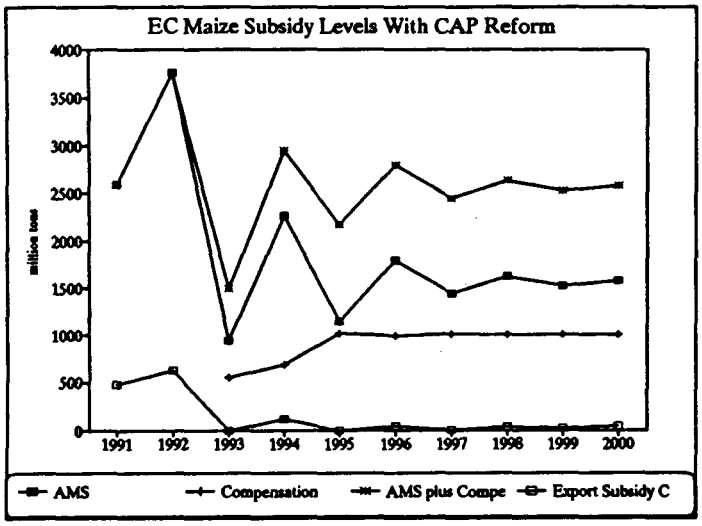
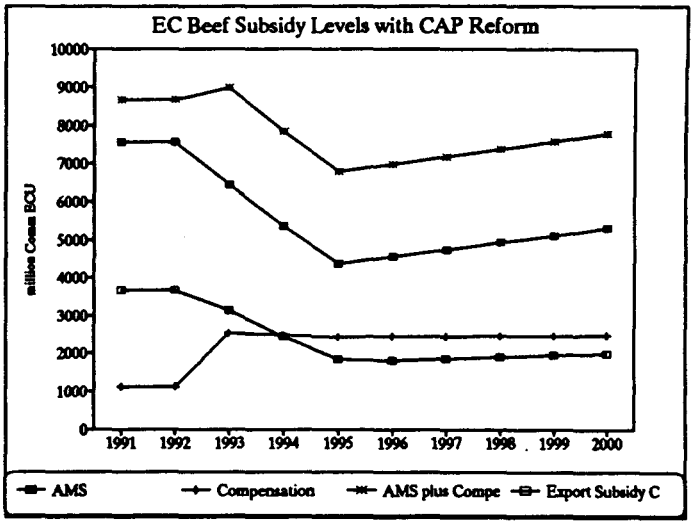
[7] The AMS is here defined to exclude the compensation payments. If the latter are not counted as "green box" subsidies, the AMS amount would correspond to the "AMS + compensation" line shown in the graph.

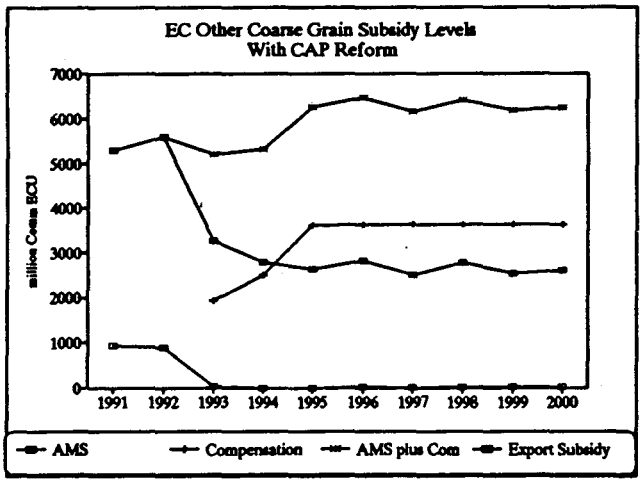
Figure 3: EC Support Levels under MacSharry CAP Reform

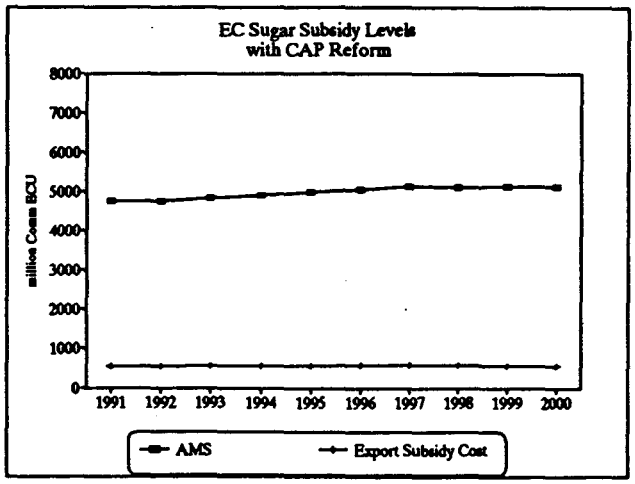












In the case of milk and sugar (Figure 3) the level of subsidy transfers and the cost of export subsidies are not materially reduced. For beef, there does appear to be the prospect of a significant cut in both export subsidies and the "price gap" AMS, though compensation payments keep up the level of total transfers.

These results suggest that the MacSharry plan does offer the basis for a significant change in the EC market balance for cereals and for a reduction in support for these commodities and for beef. The combination of lower market prices for cereals and a set-aside scheme with teeth should make a considerable impact on farm decisions. The MacSharry reforms are however weak in the milk sector and do not cover sugar.[8] This suggests that the reforms, even if started in the next few months, might take many years to implement in all sectors.

The Dunkel Scenario

The suggested text for an agreement on agriculture in the GATT Uruguay Round contains elements designed to constrain domestic policy, not least the CAP. The Dunkel draft, combined with the submission by the European Community of a schedule indicating the base period levels of support and quantities from which reductions would have to be made according to GATT commitments, allow one to be specific as to the nature of these constraints.

The Dunkel text specifies four different constraints on the freedom of countries to set policies and prices:

(i) the conversion to tariffs of non-tariff import barriers, set initially at the tariff-equivalent of those other barriers and reduced over the transition period by 36 percent;

(ii) the establishment of a limit to spending on export subsidies, to be

[8] The reforms also do not include wine, olive oil or the various fruit and vegetable sectors where significant policy problems exist.

reduced by 36 percent over the transition period;

(iii) the reduction of the quantity of exports benefitting from export subsidies by 24 percent over the same period; and

(iv) the reduction of the total support, as calculated by the Aggregate Measure of Support (AMS), by 20 percent over the period, so as to capture domestic subsidies.

In addition, minimum access opportunities have to be granted where commodities are effectively prevented from entry into market, such as through state purchasing or prohibitive duties. The minimum is to be set at 3 percent of domestic consumption rising to 5 percent over the transition period.

