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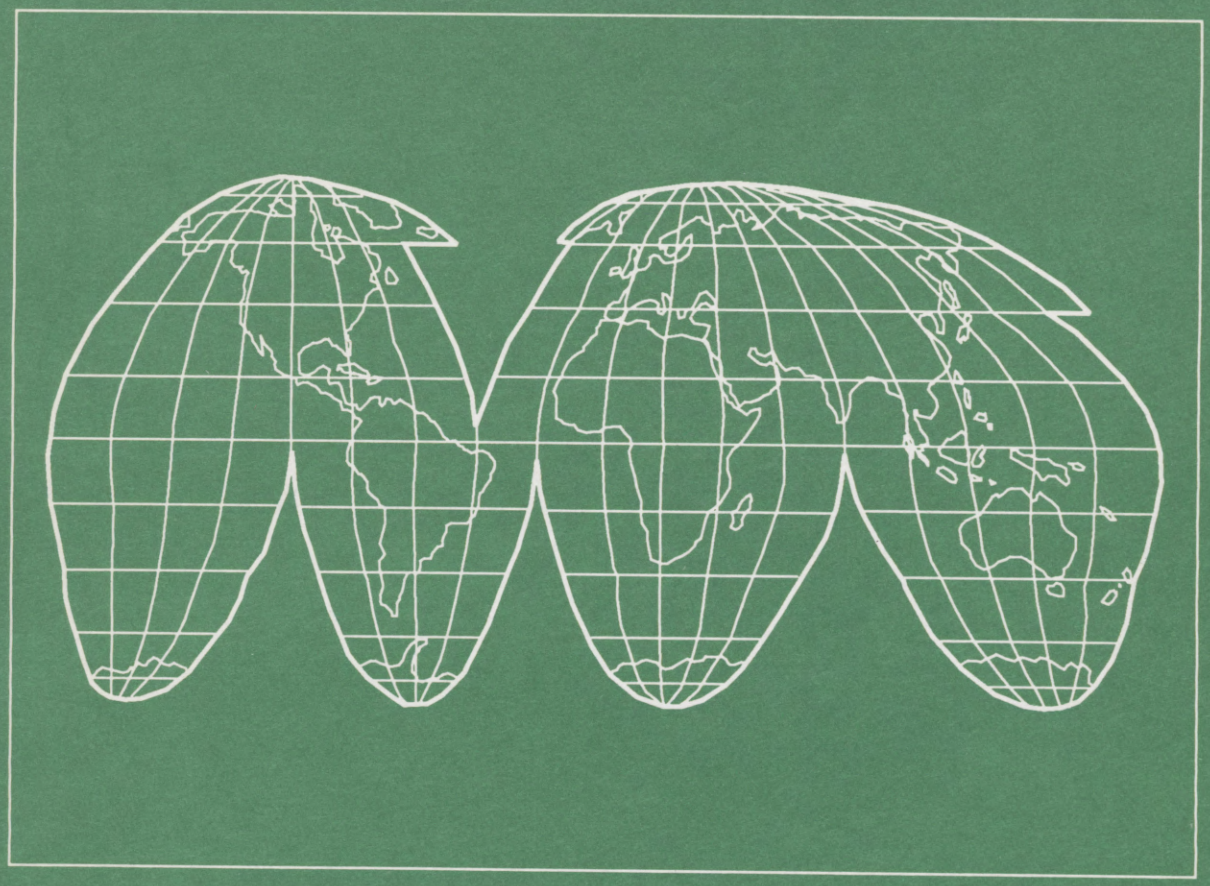

EC 1992
Implications for World Food and Agricultural Trade

Proceedings

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Abstract

The European Community (EC) has launched its quest for a border-free Europe as envisioned in 1957 in the Treaty of Rome. On January 1, 1993, all impediments to the free movement of goods, services, capital, and people inside the EC are to be eliminated. The elimination of internal trade barriers in the EC will have direct and indirect effects on the demand, supply, and trade of the EC's food and agricultural sector. This volume addresses these implications in seven separate chapters, organized by theme. The first three chapters emphasize the effects of fiscal, physical, and technical changes that EC 1992 requires, with special emphasis on the food industry. The fourth and fifth chapters focus on the potential effects on the Common Agricultural Policy (CAP), with a special paper dedicated to the effects of German unification on the CAP. The last two chapters concern the regional implications for world food and agricultural trade.

Keywords: European Economic Community, Common Agricultural Policy, economic integration, harmonization, sanitary and phytosanitary regulations, value-added taxes, agricultural trade, agrimonetary, EC commodity quotas, the environment.

Note: The views expressed herein are those of the contributors and do not necessarily represent the views of the U.S. Department of Agriculture.

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October 1991

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Introduction

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David R. Kelch, volume editor

The Role of Agriculture in European Unification

David R. Kelch*

When the history of the 20th century is written, no document in Europe will likely merit more attention than the Treaty of Rome. The Treaty established the European Economic Community (EEC) and the European Atomic Energy Community (EURATOM) in 1957, which combined with the European Coal and Steel Community (ECSC) in 1967 to form the European Communities (EC). More recently, the EC established an institutional process to eliminate all internal borders by the end of 1992, and to achieve the economic union that its founding fathers envisioned. Once economic unity is established, deeper European political union would be assured.

The stated goals of the Treaty of Rome were: (1) the establishment of a customs union, which required the imposition of a common external tariff; (2) the dismantling of quotas and other barriers to trade between member states; and (3) the free movement of people, goods, capital, and services within the EEC. While these goals were economic in concept, they represented to many European leaders a necessary step on the road to political union.

The Treaty of Rome, which serves as the constitution of the EC, also established an executive body, the Commission of the European Communities; a legislative body, the Council of Ministers; and a Supreme Court, the EC Court of Justice, which has recently played a crucial role in the EC 1992 initiative by striking down national legislation that conflicts with EC legislation. Provisions for a democratically elected EC-wide parliament were also included in the Treaty of Rome.

Agriculture took center stage in the quest for economic integration in the Treaty of Rome for several reasons:

- By the time the Treaty was signed, the Marshall Plan 1/ had significantly liberalized EC trade in industrial goods, although a common industrial policy had not been achieved.
- Because all European governments intervened heavily in agriculture, EC-wide interventionist policies at the time were thought to be easy to implement.
- Regulation of EC agriculture was viewed as important in establishing a level playing field for EC wage goods. In 1957, food expenditures as a percentage of disposable income varied widely among member states, reaching as much as 60 percent in some member states.
- Food security was a common concern among the member states because of widespread malnutrition and starvation both during and after World War II.

In spite of these commonalities of interest and philosophy about agricultural intervention among the member states, the uncommonness of their agricultures led to protracted and contentious debates. Ten years passed before the Common Agricultural Policy (CAP) was finally introduced in 1967, in conjunction with the formation of the European Communities.

The basic goals of the CAP, as it emerged, were: (1) to guarantee the security of food supplies at stable and reasonable prices; (2) to improve productivity through technical progress and a more rational agricultural

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1/ The Marshall Plan stipulated that tariffs and quotas for manufactured goods must be lowered before European reconstruction funds were disbursed.

production; and (3) to ensure a fair standard of living for farmers. The three principal policy instruments implemented to attain the goals of the CAP are: (1) a variable levy on most agricultural imports; (2) an EC-wide and largely open-ended intervention system for major agricultural commodities; and (3) export refunds for the disposal of surplus production. The three so-called pillars of the CAP are: (1) common financing (largely through value-added taxes (VAT) and import levies); (2) common prices (which have proved impossible to maintain); and (3) community preference.

In pursuing the goals of the CAP with these instruments, the EC has moved from the position of a large deficit producer of many crop and livestock products to a large surplus producer. In 1986, the EC briefly surpassed the United States as the largest agricultural exporter in the world, although the EC remained the largest importer of agricultural goods.

The goals of the CAP have been largely realized: there is a stable supply of food, and farm income has been enhanced. However, these achievements have come at a high cost. According to the Organization for Economic Cooperation and Development (OECD), EC consumers subsidize farmers by as much as $50 billion annually through high food prices. Agricultural exporting nations have severely criticized the distortionary effects of the CAP on world agricultural trade. The intensive farming practices adopted because of high CAP prices have also jeopardized the environment.

The CAP goals have also entailed very high budget costs, according to the OECD (about $53 billion in 1989, not including national treasury outlays, which amount to another $10 billion annually, according to EC auditors). The CAP normally accounts for 60 percent or more of the entire EC budget.

In past years, only high budget costs have provoked attempts to reform the CAP. Annual growth rates of 2-3 percent for agricultural production and of less than 1 percent for food consumption have created stockpiles of surplus products that require huge export subsidies (about $10 billion annually in recent years).

Despite the budget pressures, the politically powerful EC farm lobby has successfully resisted any substantive reform, largely because it could rely on the privileged status of agriculture as the only example of a common market in the EC. For the political future of the EC, the CAP could not be allowed to fail, nor could it be substantively reformed.

Outside of the agricultural sector, the economic performance of the EC in the early 1980's was abysmal. Per capita income growth was stagnant, unemployment had surpassed 10 percent and was still rising, and there was nothing on the horizon to encourage optimism about the economic or political future of the EC. At the same time, the two economic superpowers, Japan and the United States, were creating millions of jobs and enjoying robust economic growth. Any vision of a prominent place for the EC on the world's economic and political stage was rapidly receding.

Not only had the EC's drive to economic integration lost its momentum, but trade barriers within the EC were being erected, particularly in the food industry. Europeans even coined a term for their economic malaise: Eurosclerosis. Unless something were done, the future EC would apparently be composed of 12 economic dwarfs.

In 1984, Jacques Delors was appointed president of the EC Commission and was charged with revitalizing the EC's drive toward economic integration as envisioned in the Treaty of Rome. In 1985, an EC White Paper by Lord Cockfield, EC Commissioner for the Internal Market, concluded that the passage of some 300 EC directives could eliminate all barriers to intra-EC trade, including border posts. Implementing these directives would finally establish the four freedoms of the Treaty of Rome: the free movement of goods, services, people, and capital.

Spurred by the White Paper and by an EC intergovernmental conference in 1986, the EC ratified the Single European Act in 1987. This Act amended the Treaty of Rome for the first time since its adoption. Among other provisions, the amendments simplified the EC legislative process so that passage of the 300 directives could be achieved within a reasonable time.

In February 1988, the EC heads of state set the end of 1992 as the deadline to complete the internal market as agreed in the Single European Act. By January 1, 1993, border posts are to be eliminated, and all goods, services, capital, and people are to pass unimpeded within the confines of the EC. Unlike past EC ventures, completion of the single market is intended to inject more competition into the economy.

It was not by coincidence that the most serious political attempt to reform the CAP took place at a summit meeting in February 1988, where the EC 1992 initiative became the driving force behind efforts to scale down

the CAP. Agreements on the CAP reached at the summit meeting included imposition of a limit on the growth of CAP spending, financial penalties for farmers for cereal and oilseed production past a given quantity, and a weakening of the CAP intervention system.

Soon after the February 1988 summit, commercial interests in the EC took national and EC politicians at their word about the end-of-1992 deadline. Their push to meet the deadline accelerated the entire EC 1992 process. The combination of the White Paper, the Single European Act, establishment of the 1992 deadline, and the anticipation of that deadline by EC business interests combined to relaunch the EC on what seems to be an irreversible path to completing the goals laid out in the Treaty of Rome more than 30 years ago.

In 1989, Mr. Gorbachev, President of the U.S.S.R., released Eastern Europe from its political obligations to the Communist world, and a rush towards market economies and democratic forms of government quickly ensued. This acceleration of history injected a greater sense of urgency into completing the EC 1992 process. The subsequent unification of Germany proved to be the galvanizing force that committed the French and the Germans to accelerate the EC 1992 process. Most importantly, monetary and political union were pushed up on the EC's agenda far sooner than EC analysts had envisioned a few months before.

EC leaders apparently have decided that economic and political union must be accelerated and consolidated to provide stability and cohesion within the EC in the face of the instability in the East. Political and economic union are also seen as necessary steps to accommodate the future political and economic needs of the EC's member states, as well as the needs of the fledgling Eastern democracies.

At a summit meeting in October 1990, the EC heads of state agreed to take significant steps toward a monetary union. The ultimate aim is to establish a single EC currency, perhaps before the end of the 1990's. Establishment of a common EC currency is a logical extension of the EC 1992 process that many see as a necessary condition for a truly integrated market. The question currently appears not to be whether there will be further economic integration within the EC, but rather how fast integration will be allowed to proceed, and what its ultimate depth and breadth will be.

The EC subsequently agreed to meet in two intergovernmental conferences in December 1990 to discuss plans for the monetary and political union of the EC. Participants in both conferences agreed to continue work that may produce amendments to the Treaty of Rome. One of the amendments would transfer some national sovereignty to the EC to create a European Central Bank, and another amendment would allow a closer political union within the EC.

The CAP was the cornerstone of the EC's domestic policy prior to the EC 1992 initiative. As long as EC heads of state continue to perceive the CAP as a political linchpin of the EC, and as a key policy for important domestic constituencies, EC agriculture will resist root-and-branch reform. However, many forces will inevitably affect the CAP and its budget, including German unification, political and economic reform in Eastern Europe, the outcome of the GATT negotiations, and completion of the EC's internal market.

German unification will likely expand production of products already in surplus in the EC, significantly affect the political calculus of the CAP budget, make Germans more self-sufficient in food production, and allow Germany to set-aside more land. Reforms in Eastern Europe will probably increase its production of temperate-zone products in competition with EC exports. Most of these countries wish to become members of the EC, to export agricultural goods and processed foods to EC member states, and to benefit from EC export subsidies. The CAP is also under widespread international pressure in the Uruguay Round of the GATT negotiations because other agricultural exporters are demanding that the EC substantially lower support to its farmers.

The EC 1992 process is not directed at the CAP per se nor at external trade. However, there are strong indirect links between the EC 1992 program and the CAP that could affect both intra-EC and extra-EC trade of agricultural products. The EC's food and drink industry will be directly affected because more than a third of the officially proposed 282 directives for EC 1992 will affect trade barriers that have existed in the intra-EC food-and-drink trade. Many national laws governing the production, consumption, and trade of food and agricultural products must also conform to new EC-wide laws. Other EC 1992 directives for transportation, financial services, and the harmonization of value-added and excise taxes will also affect the EC's processed food and agriculture sectors.

Other indirect effects of the EC 1992 process on the agricultural sector, not related to directives, include: (1) the effects of reform of the agrimonetary system on CAP prices; (2) macroeconomic effects, such as increased employment, income growth, and income redistribution; (3) the possible dilution of the EC farm lobby, resulting in a weaker CAP; (4) a restructuring of

the economic relationships between the agricultural input supply markets, agricultural raw materials, and the processed food sector; (5) the establishment of EC-wide institutions that may regulate EC agriculture, such as a European Environmental Agency; and (6) the effects of increased competition on CAP policies, such as nationally based production quotas.

The potential effects of the EC's drive to greater economic integration on intra-EC and extra-EC food and agricultural trade have caught the attention of agricultural policymakers, private traders, researchers, and farm organizations around the world. Because of the political, economic, and technical complexity of the EC 1992 process, and because this process will likely continue throughout the decade, definitive conclusions about the effects of EC 1992 on the production, consumption, and trade of food and agricultural products are not now possible. The papers in this volume therefore contain speculation, conjecture, and artful guesswork by experienced professionals, as well as theoretical and empirical forays into what is presently unknowable.

We have organized the proceedings of the EC 1992 conference cosponsored by the Economic Research Service and the World Bank on November 19-20, 1990, into seven chapters. The chapters analyze the linkages between the EC 1992 program and the agriculture and food sectors of the EC. The first three chapters address the effects of the removal of fiscal and technical barriers to trade on the production and trade of food and agricultural products.

The first chapter examines the enormous complications that the abolition of frontier controls will cause for the current CAP pricing system, which relies on border taxes and subsidies to equalize prices among the member states. The second paper in this chapter examines the potential effects harmonization of VAT and excise taxes that the elimination of borders requires will have on food and farm input prices as well as on government revenues.

The second and third chapters address EC-wide harmonization of standards and regulations regarding the production, trade, and sale of food and agricultural products that the EC 1992 program required because of the elimination of frontier controls. Three papers address this topic; one explores the possible effects on U.S. food manufacturing companies, both in the EC and in the United States; another reviews the methodologies used in the harmonization process and speculates on the outcome for exporters to the EC; and the third paper specifically analyzes the effects on trade in animals and animal products.

Chapters 4 and 5 are more concerned with the potential effects of EC 1992 on EC farm policy and farm structure. One of the papers in chapter 4 presents econometric estimates that derive from possible changes in the EC's quota programs on sugar and dairy, and a second paper looks at the environmental implications of EC 1992 for agricultural production. A paper in chapter 5 explores the quantitative effects of the abolition of agricultural exchange rates on selected products in West Germany, and another paper in the same chapter provides efficiency estimates in agricultural production that impute comparative advantage to EC member states that would gain in a more competitive EC. One of the architects of the unification of German agriculture wrote the paper on the implications of German unification for the CAP.

The last chapters of the publication look at the possible effects on world trade patterns of food and agricultural products. Chapter 6 concentrates on the EC 1992 issues facing Eastern Europe, where many countries are undergoing radical political and economic reforms. A second paper in this chapter addresses the main issues facing the African, Caribbean, and Pacific countries (ACP) that have a special economic relationship with the EC through the Lome Convention.

Chapter 7 focuses on the developed countries. One paper includes econometric estimates of theoretical EC 1992 effects on some U.S. commodities, U.S. farm incomes, and the U.S. budget. A comprehensive treatment of Pacific Rim countries, where competition in high-value products is intensifying and where EC 1992 may affect EC exports, is also included. An examination of the EC's relationship with the European Free Trade Association (EFTA) is included because the EFTA is the EC's largest trading partner and is negotiating with the EC over EFTA's evolving relationship with the EC as a result of EC 1992 legislation. Another paper addresses the theoretical effects of deeper economic integration within a customs union and provides econometric evidence about the future magnitude of intra-EC trade in the light of historical trends.

Finally, a post-conference summary and update outlines the conclusions and contradictions from the 20 articles. On topics where there have been recent developments, the reader is brought up to date. Among others, these topics include the latest EC 1992 legislation, the progress of the two intergovernmental conferences on economic and monetary union, and political union.

Chapter 1:
The Effects of Reforming Fiscal Barriers

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Dismantling the EC's Agrimonetary System: Effects on European Agriculture

Timothy E. Josling*
Walter H. Gardiner

Abstract

The European Community's (EC) agrimonetary system poses a challenge for the Single European Market Program. Price levels for the major farm products diverge considerably among EC member states, as a result of the use of artificial green rates of exchange, and farm prices are higher than they would otherwise be. Border taxes and subsidies, known as monetary compensatory amounts (MCA's), support these price differences. In the absence of border controls, such a system would be unworkable. Removal of the MCA system would decrease prices in some countries, particularly Germany, the Netherlands, and Belgium, and would increase prices in other countries, particularly in Greece and the UK. Farm groups will strongly oppose any price decreases, particularly if combined with pressures from the Uruguay Round of GATT negotiations. On the other hand, raising prices to compensate farmers for the change in the system may not be possible. To do so would risk breaching the current budget limits and would contradict even a modest GATT agreement. A method will more likely be found to maintain different price levels in the various EC countries by means other than border taxes and subsidies. If monetary union is achieved, such payments could be phased out over time. In the absence of monetary union, exchange-rate movements may require continued use of some form of agrimonetary policy.

Introduction

Monetary developments have significantly influenced both the development of the Common Agricultural Policy (CAP) and the internal and external trade in agricultural products in the European Community (EC). When the EC's common market for agricultural products was established in the early 1960's, a mechanism was needed to translate prices set under the CAP into local currencies. The Council of Ministers, the EC's decisionmaking body, was to annually fix policy prices and then convert the prices from a common monetary unit into each country's currency using a set of agricultural conversion rates.

These agricultural conversion rates, which have become known as green rates, were to be the same as the market exchange rates. Any changes in market rates would be reflected in changes in green rates, thus maintaining the objectives of common pricing and free trade among EC member countries. However, this system of converting EC policy prices into the national currencies of the original six member countries has developed into a complex web of multiple exchange rates, which has created a variety of market distortions.

The collapse of the Bretton Woods system of fixed exchange rates in the early 1970's, and the refusal of certain EC countries to allow exchange-rate changes to be fully reflected in their economies, have led to a set of green rates that differ from market rates. This difference has eroded common pricing and has required a system of border taxes and subsidies (monetary compensatory amounts or MCA's) that distort trade patterns and add large administrative costs to both

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businesses and the EC. Moreover, the Commission of the European Communities (EC Commission), the EC's legislative body, has charged that the current agrimonetary system is inconsistent with its program to achieve a single market by 1992 (Commission of the European Communities, 1987).

Dismantling the agrimonetary system will not be easy. Farmers are accustomed to the insulation that this system provides against exchange-rate changes. As the EC moves toward monetary union, exchange-rate changes will become less common, and farmers will need less protection against currency fluctuations. But along with intra-season price stability, the agrimonetary system has allowed price levels to diverge among member states. Removing such price differences involves either price increases for countries with low prices, or price decreases for countries with high prices. Price increases would have budgetary and trade implications, and price decreases would raise political opposition. The EC may therefore try to maintain present price differences by means other than taxes and subsidies on intra-EC trade.

The Evolution of the Agrimonetary System

When the EC was established in 1957, it needed an accounting unit or monetary denominator to carry out the financial transactions with its member states. The EC created the unit of account (UA), which was defined as the amount of gold equal to the value of the U.S. dollar. Because of the link between the UA and the U.S. dollar, all policy prices, taxes, and subsidies were converted from UA to individual country's currencies at their market exchange rates. This market-rate conversion insured that common pricing would exist throughout the EC, and thus would satisfy one of the principal objectives of the CAP.

Most industrialized countries were at the time operating under a system of fixed exchange rates that their central banks maintained in accordance with rules set by the Bretton Woods meetings in 1944, organized to establish global currency trading arrangements. While the system was based on gold-based parities between various countries' currencies, the U.S. dollar played the pivotal role because of its importance in the international marketplace.

The Bretton Woods system of fixed exchange rates came under enormous pressure in the late 1960's, when exchange rates for a number of countries moved out of equilibrium. Exchange-rate adjustments in 1969 for some EC countries led to a divergence in support prices, thus undermining the objective of common prices. The discrepancies in the various support prices between EC member countries could only be maintained if a compensating system of taxes and subsidies on agricultural products were applied at borders (Harris, Swinbank, and Wilkinson, 1983).

Emergence of Green Rates and Monetary Compensatory Amounts (MCA's)

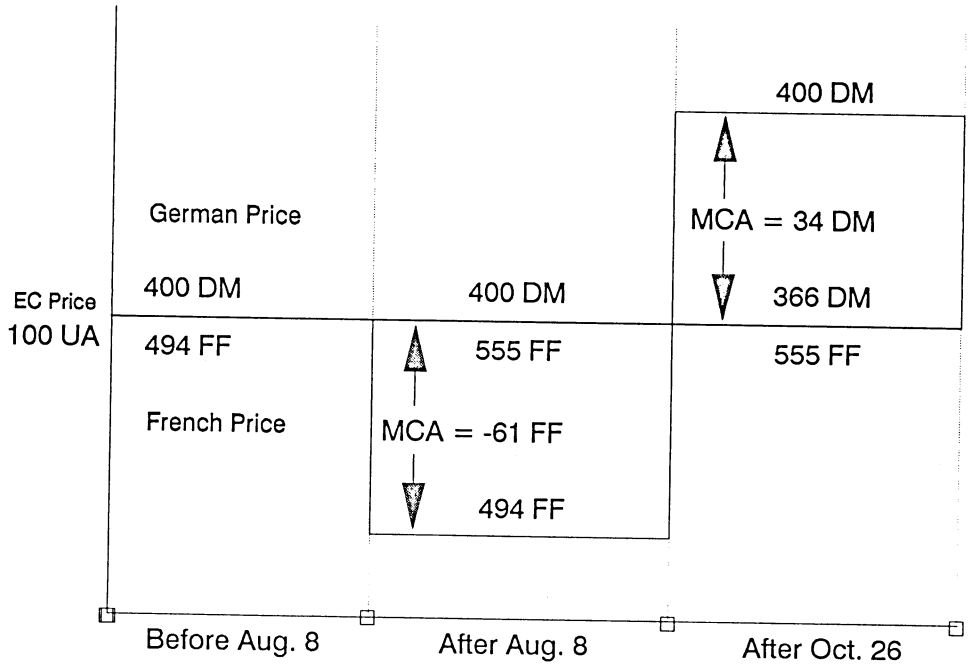
Prior to August 8, 1969, the UA equaled 4.94 French francs (FF) and 4.00 West German marks (DM). At the time, the EC paid a support (intervention) price of nearly 100 UA per ton to farmers who sold their wheat into intervention (public storage). Converting the EC intervention price into national currencies by their respective exchange rates yields a price of 494 FF per ton in France and 400 DM per ton in Germany (fig. 1). Because market exchange rates were used to convert EC prices, the intervention price for wheat was the same in each country (400 DM equaled 494 FF).