It is clear that each of these represents a different constraint on domestic price policy. Only one such constraint will be binding at any particular time. The first task is to compare these implied price constraints to see which one is effective for each commodity. The four implied price constraints are shown in Figure 4, together with the levels of intervention prices which operated in 1991 and 1992 and the projected world price level. For wheat, the most binding constraint is that of export quantity. To avoid exporting (with a subsidy) more wheat than allowed under the GATT constraint, intervention prices would have to come down below current (1992) levels, and be steadily reduced over the decade. By contrast, the other constraints look less onerous--and in the case of the limit on AMS and export subsidy expenditure, these constraints get even weaker over time. The tariff equivalent of the variable levy implies a price just above current threshold levels (and hence well above EC market prices) and seems not likely to act as a constraint on EC prices.

For maize, with no significant export subsidies to be restrained, the AMS and the tariff equivalent are operative as the binding constraints. Both are

relatively mild, at around the present threshold price level. Constraints on the quantity of exports of other coarse grains imply prices somewhat below current intervention price levels, though AMS, tariff equivalent, and export subsidy expenditure constraints do not appear to be binding.

For livestock products a similar picture emerges. The subsidized export quantity constraint is likely to be binding for dairy products implying the need to reduce prices considerably (or cut quantities) in order to comply. The other potential constraints are less significant, generally implying prices above current threshold and intervention levels. For beef, the export quantity constraint is again the binding restriction, in effect forcing EC price levels to the world price level, but the constraint on export subsidy cost also would seem to imply prices below current EC price levels. For sugar, the export quantity constraint, along with that on export subsidy costs, imply a steady reduction in EC price levels.

This result that the export quantity constraint should be binding is not surprising. World prices were low in 1986 and 1987, and the gap between CAP and world prices was therefore high. World prices are now considerably higher, while CAP prices have generally eased since 1986 in nominal ECU.[9] Production, and more particularly, exports, have however tended to rise. The base period of 1986-88 thus makes it relatively easier to satisfy price constraints, or those involving a price gap (such as the tariff equivalent, the AMS or the export subsidy expenditure constraints), but quantity-based constraints tend to get tougher over time. Indeed, there is a danger that quantity constraints can only

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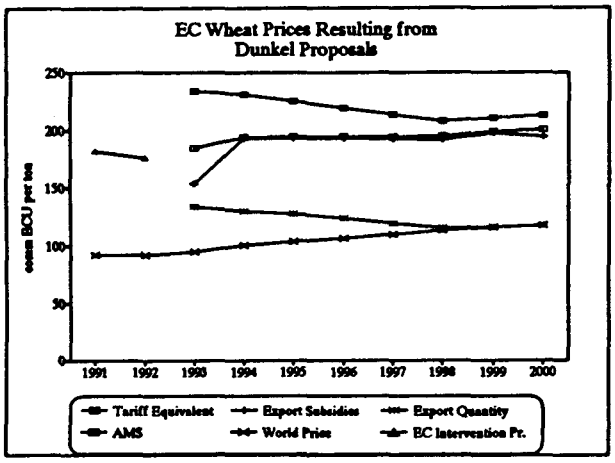
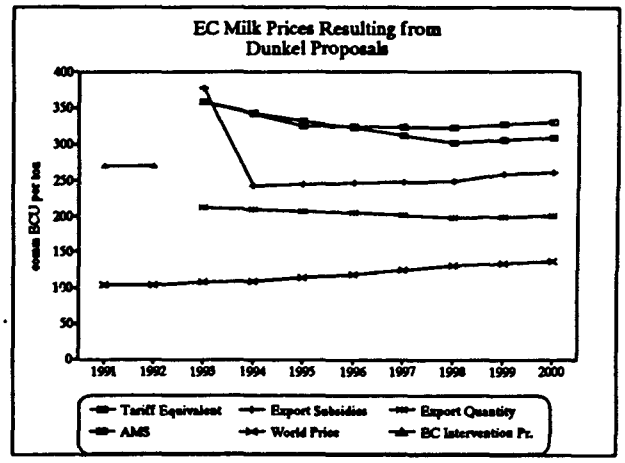
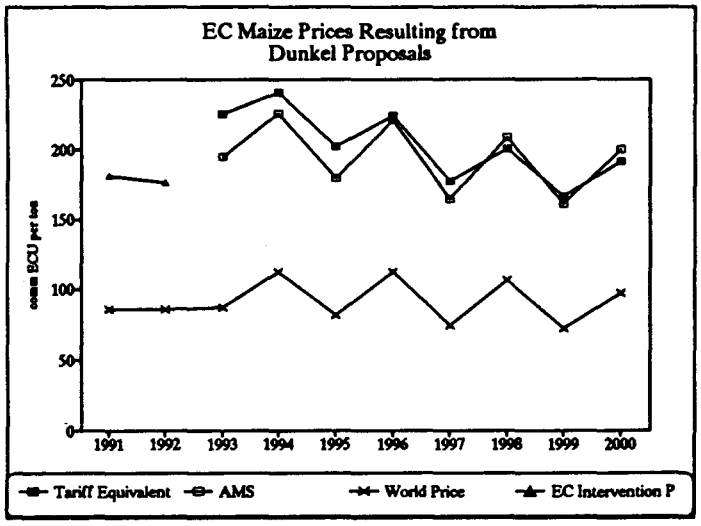
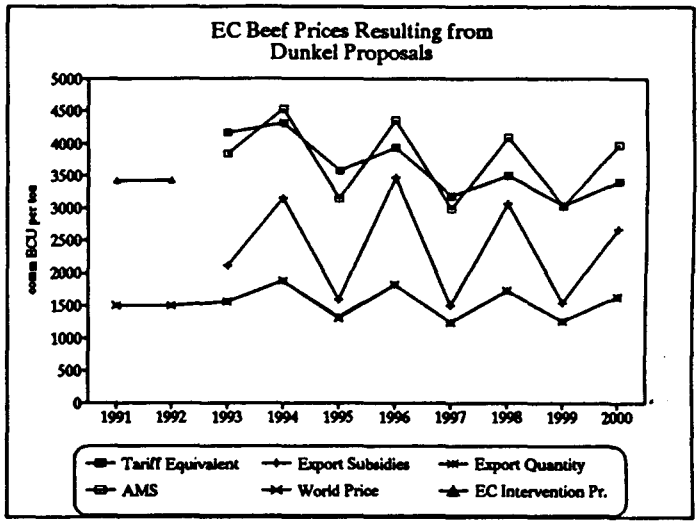
[9] It should be noted that the value of the ECU has risen, in particular the "green ECU" used for agricultural purposes which floats up with the strongest currency. Thus prices have increased in some countries even during the period of "frozen" or reduced institutional prices. The changing value of the green ECU is taken into account in these results.