On August 8, 1969, France devalued the franc, and its new exchange rate against the UA was 5.55 FF. This implied a rise in the intervention price of wheat in France to 555 FF per ton, or a 12-percent increase. Because of the inflationary effect of the devaluation, the French government requested permission for the temporary use of the old exchange rate (4.94 FF per UA) rather than the new official rate (5.55 FF per UA) to convert EC prices to national currency (Swinbank, 1988, p. 3). This decision created separate agricultural, or green, conversion rates that differed from market exchange rates, which resulted in lower prices for French agricultural commodities than elsewhere in the EC. Thus, one of the key objectives of the CAP, common prices, was annulled.

In this situation, French farmers had an incentive to send their produce into higher priced markets. Commodity prices in France would eventually rise to price levels elsewhere, and strong currency countries, such as Germany, would be inundated with imports. To prevent these trade adjustments, the EC created monetary compensatory amounts (MCA's), which are taxes on exports and subsidies on imports of weak-currency countries, and subsidies on exports and taxes on imports of strong-currency countries. In this example, an MCA of 61 FF per ton, equal to the difference between the French intervention price before and after the devaluation, is the tax applied on French exports and the subsidy on French imports.

MCA's were designed to give EC member countries a temporary break from the full effects of a currency devaluation or revaluation on their farm and food

Figure 1
EC support prices and monetary compensatory amounts (MCA's)



Source: Agra Europe, Ltd., "Monetary," CAP Monitor, July 1989.

prices. MCA's were to be phased out quickly, as countries adjusted their green rates in line with market exchange rates. Agricultural markets would then return to the system of common prices in the EC. However, the demise of the Bretton Woods system of fixed exchange rates in the early 1970's ended the link between gold and the U.S. dollar, and created greater instability in foreign exchange markets. As a result, an increasing number of EC countries opted to use their old market exchange rates as their green rates for converting agricultural policy prices rather than the new market exchange rates following a currency devaluation or revaluation. This led to a build up of MCA's and a total breakdown of the goals of common pricing and unimpeded trade between member countries.

The European Monetary System

The European Monetary System (EMS) was introduced in March 1979 to stabilize exchange rates between EC member countries. The EMS is based on the European Currency Unit (ECU), a basket of specific amounts of member countries' currencies (table 1). The amount of each country's currency in ECU depends on its economic stature in the EC. A weighting system, based on a 5-year average of gross national product and trade shares between member countries, is used to determine the composition of the ECU (Strasser, 1981). The ECU basket is evaluated every 5 years to determine whether a new composition is warranted. In September 1984, the composition of the ECU was modified to account for the economic developments since 1978, and to incorporate the Greek drachma into the currency basket. In September 1989, the composition of the ECU was again revised to include the Spanish peseta and the Portuguese escudo.

The EC Commission determines each day the value of the ECU based on the composition of the ECU and the market exchange rates of each member country's currency against the U.S. dollar (table 2). The degree to which an EC member's currency influences the value of the ECU is directly related to the importance of that currency in the basket. The West German mark has been the dominant currency in determining the value of the ECU.

The exchange rate mechanism (ERM) preserves monetary stability within the EMS, wherein member countries maintain their currency exchange rates within specified bands of their central rates against the ECU. These central rates are target rates of the EC countries' currencies against the ECU, and are fixed, except when EMS realignments are made. Greece and Portugal are members of the EMS but do not currently participate in the ERM. The UK joined the ERM in October 1990. Most member countries are required to maintain their currency rates within a 2.25-percent band of their central ECU rate, except for Spain and the UK, which are permitted a 6-percent band. Central banks of the

Table 1--Definition of European currency units (ECU)

Currency		Amount of currency		
Name	Code	Dec. 1978	Sep. 1984	Sep. 1989
		ECU		
West German mark	DM	0.82800	0.71900	0.62420
French franc	FF	1.15000	1.31000	1.33200
UK pound sterling	L	.08850	.08780	0.08784
Italian lira	Lira	109.00000	140.00000	151.80000
Dutch guilder	HF1	.28600	.25600	.21980
Belgian franc	BFr	3.66000	3.71000	3.30100
Luxembourg franc	LFr	.14000	.14000	.13000
Danish krone	DKr	.21700	.21900	.19760
Irish punt	IrP	.00759	.00871	.00855
Greek drachma	Dra	--	1.15000	1.44000
Portuguese escudo	Esc	--	--	1.39300
Spanish peseta	Pta	--	--	6.88500

-- = Not member states at the time.
Source: Agra Europe, Ltd., CAP Monitor, July 1989, pp. 2-13; Agra Europe, Sept. 22, 1989, p. E/5.

Table 2--Calculation of European currency units (ECU), May 2, 1989

Country	Currency code	Amount of currency in ECU (a)	Exchange rate against US dollar (b)	US dollar equivalent of currency amount (c) = (a)/(b)	Exchange rate against ECU (d) = (c)*(b)
			Currency per US dollar	*US dollar 1/*	*Currency per ECU*
West Germany	DM	.7190	1.88861	.380703	2.08083
France	FF	1.3100	6.38203	.205264	7.03159
United Kingdom	L	.0878	.59460	.147662	.65512
Italy	Lira	140.0000	1381.51000	.101338	1522.11935
Netherlands	HFL	.2560	2.13091	.120136	2.34779
Belgium/ Luxembourg	BFr/LFr	3.8500	39.52520	.097406	43.54805
Denmark	DKr	.2190	7.34953	.029798	8.09756
Ireland	IrP	.0087	.70691	.012321	.77887
Greece	Dra	1.1500	160.82100	.007151	177.18928

1/ $1.101779 = 1 ECU.
Source: Agra Europe, Ltd., CAP Monitor, July 1989, p. 2-13.

member countries are required to take corrective action to maintain currency rates within these bands.

Since April 1979, the ECU has replaced the UA as the basis for expressing policy prices, levies, and subsidies. At the time, the ECU was nearly 21 percent lower in value than the UA. To avert a sudden drop in policy prices when converting to the new monetary denominator, a conversion coefficient of 1.208953 was applied to policy prices denominated in UA to obtain prices in ECU for the 1978/79 marketing year. Green rates were also adjusted by the same coefficient to ensure that there would be no change in prices when converting to national currencies.

Calculating MCA's Under the European Monetary System

The MCA system applies to most crop and livestock products as well as certain processed foods. An MCA for a particular product is basically determined by:

MCA = Intervention price x Green rate x MCA percentage.

An MCA percentage is assigned to each member state based on its real monetary gap (RMG), which is the percentage difference between the market exchange rate and the green rate:

RMG = ((Market rate/Green rate) - 1) * 100.

The RMG is similar to the percentage MCA calculated when the unit of account (UA) was the monetary denominator. For EC countries that observe the narrow band (+/- 2.25 percent) in the ERM, the ECU central rate is used for the market rate. For these countries, MCA's are considered fixed because they change only when green rates or central rates change, which occurs relatively infrequently. For countries that either observe the wider band (+/- 6 percent), or are not in the ERM, the RMG's are calculated weekly, based on a 5-day average of the market rate against the ECU. The resulting MCA's are known as variable MCA's.

Various regulations over time that limit budget expenditures and market distortions have modified the calculation of MCA's. Since 1973, a franchise or neutral margin has been deducted from the RMG to arrive at the percentage MCA. The formula for this calculation is:

%MCA = RMG - franchise.

Various other rules have evolved that limit the size of MCA's:

- Noncumulation rule - if the %MCA is between 0.5 percent and 1 percent, then the %MCA equals 1 percent; if the %MCA is less than 0.5 percent, then no MCA applies;
- de minimis rule - if the change between the new gap and the old gap is less than 1 percent, then no MCA applies; and
- Lower limit rule - if it is negligible in relation to the value of the product.

The Corrective Factor or Switchover Mechanism

MCA's were created as a temporary device to reduce the effect of currency fluctuations on the food and agricultural sectors. However, the use of MCA's persisted, and monetary gaps continued to widen, at least until the mid-1980's. A major obstacle in dismantling the MCA system is the elimination of positive MCA's in strong-currency countries, which would reduce farm prices in national currency terms. In 1979, a gentlemen's agreement provided that any elimination of MCA's should not decrease national farm prices. Farm prices had to be raised (in ECU) by enough to offset the fall (in national currency) in the strong-currency countries. However, the strategy of removing the MCA system ran afoul of the need for price restraint in the face of surpluses.

Some device was needed to prevent the creation of positive MCA's and still allow ECU prices to remain stable when a currency realignment occurred. In spite of the economic impossibility of this search, a political solution was found. The switchover mechanism was first introduced in the 1984/85 marketing year, with the goal of eliminating positive MCA's before 1987/88 (Commission of the European Communities, 1987). The principal feature of the switchover is the application of a corrective factor to the ECU central rates. In 1984/85, a corrective factor of 1.033651 was applied to the central rates. The effect was to reduce positive MCA's for strong-currency countries, such as West Germany, without reducing support prices to farmers, since the green rates remained unchanged. At the same time, negative MCA's were increased, which had the (short-term) effect of stabilizing farm prices for countries with weaker currencies, such as France. In essence, the central ECU rate was raised by the amount of the correcting factor, creating a new central rate that became known as the rate against the green ECU.

To prevent the creation of new positive MCA's after an EMS realignment, the corrective factor is increased in line with the revaluation of the strongest currency, usually the deutsche mark. By the start of the 1987/88 season, the corrective factor had risen to 1.137282, that is, the green rate exceeded the central ECU rate by 13.7 percent. As was anticipated at the time, the effect of the switchover mechanism was inflationary, and resulted in an even greater loss of EC control over the setting of CAP prices. In effect, policy prices were being harmonized at the highest national level (Swinbank, 1988, p. 17).

Distortions Caused by the Agrimonetary System

Over the 1970's, more and more EC countries used the green rate and MCA systems to stabilize domestic prices. Only Denmark steadfastly refused to let its green rate diverge from its market rate. But what started as a modest scheme for allowing farm commodity markets time to adjust to exchange-rate changes developed into a mechanism for granting limited national control over prices. West Germany, which had enjoyed strong export growth and an appreciating currency, also sought to keep agricultural prices high. As a result, extra taxes on imports (positive MCA's) of 9-10 percent persisted in West Germany as a semipermanent addition to the protection already given by the CAP. By contrast, the UK joined the EC in 1973, with considerable distaste for the high food prices that the CAP maintained. In addition to a lengthy period of transition, the chronic weakness of the pound also allowed the UK to keep down costs--through EC-financed import subsidies (negative MCA's) of up to 20 percent. These national proclivities for price differences essentially led to a partial renationalization of price levels, though constrained by currency movements. Attempts to unravel the system, and to return to common prices, were continually thwarted.

In addition to these intercountry price distortions, other problems arose from the operation of the MCA system. Prior to 1977, there was one green rate for each EC-member country for converting CAP prices into national currencies. This meant that while prices between countries might have differed, relative prices, such as livestock-to-feed price ratios, would be maintained. By the late 1970's, however, separate green rates for individual agricultural commodities began to emerge, as countries sought special protection for certain politically sensitive commodities. Over time, this has led to advantages for producers of certain livestock products in one country over another because of more favorable feed-livestock price ratios. As the notion of a single agricultural conversion rate for all commodities collapsed, and multiple green rates of exchange began to proliferate, the goals of the CAP became less attainable. The CAP had, in reality, become an uncommon agricultural policy.

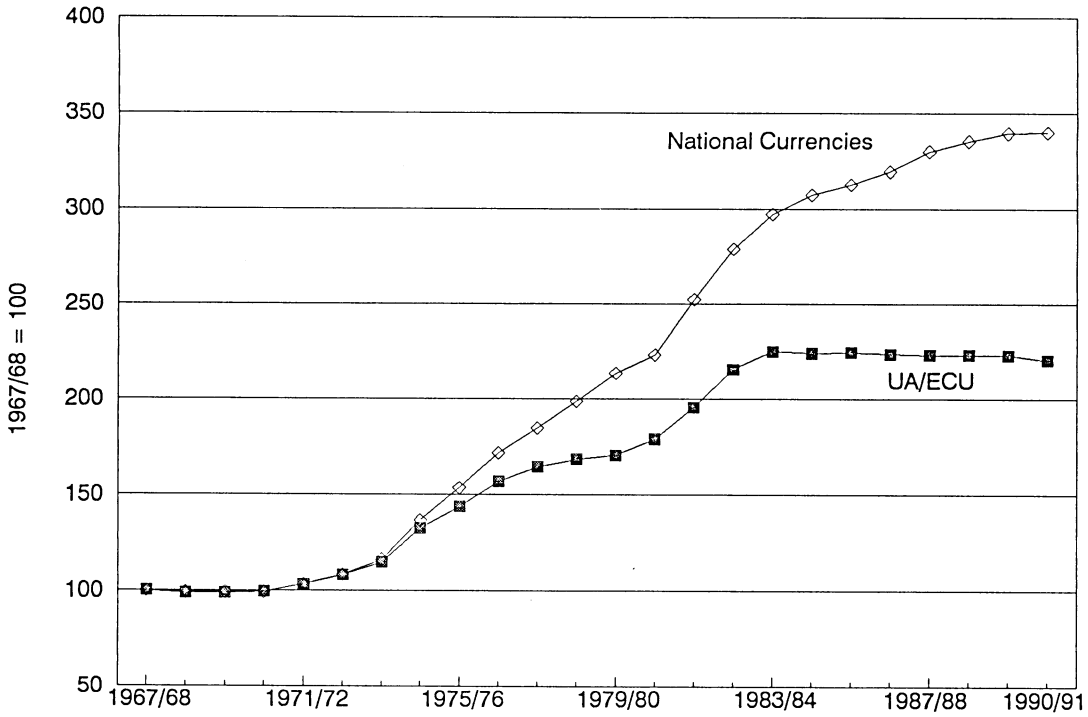
The system of green rates and MCA's prevents the realization of common prices among countries and, therefore, affects resource allocation, production, consumption, and trade patterns. By supporting prices at higher levels in some countries, more resources are employed in agriculture than otherwise would occur. MCA's provide the border protection that maintain these higher prices by limiting imports from other member countries as well as from third countries, thus affecting trade patterns and reducing economic welfare. Because of the dominance of the German mark in the EC's monetary system, the overall level of CAP prices for all countries is higher than it otherwise would be. Agricultural support prices denominated in UA until 1978/79 and ECU afterwards grew steadily until 1984/85, when the EC began to discipline prices, at least in ECU (fig. 2). However, prices expressed in national currencies have continued to climb since 1984/85, though at a slower rate (2.2 percent per year for 1984/85-1990/91, versus 8.3 percent per year for 1978/79-1983/84).

The net effect of steadily increasing support prices is reflected in the increased self-sufficiency that the EC achieved for much of its agriculture. EC self-sufficiency between 1960-64 (prior to the CAP) and in 1985 has risen from 84 percent to 127 percent for cereals, from 99 percent to 132 percent for sugar, from 100 percent to 133 percent for butter, and from 97 percent to 102 percent for meat (Commission of the European Communities, various years).

EC 1992 and the Agrimonetary System

The 12 members of the EC embarked on an ambitious and historic program in 1985 to complete their internal market by eliminating national borders and trade barriers between their countries by the end of 1992. The goal of this program, commonly referred to as "EC 1992," is to achieve a true common market, as conceived by the EC's founders 34 years ago. Until now, physical, technical, and fiscal barriers have prevented the EC from achieving greater economic efficiency. The great majority of barriers that impede the free movement of goods, services, people, and capital among member countries are scheduled to be eliminated. The result will be a powerful trading bloc whose market size (in population) will exceed that of the United States. The new unified EC will have 320

Figure 2
EC agricultural support prices



Source: Commission of the European Communities.

million consumers, with a purchasing power of $4 trillion (Cecchini, 1988).

The EC's agrimonetary system, with its impediments to common pricing and free trade in agriculture, is inconsistent with the goal of eliminating all internal barriers to trade by 1992. MCA's are currently collected at customs posts, but these posts are scheduled to close by the end of 1992 when borders between the member countries are eliminated. Keeping customs posts after 1992 for the sole purpose of collecting MCA's on agricultural products is not viewed as a viable option.

The present agrimonetary system cannot continue in the absence of border controls. Without MCA's, traders would realize gains from arbitrage until prices were almost equal in member states. There are, however, other ways of maintaining different levels of net returns to farmers in the various member states. Paying a subsidy to the farmer to compensate for declines in domestic price due to exchange-rate depreciation would be straightforward. Several such subsidies have compensated German farmers in the past for the effects of a strong deutsche mark (that is, when German positive MCA's have been removed). Devising methods of paying such subsidies as an adjunct to the VAT system, which will also have to adjust to the lack of border monitoring would be possible. Whether the same system could work with taxes, that is, to replace import subsidies and export taxes presently used in countries with negative MCA's, is more doubtful. Collecting a tax directly from the producer, to keep returns below those in other member states, may prove much less palatable than achieving the same effects through trade taxes and subsidies. Tax avoidance, as well as political protests, could be expected. The result would be increased pressure for countries with low prices, or weak currencies, to remove the negative MCA's. This in turn would add upward pressure on average prices, which lower ECU price levels would have to offset to stay within budget constraints. This situation could lead eventually to a system of common prices at the level of prices in the country with the weakest currency, and to all other countries having positive MCA's being paid through direct subsidies.

If the present system cannot be operated without border posts, and its replacement system of direct payments would be politically difficult, the only alternative would seem to be to abandon price differentiation. To abandon the policy of differential prices would imply

increased uncertainty for domestic producers, whose support price would change with each change in the ECU rate for local currency. A few months ago, the prospect of such a development seemed unlikely. Farmers would apparently continue to be guarded against exchange-rate volatility, even if border posts had to remain for farm trade. The prospects for a return to common prices now seem to have increased markedly.

The principal obstacle to obtaining common prices among EC countries is the lack of monetary union, either through fixed exchange rates between countries or a single currency. The ERM that was created in 1979 has reduced the degree of currency fluctuations between most EC members, but the lack of full participation in the ERM and the wide band for some participants has exacerbated the problems that green rates and MCA's have caused. Closer monetary coordination among member countries would eliminate many of the problems that the current system has caused.

A committee headed by EC Commission President Jacques Delors issued a report in April 1989, that laid out a three-stage program for full economic and monetary union (EMU) for EC-member countries. Stage one, which started on July 1, 1990, aims at closer coordination of economic and monetary policy among member countries. An important component of the first stage is to get all EC countries to join the Exchange Rate Mechanism. Stage two, due to begin in January 1994, calls for establishment of institutions responsible for coordinating economic and monetary policies. A European System of Central Banks (or Eurofed) would be set up to manage the EC's monetary system. Responsibility for economic policy decisions would remain at the national level, but policy guidelines would be set at the Community level. In the third, and final, stage, control over economic and monetary policies would be ceded to the EC institutions, and exchange rates would be irrevocably fixed, allowing for the eventual transition to a common currency.

Most countries in the EC appear to favor a rapid movement to monetary union within the next few years. This would lock exchange rates together and would avoid the problem of currency risk. In such a circumstance, the issues become: how quickly will monetary union occur; at what exchange rates will currencies be convertible in the monetary union (or be converted to a single currency); which currencies will participate fully in such a monetary union; and what will happen to the MCA's that exist at the time of currency locking. Eliminating these existing MCA's has proved a problem in the past, but could presumably be done with a digressive subsidy or tax at the time of monetary union.

The Problem of the Switchover Coefficient

Whether or not the EC moves toward monetary union and succeeds in removing border posts, the issue remains of how to handle the switchover coefficient, which is the premium placed on the ECU that was used for agricultural purposes in 1984 to avoid creating more positive MCA's. The switchover coefficient is presently 14.5 percent, indicating the inflationary tendency of the green ECU system. Removal of the switchover coefficient would immediately drop the price of most agricultural products by about 15 percent.1/ An equal increase in ECU price could compensate this price decrease. However, the EC has headlined the success of its policy to hold down ECU prices, and had agreed in April 1989 not to increase prices during the current GATT negotiations. To raise ECU prices by 14 percent would raise many international eyebrows. The trading partners of the EC would see such an ECU price rise as locking-in the hidden price increases due to green-ECU appreciation, and as exposing the illusory nature of the ECU price freeze. Changing green rates could also accomplish removal of the switchover coefficient, as offsetting the lower value of the agriculture ECU could ensure the same national prices. However, this would have the disadvantage of recreating positive MCA's for strong-currency countries (that is, exposing the hidden positive MCA's in the present system). Once again, those positive MCA's would have to be reduced over time to lead back to common prices. In spite of the difficulties, the EC Commission would probably like to remove the switchover coefficient and to return to a regular ECU for agricultural price purposes.

Quantitative Analysis of Changes in the Agrimonetary System

In view of the many ways in which the present MCA system could be modified, it may be premature to speculate on the chosen method. Instead, one can put bounds on the outcome, and could discuss the likely implications of particular choices. Here, two such boundaries are explored. A base-case scenario presumes that the existing MCA system is retained, preserving the price relationships that exist at the moment. Rather than moving toward monetary union, national inflation rates maintain their historical spread,

1/ Some commodities, such as fruit and vegetables, do not have MCA's, and, hence, would not be directly affected.

and exchange rates adjust accordingly. Though this scenario represents a status-quo situation, it can also reflect the outcome, at least as far as the farm sector is concerned, if alternative policies completely substitute for the removal of MCA's.

The second, extreme, case considered here is the removal, after 1992, of the MCA system and the switchover coefficient. This is assumed to be accomplished in stages and to be completed by 1996. We assume that monetary union is also reached over the same time period, and that inflation rates converge. The effects on agriculture from the harmonization of prices is such that this eventuality is unlikely; some form of transition or compensation seems more plausible. But establishing the bounds of the policy removal effects is useful. And a system of uniform prices, with ECU prices translated for all commodities at market exchange rates, would seem to be the only fully satisfactory longrun solution to the problems that the green-money system has created.

The effects of changes in the agrimonetary system will vary from country to country in the EC. To analyze these effects, one needs a method of quantifying the implications of policy change by country and commodity. The estimates given below were developed using CAPFRAME, a series of national models for the agricultural sector of EC countries in use in ERS/USDA.2/ CAPFRAME allows for a consistent series of projections of prices, market balance, financial flows, and policy effects for each of 11 member states (with Belgium and Luxembourg treated as one economy). Commodities include wheat, barley, corn, beef, and milk products, and the projections extend annually to the year 2000.

We used the CAPFRAME models to consider two scenarios: a base run, which preserved the present MCA system and assumed no further shift toward monetary union; and an EMU run, which assumed a movement from 1992 to 1996 toward locked currency values, common inflation, and the dismantling of the MCA system. To assume that the actual outcome will fall somewhere between these two extremes is reasonable.

The results indicate that removal of the MCA system will have a negative effect on farmers in strong-currency countries. Gainers include consumers in those countries, farmers in countries with very weak currencies, and taxpayers in the EC as a whole. The extent of these changes is detailed below.

2/ For details of the CAPFRAME models, see Josling, 1990.

Price Effects

The agrimonetary system governs the level and spread of support prices in various countries and for various commodities. The removal of this system will affect support prices in three ways: 1) the abandonment of the switchover coefficient (that is, the use of an unadjusted ECU); 2) the removal of MCA's relative to the monetary ECU; and 3) the removal of green-rate divergences among products. Table 3 shows the percentage changes in producer price in local currency for five commodities: wheat, barley, corn, beef, and milk.3/ For the EC as a whole, cereal prices, compared with the base-case scenario, could be lower by almost 10 percent (corn) and almost 11 percent (wheat), beef prices could be more than 11 percent lower, and milk prices could be almost 10 percent lower.

The price effects are felt most by farmers in strong-currency countries, such as the Netherlands, West Germany, Belgium-Luxembourg, and Denmark. Price falls of 10-15 percent for cereals, beef, and milk in these countries can be attributed to the removal of the MCA system, including the switchover coefficient. A second group of countries is affected less, experiencing prices 8-10 percent lower as a result of the removal of the MCA system. This second country group includes Spain, France, Italy, and Ireland.4/ At the other extreme, Greek livestock farmers could enjoy higher prices with the removal of the MCA system. The negative MCA's that depress Greek livestock farmers' prices in the base-case scenario are larger than the benefits gained from the artificially high ECU value that the switchover coefficient implied. Losing both the MCA's and the artificial ECU leaves higher prices to these farmers. Greek cereal farmers do not presently suffer from the same negative MCA's, and, thus, have less to gain from the removal of the MCA system.