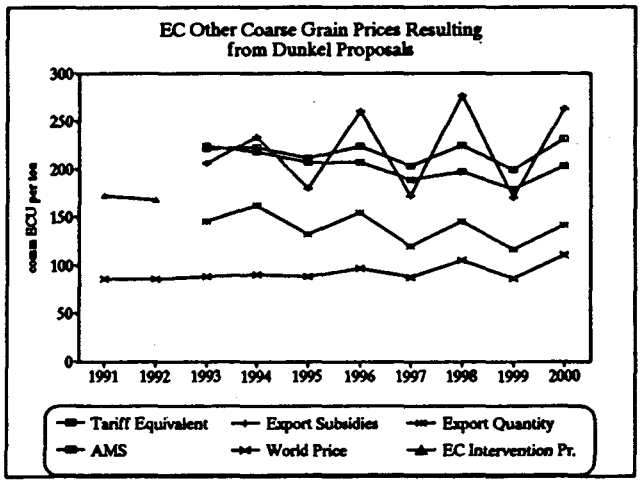
Figure 4: EC Policy Prices under Dunkel GATT Reform

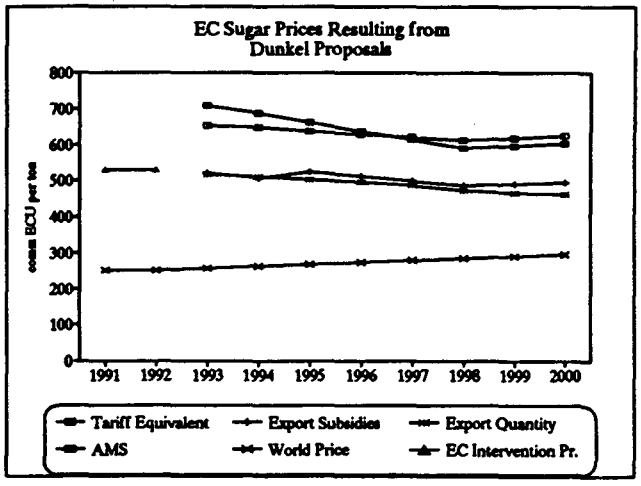












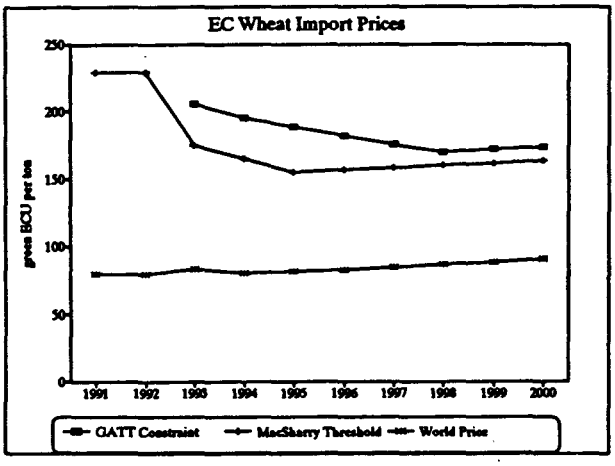
feasibly be satisfied by quantitative controls on production or trade, and thus lead away from more liberal types of policy instrument. That the import access constraint is not binding is also hardly surprising. In addition to the existence of higher world prices, one might expect some "water" both in the existing levy and in the level of the tariff equivalent as suggested by the Community. The dominance of the export quantity constraint relative to the AMS and export subsidy cost constraints is less expected.

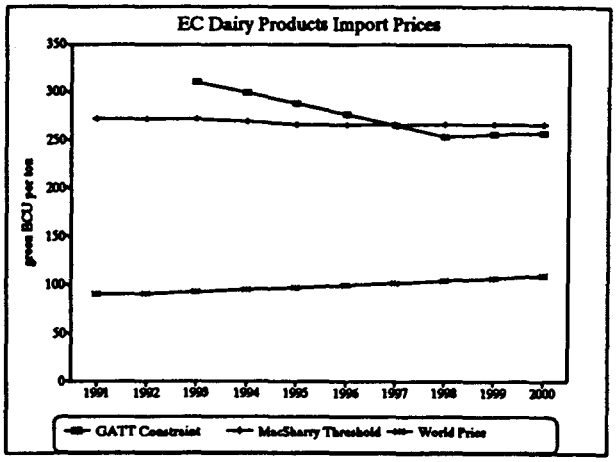
Comparison of Policy Scenarios

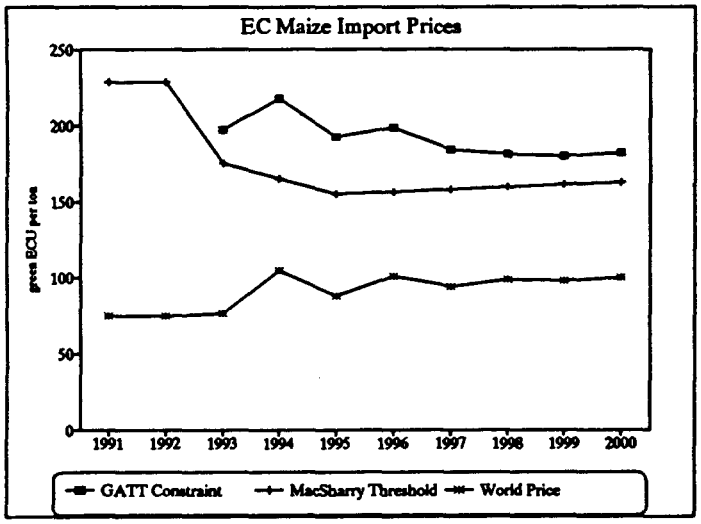
The key question that arises from examination of these two scenarios is whether CAP reform, as represented by the MacSharry package, implies a more restrictive set of prices and polices than that necessary to comply with a GATT agreement along the lines of the Dunkel draft. How binding is the Dunkel scenario compared with the MacSharry plan implication? To explore this we can compare directly the different runs, by commodity.