Market Balance Effects

The effects on production levels (table 4) follow from the anticipated price changes. Cereal production goes down in all countries except Greece, with the relevant cross-elasticities governing the effects on individual cereals. Wheat production in the Netherlands appears to be most vulnerable to the price changes, down 11 percent compared with the base-case scenario. For the

3/ The major effects will probably be felt by 1996, the date by which it is assumed that the policy has been changed. After that, price changes decline, indicating that the effects of full economic and monetary union can be beneficial to some groups of farmers.

4/ Price changes for Portugal are complicated by the fact that the green rate, at which various product prices will be converted in the second half of the transition period (1991-95), is yet to be decided.

Table 3--Effects of economic and monetary union on net producer prices, EC member states and EC-12, 1996

Commodity	France	UK	Netherlands	Belgium/ Luxembourg	West Germany	Italy	Ireland	Spain	Portugal	Greece	Denmark	EC-12
					Percent of base case							
Wheat	-9.4	-10.2	-15.1	-12.0	-12.6	-7.9	-7.9	-8.5	-9.5	-0.2	-10.7	-10.6
Barley	-9.4	-10.2	-15.1	-12.0	-12.6	-7.9	-7.9	-8.5	-9.5	-.2	-10.7	-10.9
Corn	-9.4	-10.2	-15.1	-12.0	-12.6	-7.9	-7.9	-8.5	-9.5	-.2	-10.7	-9.6
Beef	-11.2	-10.2	-14.4	-12.0	-12.8	-8.3	-9.7	-9.4	-9.5	15.5	-10.7	-11.1
Milk	-9.4	-10.2	-14.4	-12.0	-12.8	-8.3	-7.9	-9.4	-9.5	15.5	-10.7	-9.8

Source: CAPFRAME Version 3. See CAPFRAME : Framework for Evaluation of the European Community Common Agricultural Policy, by Timothy E. Josling.

Table 4--Effects of economic and monetary union on production, EC member states and EC-12, 1996

Commodity	France	UK	Netherlands	Belgium/ Luxembourg	West Germany	Italy	Ireland	Spain	Portugal	Greece	Denmark	EC-12
					Percent of base case							
Wheat	-0.5	-6.7	-10.8	-0.8	-3.9	-1.4	-3.8	0.2	-0.7	0	-0.6	-2.2
Barley	-1.2	-2.4	0	-2.2	-1.0	-.3	-2.4	-.7	-.5	0	-1.1	-1.2
Corn	-.5	0	-.8	-.6	-.6	-.5	-.8	-4.4	-.5	0	0	-.8
Beef	-2.3	-1.5	-2.9	-3.7	-3.6	-4.8	-4.2	-1.2	-1.7	4.3	-1.9	-2.8
Milk	-1.9	-2.3	-4.1	-4.0	-3.7	-1.4	-1.5	-2.4	-2.8	18.3	-4.2	-2.6

Source: CAPFRAME Version 3. See CAPFRAME : Framework for Evaluation of the European Community Common Agricultural Policy, by Timothy E. Josling.

EC as a whole, production is estimated to be lower by about 2 percent for cereals. Only slightly greater decreases are anticipated for beef, with an overall decrease in production of about 3 percent in the economic and monetary union (EMU)/no-MCA case. In the dairy sector, removal of MCA's under these circumstances could reduce milk output by 1-4 percent in most countries, except Greece, leading to a decrease of 2.6 percent for the EC as a whole.

Consumption would generally increase with the lower real prices expected from the removal of the MCA system. This consumption increase would be particularly noticeable for beef, where an increase of 6-11 percent is estimated for the strong-currency countries, and of 5-6 percent for the EC as a whole. Consumption of dairy products also could increase, but by a lesser extent, from 3-4 percent compared with the base case in the strong-currency countries, and just more than 2 percent for the EC. The direction of changes in cereal consumption is less clear cut. Food use of cereals would increase only marginally (as price elasticities of demand are low in this sector), but cereal use for feed will be drawn in two different directions. Lower livestock prices and output levels will tend to cut feed use, but lower cereal prices will encourage the substitution of cereal for noncereal feed. Corn consumption is thus estimated to increase by up to 7 percent in the strong-currency country group, while barley use for feed could decline in these same countries. Overall use of wheat could be stable; that of corn could increase by 1.2 percent, and overall barley use could decline by 1.8 percent.

Lower production and stronger demand affects net trade. The EC wheat export volume is estimated to decline marginally, as a result of increased imports into the Netherlands, Belgium-Luxembourg, and Italy. French exports are estimated to decline by less than 1 percent. In the case of barley, the level of net exports from the EC could rise, led by increases in German exports, as feed consumption falls. Barley exports could be more than offset by the increased corn imports into the EC-12, which could rise by 54 percent as a result of the dismantlement of the MCA system. The increase in imports could be most noticeable in the Netherlands and Spain, while French exports might decline.5/ Beef imports will also increase for the EC as a whole, in response to EMU and the lower prices that the removal of MCA's implied. Such imports could climb by more than 80 percent, with increased sales into France, Italy, Spain, and Portugal. Lower exports from Denmark, the Netherlands, West Germany, and Ireland contribute to this outcome. In the case of dairy products, higher imports of butter into West Germany, Belgium-Luxembourg, Spain, and Portugal, coupled with fewer exports from the Netherlands, Ireland, and Denmark, reinforce the trend for the EC-12 to import more from the world market. For skim milk powder (SMP), exports could drop drastically as a result of EMU, with Ireland, Belgium-Luxembourg, and West Germany reducing exports, and France, the Netherlands, Spain, and Italy increasing imports.

5/ These numbers represent changes in the net trade for each country, including intra-EC flows. For the EC-12, the figures relate to net extra-EC trade (that is, the aggregate of the individual net trade estimates).

Financial Implications

The combination of lower prices and lower production reduce farm receipts for all commodities (table 5). At the EC level, this drop is greatest for beef (14 percent) and milk (12 percent); and least for corn (10 percent). But these reductions mask the differences among countries. Dutch, German, Spanish, Italian, Danish, British, and French cereal farmers face receipts that are down by 10 percent or more. The situation is similar for beef, where the decline in receipts for most farmers ranges from 11 percent to 15 percent, while Greek farm receipts rise by about 14 percent. For dairy farmers, revenue increases by 11 percent in Greece, but could drop by as much as 15 percent in other countries.

The other side of the coin is that consumers could find expenditures on farm commodities reduced by EMU and the removal of MCA's. Expenditures on wheat for both food and feed could decline by 8 percent, with somewhat larger decreases in spending for barley and corn for feed. Consumer expenditures for beef could decline by 4 percent and for dairy products by 8 percent.

The financial aspects of the change in trade volume are shown in the reduction of export earnings and the increase of import expenditures. Export earnings for wheat declined by 9 percent, and spending on imports of corn rose by 46 percent. The EC could spend more than 70 percent more on beef imports; extra spending on butter imports and less earnings from SMP exports could also be expected. This will also decrease the expenditures for export subsidies. FEOGA spending could be cut considerably for wheat (161 million ECU at 1982 prices) and barley (63 million ECU). Together with smaller changes in levy revenue and export subsidies on other commodities, the savings to the financial costs of farm programs is estimated at 276 million ECU.

Program Costs and Benefits

The economic implications of the EMU/no-MCA scenario are clear. Farmers lose real income, to the advantage of cereal users and taxpayers. These results can be quantified in terms of changes to the economic benefits and costs associated with the CAP. Farmer benefits from the CAP drop by 8.3 billion ECU as a result of EMU and the removal of MCA's. Much of this is in dairy (3.16 billion) and beef (2.57 billion) (table 6).6/ Consumers gain by almost 11 billion ECU, saving about 7 billion ECU on cereals and more than 2 billion ECU on both the beef and dairy programs. Including the taxpayer gain (276 million ECU), the EC economy stands to gain by 3.3 billion ECU (table 7) from the lower prices implied by EMU.

Conclusions

The EC's agrimonetary system began as a straightforward mechanism for converting policy prices and other financial variables from a common monetary denominator to the national currency of each country. However, it has evolved into a complex web of rules and regulations that has created severe economic distortions, not only between countries but also between commodity sectors within countries. The use of a special set of exchange rates for agriculture that no longer reflect developments in world financial markets has broken down one of the principal objectives of the Common Agricultural Policy--common pricing. In place of common pricing, a system of border taxes and subsidies (MCA's) has been erected that distorts trade flows and imposes large administrative costs on both business and government to implement the system.

The overall goal of the EC 1992 program is to complete the common market by eliminating all internal barriers to trade. There are no specific directives in the 1992 program that call for the elimination of the agrimonetary system. However, because of its differential price effects and trade distortions, the agrimonetary system is incompatible with the EC 1992 program's goal of a truly unified market. Elimination of the agrimonetary system--with its green rates, border taxes, and subsidies--by 1992 is a formidable assignment.

Discrepancies in policy prices between countries imply major changes to the agrimonetary system if prices are to be harmonized by the end of 1992. A decision to harmonize prices at the highest level would imply significant price increases for some countries. Harmonization at less than the highest level would imply price reductions for the strong-currency countries and price increases for other member countries. There will be strong resistance throughout the EC to any attempt to cut prices, and any price cut will likely require some form of compensation.

Price increases under the CAP will have international as well as domestic implications. The EC's case for credit for policy reform since the start of the Uruguay Round in September 1986 includes the reduction in policy price developments in ECU terms. However, when these policy price developments are evaluated in monetary ECU, which include the effects of the switchover coefficient, the EC has continued to raise common support prices for most commodities since 1986. The EC will not be able to argue both that it has exercised price restraint in recent years and that removing the switchover coefficient is of purely internal concern. Moreover, other countries will want to ensure that any support level commitments made by the EC in the context of the Uruguay Round are undertaken in ECU, whose international value is not subject to internal manipulation.

The creation of a single EC currency called for in the Delors plan will require ammending the Treaty of Rome with the approval of all 12 current EC members. The UK is no longer the only country resisting the single currency idea. The higher-than-expected cost of German unification, along with recession in some countries, has caused some member states to rethink the fast-track approach to economic and monetary union. Germany, the Netherlands, and even Spain are now advocating a go-slow approach to further monetary integration until there is greater economic convergence among the member states.

A likely solution to the agrimonetary dilemma in the near term is a tightening of the current arrangements, including faster alignment of green rates with market rates, and a gradual elimination of green-rate differentials between commodities. Over time, the remaining MCA's could be replaced with a system of direct payments or tax credits made by national governments. While the move to a common currency would make the agrimonetary system obsolete, the political barriers to achieving full integration are formidable, and will prevent it from occurring until perhaps the end of the century.

6/ Tables 6 and 7 are in terms of absolute changes (in million 1982 ECU), as the percentage changes are less meaningful. Producer benefits refer to the increase in producer surplus, and consumer costs refer to the decrease in consumer surplus. The increase in feed ingredient costs is taken as a proxy for the cost to feed users.

Table 5--Effects of economic and monetary union on farm receipts, EC member states and EC-12, 1996

Commodity	France	UK	Netherlands	Belgium/ Luxembourg	West Germany	Italy	Ireland	Spain	Portugal	Greece	Denmark	EC-12
					Percent of base case							
Wheat	-9.9	-16.9	-21.5	-12.0	-14.8	-11.7	-12.9	-12.2	-10.1	-5.5	-11.8	-12.6
Barley	-10.5	-13.0	-12.0	-13.2	-12.2	-10.7	-11.6	-13.0	-9.9	-5.5	-12.2	-12.0
Corn	-9.9	-10.9	-12.7	-11.8	-11.9	-10.9	-10.2	-16.3	-9.9	-5.5	-11.2	-10.3
Beef	-13.3	-12.3	-13.9	-14.7	-14.8	-14.8	-15.2	-14.3	-11.0	14.2	-12.9	-13.6
Milk	-10.6	-13.0	-14.9	-14.8	-12.0	-11.4	-9.8	-13.3	-10.2	10.9	-14.9	-12.1

Source: CAPFRAME Version 3. See CAPFRAME : Framework for Evaluation of the European Community Common Agricultural Policy, by Timothy E. Josling.

Table 6--Effects of economic and monetary union on producer policy benefits, EC member states and EC-12, 1996

Commodity	France	UK	Netherlands	Belgium/ Luxembourg	West Germany	Italy	Ireland	Spain	Portugal	Greece	Denmark	EC-12
					Million 1982 ECU							
Wheat	-563	-270	-19	-32	-230	-135	-8	-115	-11	-25	-72	-1,481
Barley	-130	-117	-4	-10	-126	-24	-15	-134	-1	-4	-72	-638
Corn	-249	0	0	-1	-33	-127	0	-36	-15	-30	0	-492
Beef	-708	-341	-185	-87	-543	-311	-97	-174	-42	3	-80	-2,565
Milk	-743	-472	-364	-114	-631	-325	-160	-172	-39	-11	-128	-3,159

Source: CAPFRAME Version 3. See CAPFRAME : Framework for Evaluation of the European Community Common Agricultural Policy, by Timothy E. Josling.