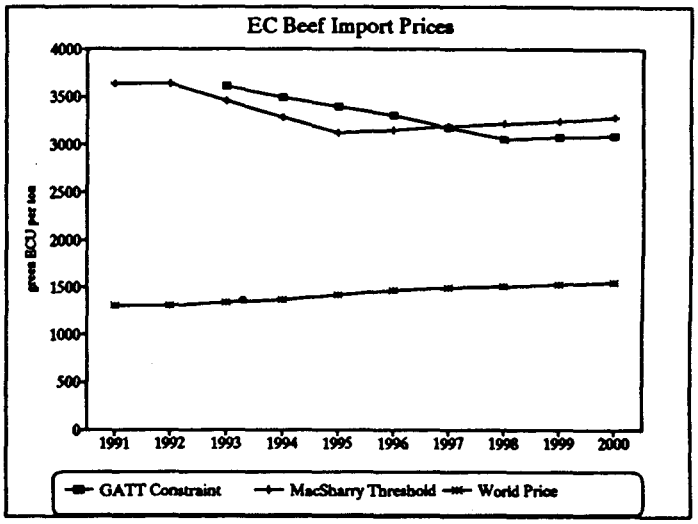
The comparison of import prices is shown in Figure 5. The landed price of imported wheat, inclusive of the tariff as established under the GATT proposal, would appear to be significantly above the threshold price projected under the new policy. The situation for maize and other coarse grains is similar: the GATT constraint, as interpreted in the EC's schedule, would not put pressure on the threshold price for cereals. CAP reform along the lines of the MacSharry program will drop the threshold price to well below the level of the early 1990s, and out of the range of the GATT constraint. In the case of milk, beef and sugar, the GATT constraint is much more likely to influence import prices. The MacSharry reforms seem unlikely to keep the dairy threshold price below the GATT constraint for the decade. For beef the MacSharry plan would keep the threshold

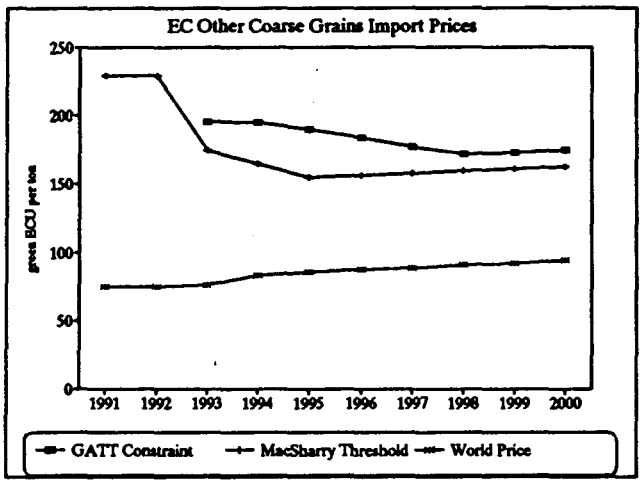
Figure 5: How Binding are GATT Import Price Constraints?

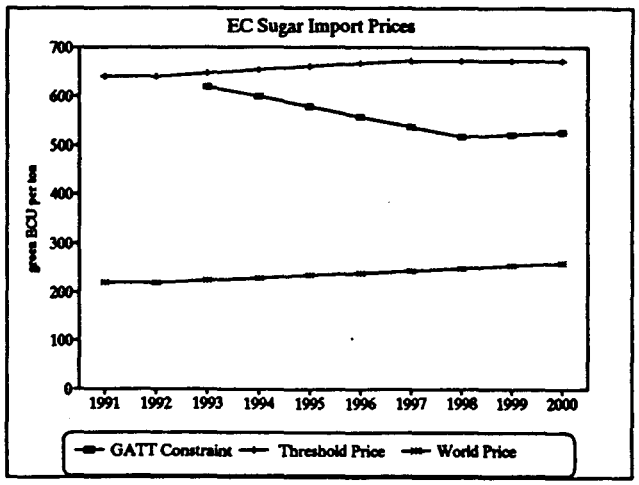












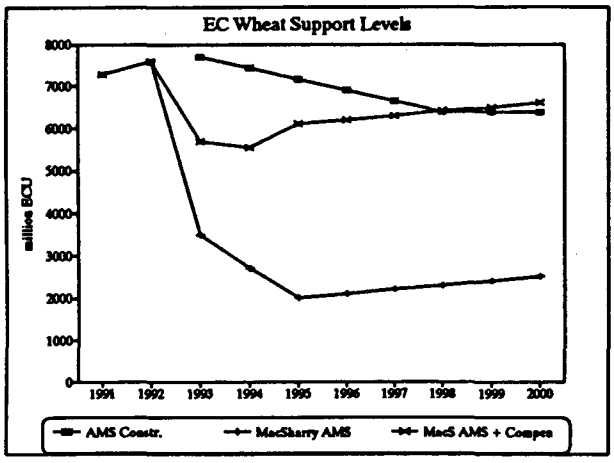
price below the GATT level of import protection until 1997. In the case of sugar the threshold price threatens to be well above the GATT limit if reform is not extended to this sector.

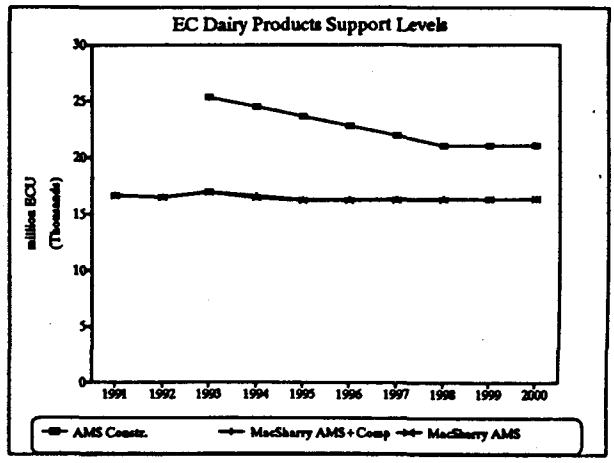
If the GATT import price constraint is not likely to impinge on the level of border protection, will the overall AMS constraint prove to be more effective? The answer is apparent from Figure 6. For wheat, the AMS constraint is comfortably above the level of support likely under the MacSharry assumptions. What is more surprising is that this relationship holds even when the compensation payments included in the MacSharry plan are included in the AMS. In other words, the Community could pay those compensation payments even if they were not included in the "green box" of allowable subsidies, without violating the AMS limit until the late 1990s. Alternatively, the AMS limit itself could come down by more than the 20 percent in 6 years presently suggested in the GATT draft without impacting on the EC in the next few years. Similar conclusions hold for maize, where the level of AMS fluctuates depending upon the market balance for maize and hence the producer price but is never above the GATT constraint. A similar result holds for other coarse grains, where the AMS under MacSharry plan assumptions, even including price compensation payments, remains well below GATT limits until 1998.

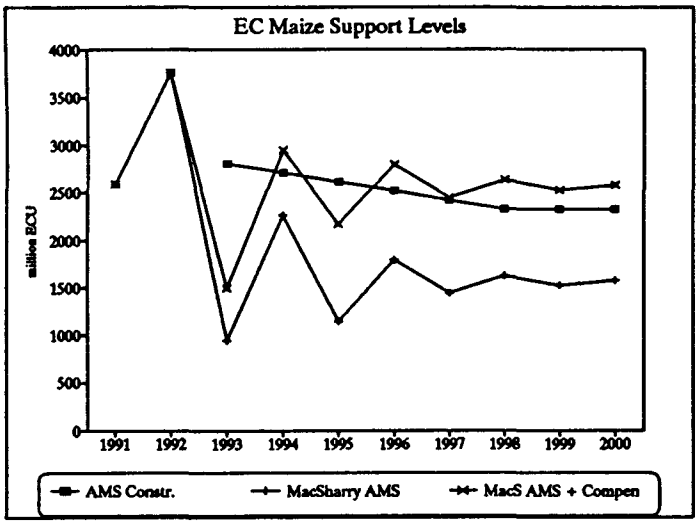
The situation is similar for livestock products. The AMS constraint in the case of milk is well above the projected AMS under the MacSharry policy assumptions. For beef, the AMS is projected under the MacSharry plan to stay below 10 billion ECU over the decade even if the increased headage payments were to be included. The GATT constraint is 15 billion ECU. For sugar, however, the AMS constraint is binding after 1994.

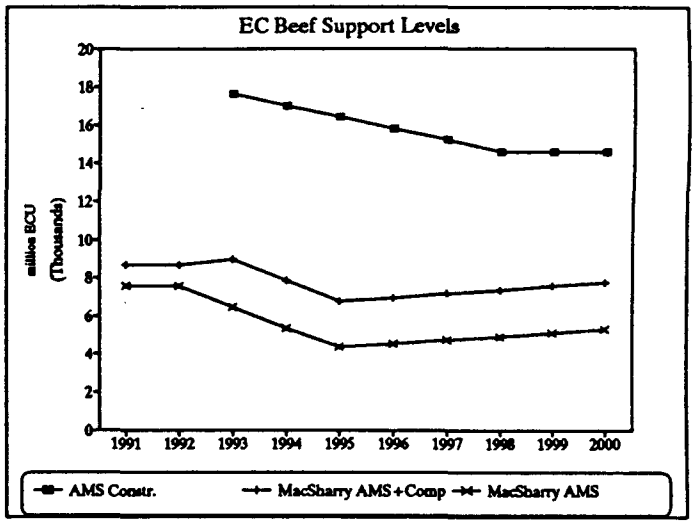
The GATT package controls both expenditure on export subsidies and the

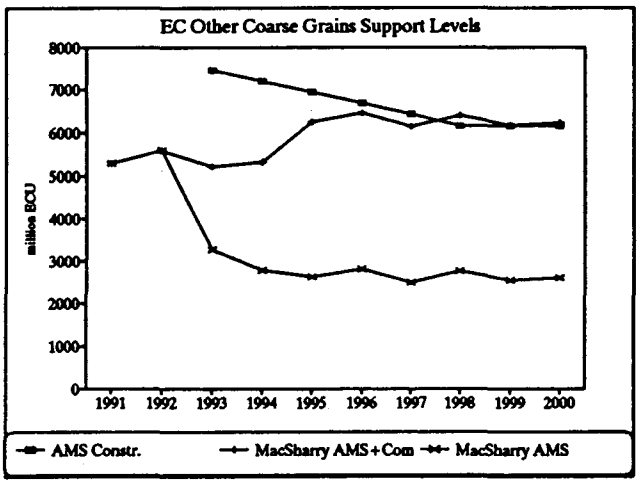
Figure 6: How Binding are GATT AMS Constraints?

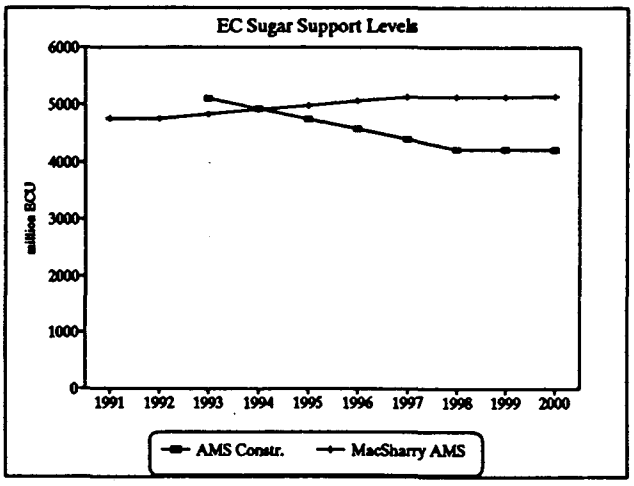










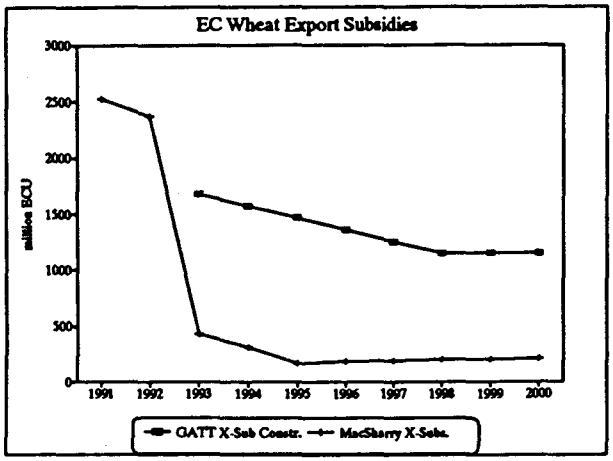


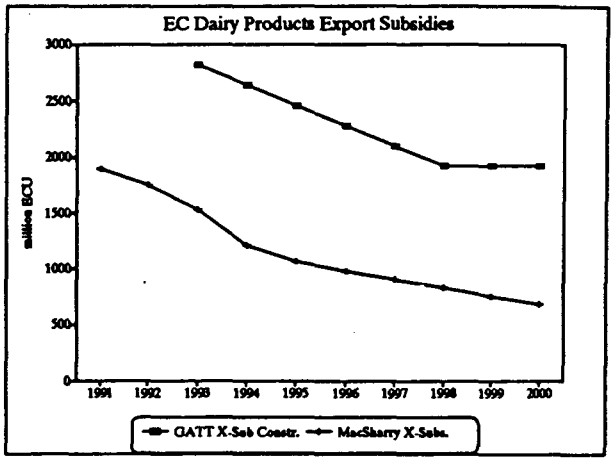
quantity of exports that can be subsidized. The constraint on export subsidies can be met by reducing either the per unit subsidy or the quantity of exports (or both). As the per unit subsidy is sharply down since 1986, the expenditure constraint is likely to be relatively week. This is illustrated in Figure 7. In the case of wheat, under MacSharry prices and policies, the export subsidies would rapidly diminish and not be a factor. The situation is similar for coarse grains. For milk, the "allowable" export subsidy expenditure would be over 50 percent higher than the 1992 level, and would be unlikely to be a factor until later in the decade. Any future price drops and quota cuts would remove even that possibility. By contrast, even a reformed CAP is likely to run afoul of the GATT export subsidy constraint for beef, and further measures may be needed to keep expenditure below the GATT ceiling. For sugar, reforms may also be needed by mid-decade to meet this constraint.