Table 7--Reduction in total economic cost of policies due to economic and monetary union, EC member states and EC-12, 1996

Commodity	France	UK	Netherlands	Belgium/ Luxembourg	West Germany	Italy	Ireland	Spain	Portugal	Greece	Denmark	EC-12
					Million 1982 ECU							
Wheat	-354	-37	17	8	-18	68	7	41	8	-3	-32	6
Barley	-30	-6	12	13	38	15	-1	134	1	-2	-16	179
Corn	-89	28	37	20	23	23	1	87	9	-11	1	342
Beef	237	322	-39	46	213	711	-44	212	37	24	-30	1,567
Milk	234	53	-31	46	714	410	-103	101	13	71	-69	1,222

Source: CAPFRAME Version 3. See CAPFRAME : Framework for Evaluation of the European Community Common Agricultural Policy, by Timothy E. Josling.

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Harmonization of Indirect Taxes in the EC and its Implications for Agriculture

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Abstract

Indirect tax harmonization is a major component of the completion of the single market in a European Community without borders. In place of the many different value added tax (VAT) rates now enforced in the member states, the Commission of the European Communities has proposed that each country substitute a two-tier system, with one standard VAT rate set somewhere between 14 percent and 20 percent, and one reduced rate set somewhere between 4 percent and 9 percent. The Commission also proposed more-uniform excise duties across the single market, whose effects would include cheaper wine in the north of Europe, and more-expensive alcoholic beverages in the south. Because of the present large disparities, the budgetary effects of harmonizing indirect taxes will vary across EC countries. Within the agricultural sector, wide differences in VAT rates on inputs and outputs, and even in tax regimes, prevail. The main issue for agricultural tax harmonization is the flat-rate regimes to which farmers may subscribe in eight member states. In these schemes, farmers receive a fixed percentage of the output price to approximately compensate for the VAT paid on inputs. The flat-rate systems distort input usage, output levels, and incomes, and subsidize the great majority of farmers in Germany and the Netherlands, as well as livestock producers in Italy. Only the German farmers would retain their benefits under the proposed harmonized VAT rates after 1992.

Introduction

During the oil shocks and the ensuing economic crisis, Europe discovered its inability to create jobs and to sustain economic growth. Widespread concern about the relative decline of Europe triggered a period of intense reflection in European Community (EC) circles. The problem was diagnosed as a "lack of Europe," and the solution prescribed was "more of Europe"—that is, new steps toward fuller economic and political integration. The objective of a border-free Europe was given a legal basis with the Single European Act (SEA) of 1987, and it was given a deadline: completion of the single European market before 1993.

The free movement of goods and people across borders, without control, requires a substantial harmonization of economic policies in the member states. Harmonization of fiscal policies is a major part of this agenda.

Indirect tax harmonization has long been a concern for the process of European integration. Article 99 of the Treaty of Rome implied a harmonization of sales taxes. In its White Paper of 1985, the Commission of the European Communities (EC Commission) set the complete removal of fiscal barriers as the objective. Article 17 of the SEA confirmed the objective of indirect tax harmonization before 1993, on condition that decisions be made by unanimous voting. This condition reflects the fear in member states of losing significant leverage in their conduct of macroeconomic policies. This fear is likely to influence the final degree of harmonization.

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In 1987, the EC Commission issued its proposals for harmonization, in which it chose a pragmatic approach. The proposed package of reforms sought to abolish fiscal barriers within the EC, but did not attempt to attain an ideal fiscal system (Commission of the European Communities, 1987). The proposals dealt with the tax base and rate bands for value-added taxes (VAT), as well as excise duties and special tax regimes.

The current debate deals mainly with the harmonization of the tax base and with the rules to be followed during the transition period, which will start in 1993 (Commission of the European Communities, 1990).

What issues are at stake in general VAT harmonization? The objective that the EC Commission often mentions is to avoid distortions in competitiveness and the resultant trade diversion. However, it is well known that many other sources of distortion may be more serious than inequalities in the VAT, such as different rates of income taxes and different premiums for health insurance and social security (Charpin, 1988). Removing fiscal borders may save some labor resources now used in the public and private administration of customs regulations. But the main purpose of the single integrated market is to improve the movement of goods and services throughout the EC, thereby allowing efficiency gains from increased specialization, competition, and returns to scale in a larger market. Problems will arise, however, in the VAT harmonization process, as the elimination of the current wide discrepancies between tax rates and tax bases causes budgetary losses in some countries.

The harmonization of VAT rules poses special problems for the farm sector. Here the concern is not so much with budgetary effects, due to the small share of agriculture in the economy. Rather, the issues associated with agricultural tax reform are its effects on intra-EC trade, competitive distortions, and farm income support. The agricultural VAT system differs widely among countries. A special regime, the flat-rate system, is available to farmers in 8 of the 12 member states, and is potentially distorting. Due to the present large differences in tax rates and tax bases, full harmonization might significantly affect agricultural price ratios and, therefore, trade and farm incomes.

Full harmonization of agricultural VAT regimes seems unlikely. The real question is, how far will the member states be willing to go toward the elimination of differences in VAT rates and, more importantly, in flat-rate regimes? In view of the long record of European farmers' political success in obtaining compensation for policy changes that reduced their incomes, other means are likely to compensate for the adverse effects of fiscal harmonization on farm incomes. Thus, many of the present distortions are expected to last in one form or another. Nevertheless, we provide estimates of the magnitude of the distorting effects of the special regime for agriculture under both the current and probable future structures of VAT rates.

Harmonization Issues and the Single European Market

Article 8a of the SEA defines the single European market as "... an area without internal borders in which the free movement of goods, persons, services and capital is ensured." Implementing the SEA will require the elimination of all existing physical, technical, and fiscal barriers as described in the EC Commission's White Paper (Commission of the European Communities, 1985).

The harmonization of indirect taxes raises two main issues: First, how can indirect taxes be made more uniform across countries? Second, what effects will this harmonization have on budget revenues, and on other macroeconomic indicators, such as growth rates and external balances?

Completion of the Internal Market: Fiscal Aspects

EC harmonization of indirect taxation can be seen as a three-stage process consisting of: (1) the establishment of fiscal neutrality in intra-EC trade; (2) the simplification of administrative procedures in this trade; and (3) the completion of an internal market (Gieu and Bonnet, 1987). In principle, the first two stages are more or less in place. In particular, neutrality should follow from application of Articles 95 and 96 of the Treaty of Rome, which state that a member state cannot tax imported products more heavily than domestic products, nor refund a tax greater than that received for exports. The last stage of harmonization of indirect taxation implies that border-crossing transactions within the EC are to be treated exactly like transactions within a member state.

The EC Commission took as its starting point a survey of the existing spread between indirect tax rates and structures in the EC. The Commission then confined itself to setting out the minimum changes needed to achieve a sufficient degree of fiscal harmonization (Commission of the European Communities, 1987). Abolishing fiscal frontiers is based on three criteria: (1) equal taxation in the producing country on domestic and exported goods, which will be accomplished by replacing the current system (whereby goods are

exported free of VAT, but imports are taxed) with a system of tax collection in the country of origin; (2) allocation of tax revenues to the country where the goods are consumed (as is the case now), through a clearing mechanism; and (3) harmonization of VAT rates and main excise duties. Using the U.S. situation as a guide for setting tolerable rate differentials between member states, the EC Commission proposed to harmonize the rates of VAT and excise duties within a margin of about plus or minus 2.5 percent around a fixed target rate (Bos and Nelson, 1988).

VAT Rates and Structures

There are wide differences among the VAT structures in member states (table 1). The number of tax rates is large in Belgium, Italy, and Ireland, while goods subject to tax are taxed at only one rate in Denmark. The EC Commission has proposed a two-tier VAT rate system, with a reduced rate for commodities designated as basic necessities, and a standard rate for all other goods. The reduced rate would apply to food and non-alcoholic beverages; water supplies; energy products for heating and lighting; pharmaceutical products; books, newspapers, and magazines; and passenger transport (Commission of the European Communities, 1987). The EC Commission proposed that the standard rate should be within a range of 14-20 percent, and that the reduced rate should be between 4 percent and 9 percent, with a preference for the lower half of this band. The proposed rate bands would allow member states to choose rates that result in a minimum of disruption to their existing tax levels. Of course, the future weighted-average VAT rate will depend on the actual choices that the member states make within the permitted bands.

Excise Duty Rates

The EC Commission also proposed a harmonization of national excise duty rates and regimes, which now vary widely (table 2). The EC Commission's initial rate proposals (made in 1987) are presented in table 3. For tobacco products, the EC Commission proposed a rate for the sum of the ad-valorem excise duty plus the VAT, with a margin of flexibility around the combined tax that would be equivalent to the margin proposed for the VAT on other goods. Except for tobacco products, the initially proposed excise tax rates allowed for no margin of flexibility. The EC Commission considered that any flexibility should be reserved for the VAT rates, because these taxes have by far the widest coverage and therefore have an overriding importance for member states' budgets (EC Commission, 1987). The proposed rates were an arithmetic average of the existing rates in the member states for most products

Table 1--Value-added tax (VAT) rate structure in the EC, by member country, 1990

Country	Reduced rates 1/	Standard rate	Increased rates
		Percent	
Belgium	0/6/17	19	25/33
Denmark	0	22	None
France	5.5	18.6	25
Germany	7	14	None
Greece	6	18	36
Ireland	0/5/10	23	None
Italy	0/4/9	19	38
Luxembourg	3/6	12	None
Netherlands	6	18.5	None
Portugal	0/8	16	30
Spain	6	12	33
United Kingdom	0	15	None

1/ All member states apply a zero rate for exports. The zero rates in this column apply to certain domestic transactions (and are implemented in some cases as refunds).
Source: Observatoire Français de Conjoncture Economique.

subject to an excise tax (distilled alcoholic beverages, tobacco products, petrol or gasoline, and liquified petroleum gas). When a simple arithmetic average would have been too disruptive, the EC Commission instead proposed either a consumption-weighted average rate (for diesel fuel, heating gas-oil, and heavy fuel oil), or a uniform tax rate that would generate the same aggregate tax revenue (for wine and beer).

Recently, the attitude of the EC Commission has become more flexible, with the introduction of minimum excise tax rates for some products and permitted rate bands for others (Commission of the European Communities, 1989). The European Parliament and several member states regarded this flexibility as necessary to ensure the successful harmonization of excise duty rates. In particular, this flexibility takes into account national disparities in production capacities for commodities such as alcoholic beverages and tobacco.

On January 1, 1993, each member state is expected to implement at least the minimum rate or the lower limit of the permitted band. After that date, rates in each country should move toward their target. Over time, the various target rates can be revised by the EC Commission to ensure consistency with evolving Community policies in fields such as energy, transportation, and health.

Table 2--Excise duties: Rates in the EC member states in December 1987

Goods subject to excise tax	Units	Belgium	Denmark	France	Germany	Greece	Ireland	Italy	Luxem-bourg	Nether-lands	Por-tugal	Spain	United Kingdom
Alcoholic beverages:													
Distilled spirits	ECU per hl. 1/	1,252	3,499	1,149	1,174	48	2,722	230	842	1,298	248	309	2,483
Intermediate products	do.	61	292	6	70	2	404	10	41	63	0	0	286
Wine	do.	33	157	3	20	0	279	0	13	33	0	0	154
Beer	do.	10	57	3	7	10	81	17	5	20	7	3	49
Petroleum products:													
Leaded petrol	ECU per 1,000 l.	261	473	369	356	349	362	557	209	340	352	254	271
Diesel fuel	do.	123	236	190	213	106	279	178	100	109	162	124	229
Heating gas oil	do.	0	236	53	8	109	48	178	0	44	23	38	15
Heavy fuel oil	ECU per metric ton	0	266	25	7	93	10	7	2	15	11	1	11
Liquified petro-leum gas (LPG)	ECU per 1,000 l.	0	163	138	160	40	222	96	21	0	17	27	135
Cigarettes:													
Specific excise duty	ECU per 1,000	2	77	1	27	1	49	2	2	26	2	1	43
Ad valorem duty plus VAT	Percent of retail price	66	39	71	44	60	34	69	64	36	65	52	34
Other manufactured tobacco:													
Cigars	do.	22	40	50-54	26	31	56	39-63	23-27	20	40	21	50
Cigarillos	do.	27	40	50-54	29	31	56	39-63	23-27	25	40	21	50
Smoking tobacco	do.	37	58-83	65	36-54	63	70	71	38	56	26	31	65-70
Other	do.	37	41-57	37-59	20	64	20-70	42	38	56	30	36	13-50

n.a. = Not available.