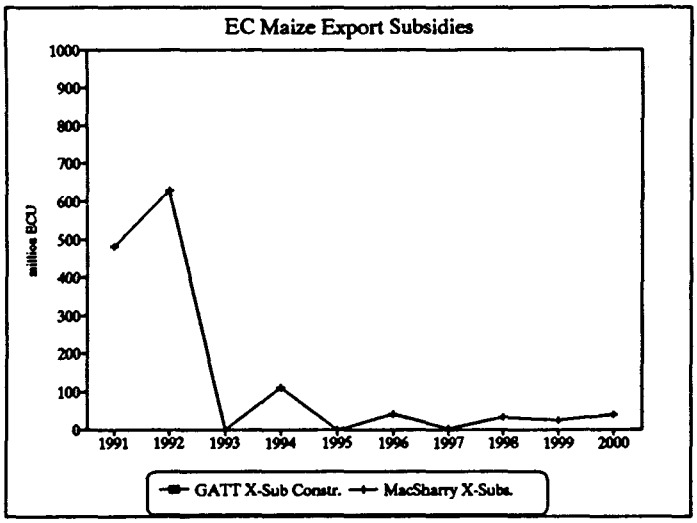
The constraint on export quantities that can be subsidized was shown earlier to be the most restrictive. Prices consistent with that constraint were lower than those consistent with other constraints. This is confirmed by looking at the level of exports which can be expected under the MacSharry scenario, as shown in Figure 8. For wheat the export quantity constraint is below the current level of exports. MacSharry reform brings the level of exports comfortably below the GATT limit. Even allowing for renewed growth in exports over the decade, the GATT constraint may not be felt. For coarse grains, such as barley, the initial level of exports seems below that identified as a GATT constraint. Even in the absence of reform, this constraint would be unlikely to be onerous. With reform, the EC could become an occasional importer again of coarse grains, and hence not be constrained by the GATT agreement.

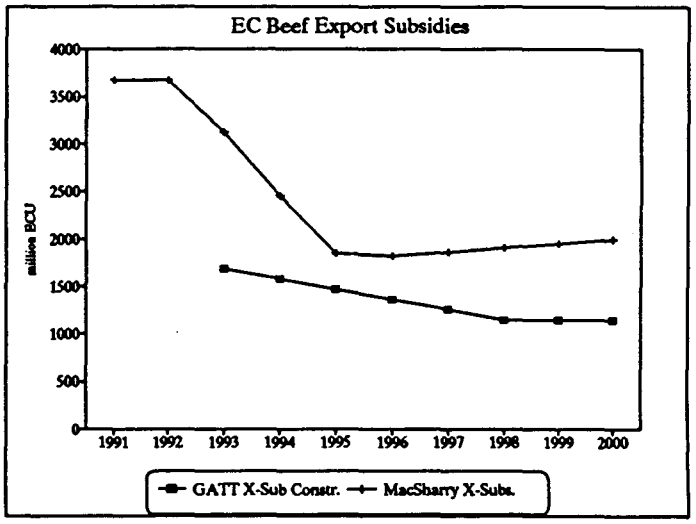
In the case of milk, the export quantity constraint appears also to be

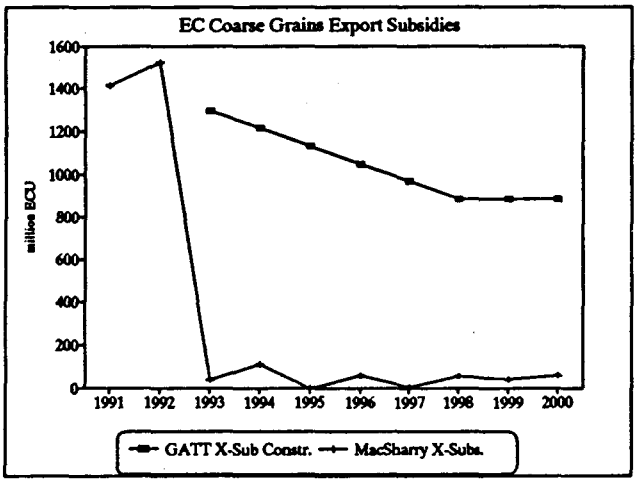
Figure 7: How Binding are GATT Export Subsidy Constraints?











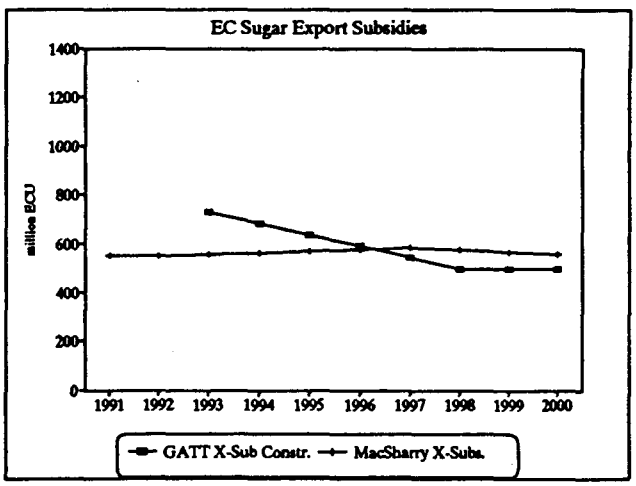
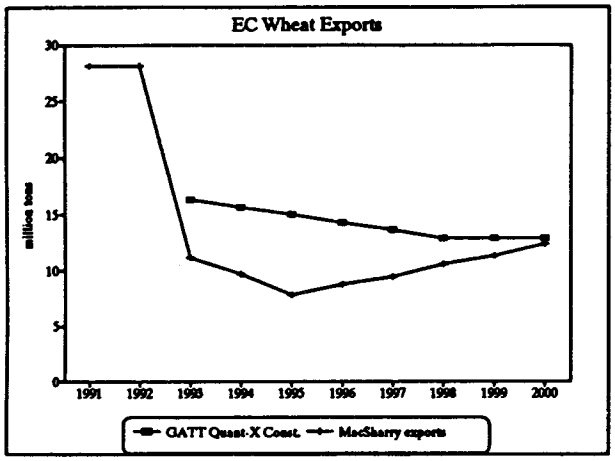
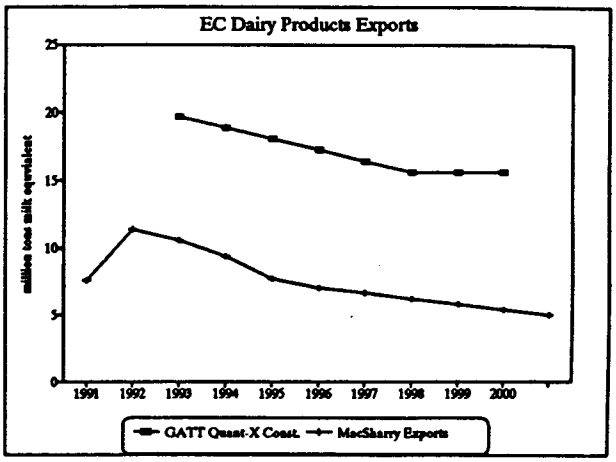
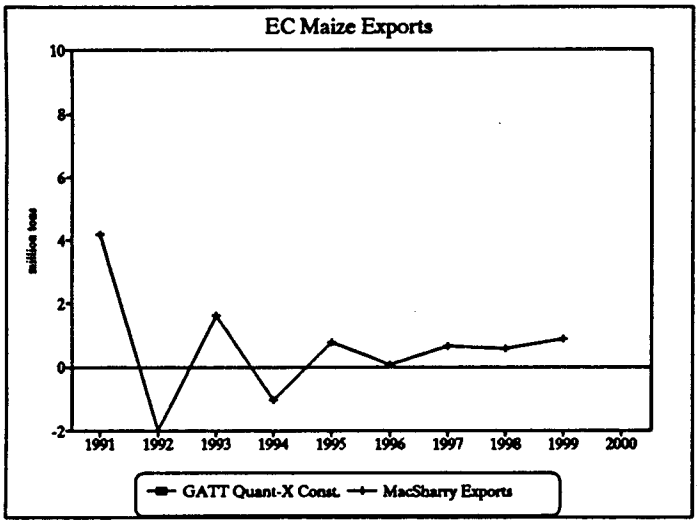
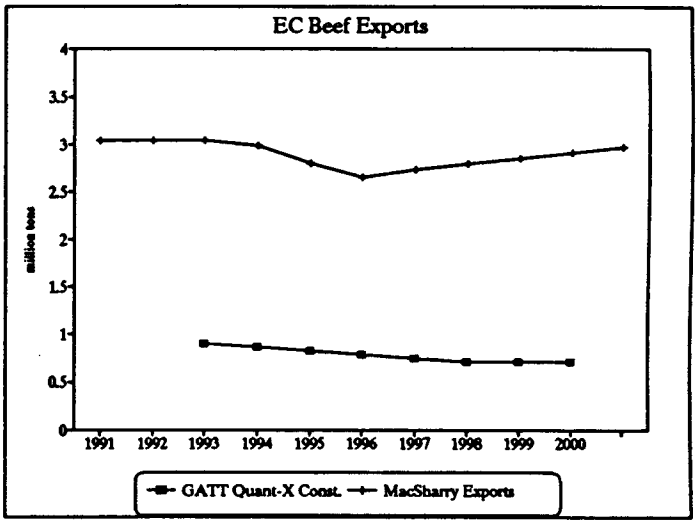


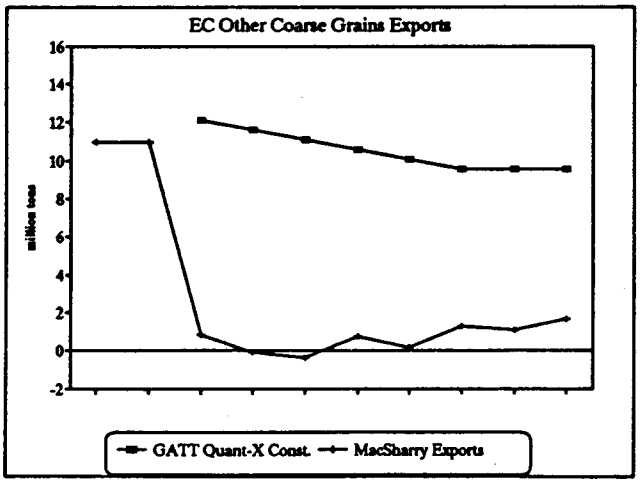
Figure 8: How Binding are GATT Export Quantity Constraints?

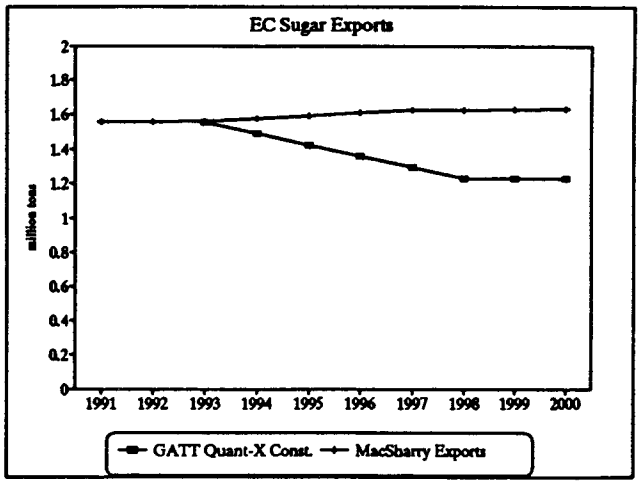












rather loose, at 20 million tons of milk equivalent, relative to current exports of 10 million tons. Without dairy reform the level of exports could be expected to stay at about one-half of the GATT constraints. The GATT export constraint is, however, binding for beef. Exports seem to be well above the GATT limit. The GATT-imposed limit on beef and sugar exports would put downward pressure on policy prices for this commodities.

Conclusion

A major factor in the Community's resistance to the Dunkel proposals for a GATT compromise on agriculture is the fear that they might force the CAP into a corner. In particular, it is feared that the Dunkel proposals might require major cuts in support to agriculture and in farm product exports which would be detrimental to the incomes of Europe's farmers. Moreover, "tariffication," i.e., conversion of EC variable levies into fixed tariffs, which would then be phased down, is seen as threatening to reduce the level and stability of EC farm prices.

The Community has taken a major step toward reform of its agricultural policies, on the basis of the changes proposed by MacSharry and implemented in May 1992. But there are fears that even domestic CAP reform along the lines of the MacSharry reform might not be enough to fulfill the requirements specified by Mr. Dunkel.

Whether such fears are justified is a matter of the quantitative implications of either reform. The simulation model reported here shows that the MacSharry reforms would easily allow the Community to meet the export constraints proposed by the Dunkel draft, at least for cereals. EC wheat production would be reduced, as a result of the price cuts and the acreage set-aside, and at the same time EC wheat use--in particular for feed-- would increase due to lower

market prices. This would lead to much lower wheat exports, which would remain well below the volume of subsidized exports allowed under the Dunkel proposal. Equally, export subsidy expenditure would remain safely below that allowed under the GATT.