1/ The tax on distilled spirits is applied on each hectoliter of pure alchohol contained in the spirits, while the taxes on other alcoholic beverages are applied on each hectoliter of product.

Sources: EC Commission, DOC COM (87) 320 final 1987; DOC COM (89) 525 final 1989; DOC COM (89) 526 final 1989; DOC COM (89) 527 final 1989.

Potential Macroeconomic Effects

In forming its indirect tax harmonization proposal, the EC Commission had to limit budgetary disturbances for the member states (Commission of the European Communities, 1987). Yet, revenue changes in every country obviously will not be the same. Countries are likely to choose reduced and normal VAT rates within the EC Commission's proposed bands to reduce the change in their total VAT receipts compared with the current situation. Nevertheless, countries that otherwise would be high in the permitted ranges may choose final rates closer to the EC-wide averages, to reduce the extent of trade diversion (Charpin, 1988).

Table 3--Excise duties: EC Commission proposals

Goods subject to excise tax	Units	EC-wide status 1/		1987 proposal	1989 proposal	
		Arithmetic average	Weighted average		Target rate 2/	Minimum rate
Alcoholic beverages:						
Distilled spirits	ECU per hl. 4/	1,271	N.A.	1,271	1,398.1	1,118.5
Intermediate products	do.	103	N.A.	85	93.5	74.8
Wine, average 11 percent alcohol	do.	58	N.A.	17	18.7	9.35
Sparkling wine	do.	n.a.	N.A.	30	33	16.5
Beer, average 12,5 plato	do.	22.5	N.A.	17	18.7	9.35
Petroleum products:						
Leaded petrol and medium oils used as propellants	ECU per 1,000 l.	340	336	340	Not yet set 5/	337
Unleaded petrol	do.	n.a.	n.a.	310	Not yet set 5/	287
Liquified petroleum gas (LPG)	do.	85	61	85	Not yet set 5/	84.5
Diesel fuel	do.	153	177	177	Not yet set 5/	195-205
Heating gas oil and medium oils not used as propellants	do.	62	50	50	Not yet set 5/	47-53
Heavy fuel oil	ECU per metric ton	26	17	17	Not yet set 5/	16-18
Cigarettes:						
Specific excise duty	ECU per 1,000	19.5	N.A.	19.5	21.5	15
Ad valorem duty plus VAT	Percent of retail price	53	N.A.	52-54	54	≥ 45 6/
Other manuf. tobacco:						
Cigars and cigarillos	do.	35	N.A.	34-36	36	≥ 25 6/
Smoking tobacco	do.	55	N.A.	54-56	56	≥ 50 6/
Other	do.	42	N.A.	41-43	43	≥ 37 6/

n.a. = Not available.
N.A. = Not applicable.
1/ As of January 1, 1987.
2/ Target rates for alcoholic drinks and manufactured tobaccos are slightly greater than the rates proposed in 1987, to be consistent with the EC Commission's policy on health matters.
3/ As of January 1, 1993.
4/ The tax on distilled spirits is applied on each hectoliter of pure alchohol contained in the spirits, while the taxes on other alcoholic beverages are applied on each hectoliter of product.
5/ Target rates for petroleum products should be proposed by the EC Commission before December 31, 1992.
6/ Minimum rates are still under discussion, but will be at least the rates shown (e.g., at least 45 percent for cigarettes).
Sources: EC Commission, DOC COM (87) 320 final 1987; DOC COM (89) 525 final 1989; DOC COM (89) 526 final 1989; DOC COM (89) 527 final 1989.

This is the case, for example, in France. To minimize budgetary losses, France should choose VAT rates near the top of both ranges. But since Germany is likely to choose low rates, France could opt for more-moderate VAT rates and consequently suffer from less trade diversion combined with more budgetary losses. The outcome of political bargaining is difficult to predict precisely, as each member state will have to choose rates that provide an acceptable tradeoff between budget revenue changes and trade distortion.

According to the EC Commission, Belgium, Italy, and the Netherlands will probably get similar revenues from VAT and excise duty rates after 1992. Ireland and Denmark will likely suffer a significant budgetary loss, while France could suffer a slight budgetary loss. The remaining six countries are predicted to obtain small increments in budgetary receipts (Germany, the United Kingdom, and Greece) or substantial increases (Luxembourg, Spain, and Portugal).

Table 4 summarizes the conclusions of several studies that estimate the VAT revenue changes and the excise duty revenue changes that would result from applying the 1987 EC Commission proposal. Except in Denmark and Ireland, changes in total fiscal receipts are projected to be relatively small. (The actual effects may turn out to be even smaller, since these projections assume a complete equalization of excise duty rates, which is no longer required.) These estimates do not take into account the effects of changes in demand due to price movements, growth in income resulting from European integration, or possible measures to compensate adversely affected groups.

Another study (OFCE, 1990) examined the macroeconomic consequences of various scenarios of harmonization. The scenario presented in table 5 assumes that VAT rates would be fully equalized at the weighted average level actually prevailing in 1987. The same total VAT receipts would thus be redistributed across the EC member states. (This scenario does not assume changes in excise duty rates.) The budgetary consequences of full harmonization are much larger than for partial VAT harmonization: France would lose 12.5 billion ECU, the UK would gain 4 billion ECU, and Germany would gain 4.5 billion ECU. If excise duties on petroleum products were also equalized, these effects would be amplified.

In the VAT-rate equalization scenario depicted in table 5, the macroeconomic effects are positive, as inflation slows down and the European gross national product (GNP) gains 0.6 percent after 4 years. France's growth is enhanced, but its external balance deteriorates further. Italy and the UK lose growth, due to increased inflation rates. Germany copes with price increases and further improves its external balance. Such an extreme scenario is not very likely, however, because of the budget consequences. In an alternative scenario where increased income taxes offset VAT losses, fiscal harmonization would provide negligible growth benefits. These macroeconomic scenarios do not include the long-run consequences of the single market, such as the benefits from increased competition and returns to scale, which are difficult to quantify.

Table 4--Estimated budgetary effects of partial VAT and full excise duty harmonization, according to EC Commission's 1987 proposals

Country	Effect of VAT change	Effect of excise duty change	Total change	Change in all fiscal receipts
	Billion ECU			*Percent*
Belgium	-0.4	0.9	0.6	1.1
Denmark	-2.5	-.8	-3.3	-8.0
France	-2.2 to -4.6	-.1	-2.3 to -4.7	-.7 to -1.4
Germany	-1.9	3.4	1.5	.4
Ireland	n.a.	n.a.	-.4	-4.0
Italy	6.0	-3.0	3.0	1.4
Netherlands	-.3	.5	.2	.2
United Kingdom	4.6	-3.2	1.4	.6

n.a. = Not available.
Source: Quoted in "Vers une fiscalité européenne," Observations et Diagnostics Economiques, No. 31, tableau no. 9, p. 169, Avril 1990.

Table 5--Estimated budgetary effects of VAT equalization at 1987 weighted-average level

Country	Weighted-average VAT rate in 1987	Deviation from EC-12 average	Change in receipts from tax equalization
	------- *Percent* -------		*Million ECU*
Belgium	7.5	0.8	-881
Denmark	10.0	3.3	-2,857
France	8.4	1.6	-12,534
Germany	6.2	-.5	4,573
Greece	7.5	.8	-343
Ireland	8.6	1.9	-453
Italy	5.6	-1.1	7,269
Luxembourg	6.8	.1	-5
Netherlands	8.1	1.4	-2,571
Portugal	6.2	-.5	180
Spain	5.3	-1.4	3,574
United Kingdom	6.0	-.7	4,048
Total EC-12	6.7	0	0

Source: "Vers une fiscalité européenne," Observations et Diagnostics Economiques, No. 31, tableau no. 11, p. 177, Avril 1990.

VAT and European Agriculture: Current Discrepancies and Harmonization Prospects

The Current Discrepancies in Rates and Regimes

The VAT systems implemented in the various EC member states exhibit considerable differences in: (1) the tax rates applied to agricultural inputs and outputs; (2) the list of inputs that are exempt from VAT; and (3) the choice offered to farmers in some countries of substituting a flat-rate tax regime for the normal VAT regime.

VAT Rates on Agricultural Inputs

The 1989 VAT rates applicable to agricultural inputs in the various EC countries differ considerably (table 6). Denmark applies a single rate of 22 percent on all inputs, with transactions involving land and real estate being exempt. In some countries (Germany, the Netherlands, Portugal, Ireland, and Luxembourg), a two-tier system is applied using a reduced rate and a normal rate. For example, in Germany a reduced rate of 7 percent is applied to inputs of agricultural origin, and a normal rate of 14 percent is applied to inputs of industrial origin. A similar distinction between agricultural and industrial inputs can be found in several other countries that operate a two-tier system. The detailed implementation of the rules varies. Thus, fertilizers are taxed at a normal rate in Germany and Spain, taxed at a reduced rate in Greece, the Netherlands, and Luxembourg, and not taxed in Ireland and Portugal. Four countries (Belgium, France, Greece, and Italy) operate a multiple-tier system. Three rates, for example, are applied in France: a normal rate of 7 percent for most inputs, a reduced rate of 5.5 percent for nonprocessed agricultural products and custom work under contract, and a higher rate of 18.6 percent for energy, lubricants, materials and small tools, and maintenance and repairs. Finally, three member states (Ireland, Portugal, and the United Kingdom) do not tax numerous agricultural inputs.

VAT for Agricultural Outputs

Insofar as farmers are not final consumers, but purchase goods and services for further processing, the VAT should, in principle, be neutral. That is, VAT should place no fiscal burden on farmers. This neutrality applies for the normal or standard VAT system. In this regime, farmers register as VAT payers, and deduct the amount of tax paid on purchases of intermediate inputs and capital goods from the amount of VAT they collect on sales.

In the alternative system, farmers receive a flat-rate compensation for VAT paid on purchases. In France, farmers sell their products exclusive of VAT and receive a refund from the treasury in compensation for the VAT paid on inputs, calculated as a flat-rate percentage of sales. In seven other EC countries,

Table 6--Value-added tax (VAT) rates on EC agricultural inputs, January 1, 1989 1/

Country	Seeds and plants	Livestock and animal products	Heating fuel	Motor fuel and lubricants	Elec-tricity	Fertilizer 2/	Pesticides and herbicides	Pharma-ceuticals	Feedstuffs	Tools and materials	Maintenance and repairs	Services
							Percent					
Belgium	6	6	6 or 17 3/	17 or 25 4/	19	6	19	6	6	19	17	6
Denmark	22	22	22	22	22	22	22	22	22	22	22	22
France	7	5.5	18.6	18.6 5/	18.6	7	7	7	7	18.6	18.6	5.5 or 18.6 6/
Germany	7	7	14	14	14	14	14	14	7	14	14	7 or 14 7/
Greece	6	6	16	16 or 36 8/	16	6	6	6	6	16	16	6
Ireland	0	0	10	10 or 25 9/	0	0	25	0 or 25 10/	0	25	10	10 or 25 11/
Italy	10	10	8	8	18	2	8	8	2 or 10 12/	18	18	0 or 18 13/
Luxembourg	6	6	12	12	6	6	12	12	6	12	12	6 or 12 14/
Netherlands	6	6	19	19	19	6	6	6	6	19	19	6 or 19 15/
Portugal	0	0	8	8	8	0	0	0	0	0	17	17
Spain	6	6	12	12	12	12	12	6	6	12	12	12
United Kingdom	0	0	0	0 or 15 16/	0	15	15	15	0	15	15	15

1/ Exempt inputs (shown here as zero VAT rates): Belgium and Greece - purchase and tenancy of land; Denmark - purchase of land and buildings; Germany - purchase and tenancy of farmland; Italy - agriculture loans, rural leases, and veterinary services; Netherlands - veterinary services, telecommunications, indemnity insurance, and purchase, renting, and tenancy of immovable property (except sale by builder); Portugal - fertilizer and crop-protection products, animal feedstuffs and seeds, animals, machinery, equipment, and tractors, and veterinary services; United Kingdom - interest-relief grants on purchase and rental of land, insurance, and financial costs.

2/ Also includes soil-conditioning products, such as lime.

3/ Coal (solid fuel) - 6 percent; other - 17 percent.

4/ Road diesel - 25 percent; other - 17 percent.