More surprising may be that total domestic support for cereals, measured by the Aggregate Measure of Support (AMS) would also remain under the Dunkel constraint, even if MacSharry's compensation payments to farmers are included. One of the apparently "technical," but in reality highly political issues is GATT treatment of the compensation payments. According to the Dunkel proposals they would not fall in the "green box," i.e. they would not be considered to be sufficiently production neutral. As a consequence, they would be counted against the GATT requirement to reduce domestic support, and fears are that this might prevent the EC from keeping them at a level sufficient to offset farm price cuts. Our analysis shows that such fears are groundless at least for cereals. This result clearly follows from the reduction in EC production under MacSharry's proposal, which reduces AMS by more than just the cut in EC prices, while compensation payments cover only the price reduction element. Moreover, since the base period for defining the GATT constraints (1986-1988) the EC has reduced its cereals prices significantly, so that there is some "water" in the GATT AMS constraint.

Finally, tariffication would not be any serious threat to the CAP since the tariff allowed under the Dunkel proposal would be more than sufficient to protect the EC wheat price resulting from the MacSharry reform.

Results for other major farm products are similar to those for wheat with two exceptions. In the case of beef the constraint on export subsidy cost seems to be significant, as well as that on export quantities. Further price

restrictions may need to be introduced in order to keep within the GATT limits, in particular if lower prices for grain-based livestock reduce demand. And for sugar, the AMS and import price are likely to be binding, implying that a GATT agreement would put pressure on the Community to lower support or otherwise introduce reforms in this sector. Such reforms may include the incorporation of sugar into the program for other field crops, implying lower market prices and compensation payments for sugar producers.[10]

Based on such estimates, it is difficult to understand why the EC should not be able to accept the agricultural agreement proposed by Dunkel. At the same time there are certain amendments which could be made to the Dunkel proposal, such that it is more economically convincing and balanced. In particular, it is not clear why domestic support should be reduced by only 20 percent while tariff equivalents and export subsidies are to be cut by 36 percent. Since US agricultural policies make heavy use of domestic subsidies, a larger cut in domestic support would make the agreement more balanced between the EC and the US, and incidentally would reduce the temptation to argue that U.S. deficiency payments on exported produce should be treated like export subsidies. In order to leave adequate time for the major reinstrumentation of agricultural policies, to make them more production neutral and hence eligible for the green box, it may be desirable to define the green box somewhat more generously for the first three years (the so-called "blue box"), but to tighten requirements for inclusion in the green box after that period. Too tight a constraint on the volume of subsidized exports during the adjustment period is a potentially dangerous proposition as it tends to push governments toward domestic supply control, and

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[10] Such estimates depend on a number of assumptions, for example on the future level of world prices. We have varied these assumptions over a wide range and found that the conclusions do not change fundamentally.

hence away from a more market oriented agriculture. Finally, for purely political reasons, it may be necessary to allow the EC at least some minor "rebalancing," i.e. reduction of cereal substitute imports, as that may be seen as the only directly "positive" result which EC politicians could bring home to their farmers from a GATT agreement.

However, the MacSharry reform, though a good step toward a really sensible CAP reform, can also be improved, and thereby made more consistent with the aims of a GATT agreement on agriculture. In particular, compensation payments for price cuts should be fully "decoupled," i.e. farmers should not be required to produce in order to receive payments. If this were done, there would be no further need for set-aside. And the resolution shown in the cereal sector should be translated to dairy, sugar and other problem commodities. The changes of May 1992 should be seen as the start and not the end of CAP reform.

Both the MacSharry reform and the Dunkel proposal can stand on their own merits. The MacSharry reform corrects some of the major deficiencies of the CAP, and will make it much easier to assimilate both high cost EFTA and low cost Eastern European countries in an enlarged Community. The Dunkel proposal would begin the much needed process of fully integrating world agricultural trade into the global trading system. The MacSharry reform allows the Community to accept a successful conclusion of the GATT Round, and to improve the situation on world agricultural markets. Separately they offer significant advances: together they are mutually reinforcing mechanisms to promote a real change in agricultural trade and domestic policies.

Annex

Model Structure

The simulation model used in the projections of price and market balance was described briefly in the text. This annex gives more detail of the construction of the model.

The model contains separate sub-models for each of six commodities, wheat, maize, other coarse grains, milk, beef and sugar.

The market balance calculations are generated by models of the following structure:

a) wheat, maize and other coarse grains market balance
- yield = f (producer price, time trend)
- hectarage = f (producer price)
- production desired = yield x hectarage
- consumption = f (market price, time trend)
- net exports = production - consumption
- imports = f(consumption)
- exports = net exports + imports

b) milk, and milk products market balance:
- milk quota (specified by policy scenario)
- production desired = f(producer price, time trend)
- milk production = min(quota, production desired)
- net exports = production - consumption
- imports = held constant
- exports = net exports + imports

c) beef market balance
- production = f(producer price, time trend)
- consumption = f(market price, time trend)
- net exports = production - consumption
- imports = f(consumption)
- exports = net exports + imports
- beef cattle (male) = f(production)
- suckler cows = f (production)

d) sugar market balance
- production = A+B quotas + "C" sugar
- production of "C" sugar = f(world prices, time trend)
- consumption = f(markt price, time trend)
- export of quota sugar = A+B quotas - consumption
- imports from ACP = held constant
- imports (other) = f(consumption)
- exports (subsidized) = exports of quota sugar + total imports
- exports (total) = exports (subsidized) + "C" production

The level of world price is endogenous to the model, relying on changes in the (previous year's) change in EC net exports:

world price = f(EC net exports, time trend)

An exchange rate assumption is used to convert from commercial ECU to "green" ECU used in price setting. The world price in green ECU is thus:

world price (Green ECU) = world price * Green ECU/Comm ECU rate

Commodity prices set by the EC are assumed to change (in real terms) by a fixed percentage each year, subject to the constraints of the various policy scenarios. Together with an exogenous inflation assumption, this gives:

real price = f(time trend)
nominal price = f(real price, inflation rate)

The prices projected for cereals are:

Target price (varies by policy scenario)
Threshold price (varies by policy scenario)
Buying-in price (varies by policy scenario)
Market price = f(threshold price, buying-in price, world price)
Producer price = market price - coresponsibility levy

The market price is generally that applicable to the consumer and the producer price (net of coresponsibility levies) is assumed to influence production.

The market price approaches the threshold price as inputs increase (i.e., self-sufficiency decreases) and approaches the intervention price as exports increase (i.e., as self-sufficiency rises). The parameters controlling this adjustment can be varied within the model, and are set at 80% and 100%, respectively, for the run reported here.

Other variables

Three value estimates are made for comparison among runs.

total coresponsibility levies = coresponsibility levy (per unit) * output
calculated AMS = (producer price - world reference price) * output
export subsidy outlay = (market price - world price) * exports

August 26, 1992

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