5/ In the normal VAT regime, only half of a farmer's tax expenditures on motor fuel and lubricants are deductible from the VAT paid on farm output.

6/ Work under contract - 5.5 percent; other - 18.6 percent.

7/ Agricultural services - 7 percent; nonagricultural services - 14 percent.

8/ Lubricants - 16 percent; motor fuel - 36 percent.

9/ Diesel for tractor - 10 percent; other diesel, petrol, and lubricants - 25 percent.

10/ Oral medicines - 0; other - 25 percent.

11/ Transport, storage, and hire of equipment - 25 percent; other - 10 percent.

12/ Feedstuffs of vegetable origin - 2 percent; feedstuffs of animal origin - 10 percent.

13/ Veterinary services - 0; other services - 18 percent.

14/ Cultivation, harvesting, and veterinary services - 6 percent; transport - 12 percent.

15/ Transport services - 19 percent; other - 6 percent.

16/ Power fuels - 0; road diesel, petrol, and lubricants - 15 percent.

Source: EC Commission, The Agricultural Situation in the Community, 1989 Report.

including Germany, farmers collect a VAT from buyers at a set rate, which varies by commodity and country. In principle, the VAT rate for each agricultural product is calibrated to compensate farmers for the average VAT paid on inputs for that commodity.1/ Four EC countries (Denmark, Greece, Portugal, and the UK) have never implemented a flat-rate scheme. In the remaining countries, farmers are allowed to choose between the two systems.

Table 7 shows the 1989 VAT rates for agricultural outputs in both normal and flat-rate regimes, and table 8 shows the share of production under each scheme in France, Germany, and the Netherlands in 1983. The highest flat-rate compensation levels are in Germany (11 percent for most products), Italy (12 percent for cattle, pigs, and raw milk, but only 2 to 8 percent for other products), and the Netherlands (a rate equivalent to 5.4 percent).

In Germany, the flat rate applicable to most products rose from 7.5 percent to 8 percent in January 1984, and increased from 8 percent to 13 percent in July 1984, to compensate for the reduction of monetary compensatory amounts (MCA's). The flat rate was reduced from 13 percent to 11 percent in January 1989, but direct payments of nearly 100 deutsche mark (DM) per hectare have been granted in compensation. Instead of increasing flat-rate rebates on agricultural outputs, the Dutch Government has preferred to decrease the VAT paid on agricultural inputs by exempting from the VAT most services and investments in buildings. By contrast, the current flat rate in France is small (2.55 percent for vegetable products and 3.65 percent for animal products). Not surprisingly, few French farmers choose to participate in that country's flat-rate scheme, and only a small portion of farm output—less than 10 percent in 1989—is now subject to this regime.

The Prospects for VAT Harmonization in Agriculture

The EC Commission has formed proposals for classifying products subject to reduced or normal rates, and for the amounts of VAT rates (with some flexibility, and thus some uncertainty about their precise levels). But, implementation of the Commission's proposals in the agricultural sector is uncertain.

1/ The tax incidence (that is, who actually bears the tax burden) is not always clear. As long as farmers sell their products at a fixed price guaranteed by intervention buying, consumers have to pay the tax surcharge. For products where an active public storage policy does not maintain an intervention price, the VAT surcharge may lower the equilibrium market price, so that farmers in effect bear some of the cost of the VAT.

The final choice of the rate applicable to agricultural inputs will not be made before the end of 1991. All member states except the UK agree that agricultural outputs should be taxed at the reduced rate and, therefore, that a reduced rate should be applied to agricultural inputs too. The UK wants to maintain a zero rate on both agricultural outputs and inputs. On the other hand, the UK does not want to decrease excise duty rates, which are relatively high in that country (especially for alcoholic beverages). An eventual reduction of excise duty revenues might help motivate the UK to reduce its opposition to agricultural taxation.

In table 9, we present a possible classification of agricultural inputs between the two rates along the lines currently discussed. In preparing this table, we sorted inputs into three classes:

- Inputs of agricultural origin — seeds and plants, feedstuffs, and livestock and animal products, all taxed at the reduced rate;
- Inputs of industrial origin — pesticides and herbicides, small tools and materials, and maintenance and repairs, all taxed at the normal rate; and
- Other inputs — energy, fertilizers, pharmaceutical products, services, and other inputs, where the choice of rate is still unclear.

Environmental considerations may cause some member countries to choose a normal rate for chemical fertilizers but a reduced rate for organic fertilizers. Among energy products, heating fuels will probably be taxed at a reduced rate due to social considerations, while motor fuels, electricity, and lubricants are taxed at a normal rate due to environmental considerations. Member states seem to agree that as a general rule, agricultural inputs should be taxed at a reduced rate.

The Economic Effects of Indirect Tax Regimes on European Agriculture

Indirect tax harmonization in agriculture does not matter so much because of its macroeconomic implications (which are small), but instead because of its potential distorting effects on food consumption patterns, the input and output mix, farm income support, and intra-EC trade.

In principle, changes in VAT rates affect only consumers and VAT-exempt professionals. If VAT rates on food and farm products are harmonized toward

the reduced-rate band, the food basket should cost less in Denmark and more in the UK (at least if the UK is willing to compromise its position on zero VAT rates). The effects on consumption levels should be limited, except for commodities with unusually price-elastic demand. However, as the VAT rate is the same for all food items, little substitution between food products should take place, and aggregate demand response should be minimal in high-income countries.

Different VAT rates in neighboring countries, within the band that the EC Commission suggested, are not likely to divert trade in agricultural products as much as in industrial products (such as cars and appliances),

Table 7--Value-added tax (VAT) rates on EC agricultural output, by member country, January 1, 1989

Country	Commodity	Tax regime: Normal rate	Tax regime: Flat rate
		Percent	
Belgium	Flowers	19.00	19.00
	Other products	6.00	6.00
Denmark	All products	22.00	N.A.
France	Wine	18.60	2.55
	Other vegetable products	5.50	2.55
	All livestock products	5.50	3.65
	Products sold through a producers' group:		
	Fruit, vegetables, and wine	N.A.	3.05
	Pigs, eggs, and poultry	N.A.	.85
Germany	Wine, must, beverages, and services	14.00	14.00
	Other products	7.00	11.00
Greece	All products	6.00	N.A.
Ireland	Livestock, beef, pork, and sheep	1.40	1.40
	Other livestock	25.00	1.40
	Other agricultural products	0	1.40
Italy	Cereals, paddy rice, fresh and dried vegetables, potatoes, fresh and dried fruit, oilseeds for edible oil, butter, cheese, and other milk products	2.00	2.00
	Wine and eggs	8.00	8.00
	Must	8.00	2.00
	Cattle	20.00	12.00
	Pigs	15.00	12.00
	Raw milk	18.00	12.00
	Other products	10.00	2.00
Luxembourg	Most products and services	6.00	6.00
Netherlands	Most products	6.00	5.40 1/
Portugal	Flowers	16.00	N.A.
	All other agricultural products	0	N.A.
Spain	Wine	12.00	N.A.
	Products for animal feed:		
	Not processed on the holding	6.00	4.00
	Processed on the holding	6.00	N.A.
	Products not for human or animal consumption:		
	Not processed on the holding	12.00	4.00
	Processed on the holding	12.00	4.00
United Kingdom	Products for human or animal consumption	0	N.A.
	Other products	15.00	N.A.

N.A. = Not applicable.

1/ The rate of 5.71 percent on the price gross of VAT is equivalent to a rate of 5.40 percent on the price net of VAT.

Source: EC Commission, The Agricultural Situation in the Community, 1989 Report.

Table 8--The flat-rate tax regime in France, Germany, and the Netherlands, 1983

Country	Compensation method	Tax rate	Participating farmers	Share of production
		Percent	*Number*	*Percent*
France	Refund	2.4-4.7	600,000 1/	33
Germany	Prices	5.0-7.5	n.a.	96
Netherlands	Prices	4.5 2/	22,000	87

n.a. = Not available.
1/ Represents 50 percent of French farmers.
2/ The 1983 tax rate of 4.71 percent on the price gross of VAT is equivalent to a rate of 4.5 percent on the price net of VAT.
Sources: EC Commission, The Agricultural Situation in the Community, 1989 Report; COM (83) 435 final 1983.

because of transport costs. It is hard to imagine the French shopping for food in Britain, even with the Channel tunnel. Food products are too bulky and perishable for much trade diversion to occur. There are probable exceptions: fancy foods, gastronomic items, and alcoholic beverages can easily be sold by mail.

This is one of the reasons why the EC Commission advocated a strict uniformity of excise duties in its 1987 proposal, although the Commission has shown some flexibility in its more recent proposals. Thus, wine-producing countries in southern Europe will have to increase their excise taxes on alcoholic beverages including wine, which will reduce its consumption. Conversely, northern member countries, which now heavily tax wines (except for Germany), should see wine consumption grow significantly.

Wide differences in excise rates are not likely to last forever in a border-free Europe, because of trade diversion. Harmonization through market forces will eventually compel legal harmonization.

VAT reform will affect farmers only because of the special flat-rate regimes allowed in eight EC countries. For farmers participating in flat-rate plans, the tax-inclusive price of inputs matters, since they do not receive VAT refunds on specific items. For these farmers, VAT rates distort:

- Incomes, as the flat-rate system may over- or under-compensate the VAT actually paid on inputs;
- Relative costs of inputs, which will be significantly altered in some countries (for example, after harmonization, French, and especially Dutch, farmers will use less fertilizers, while Danish farmers will use more inputs of agricultural origin);
- Production and trade volumes, since changes in output/input price ratios should trigger at least some supply response; and
- Output mixes, as harmonization of the multiple flat rates in some countries will reduce the extent to which different agricultural products are subsidized unequally.

In principle, the flat-rate regimes are designed to offset the VAT paid on purchases of agricultural inputs. The political choice of high flat-rate rebates (particularly in Germany and Italy) nonetheless constitutes a real subsidy to farmers. Conversely, where the flat-rate refunds are low (as in France), farmers participating in the scheme pay a net tax on value added. Furthermore, some French farmers eligible for the flat-rate scheme do not even request the reimbursement of VAT (perhaps because of difficulties with the paperwork required for a small reward), and are further penalized. Divergent flat rates are also used to promote some products, such as wine in Germany and beef in Italy.

According to the German Ministry of Agriculture, the subsidy created by the 5-point flat-rate increase in 1984 had attained a value of 7,500 DM per full-time farm in 1988. A study prepared by J.M. Coutel for the Société des Agriculteurs de France, based on data from the 1986 Farm Accountancy Data Network, suggested that the average subsidy was even larger in the Netherlands than in Germany on a per-hectare basis (table 10).

A flat-rate rebate at a fixed percentage is less favorable if taxed inputs purchases amount to a larger share of output value. The neutral point, that is the flat rate on output that exactly offsets the VAT paid on inputs, can be calculated according to the following formula:

$$t^* = \frac{\sum_{j=1}^{n} x_j w_j t_j}{\sum_{i=1}^{m} y_i p_i}$$

where:

t^* is the neutral flat rate;

$x = (x_1, \ldots, x_n)$ is the vector of input quantities (intermediate consumption and gross fixed capital formation);

$w = (w_1, \ldots, w_n)$ is the vector of input prices, excluding VAT;

$t = (t_1, \ldots, t_n)$ is the vector of corresponding VAT rates;

$y = (y_1, \ldots, y_m)$ is the vector of output quantities; and

$p = (p_1, \ldots, p_m)$ is the vector of output prices, excluding VAT.

Neutral points were calculated for four countries (France, Germany, Italy, and the Netherlands), using the Economic Accounts for Agriculture in 1988. These points are compared with the flat-rate rebates in effect in 1988 (table 11). By these calculations, the flat-rate system was more attractive in Germany than in the other three countries. Even though the flat-rate rebate for most products was reduced from 13 percent to 11 percent in 1989, the German flat-rate regime remains attractive. In the Netherlands, the flat-rate system gave only a small percentage of subsidy.

The aggregate value of this subsidy was 108 million ECU in the Netherlands, versus 740 million ECU in Germany, in 1988. In France, the flat-rate rebate was particularly low, compared with the 8.66 percent neutral rate. And in Italy, the neutral rate of 7.03 percent in 1988 was greater than the average flat-rate rebate (5.75 percent). The Italian flat-rate regime was attractive for cattle, pig, and milk producers in 1988, mainly because a low rate on feed inputs of vegetable origin (2 percent) combined with a high flat-rate rebate on animal product outputs (14 percent). Even though this rebate dropped to 12 percent in 1989, the flat-rate regime remains attractive for Italian livestock farmers.

These estimates are consistent with the revealed behavior of farmers in the various member states.

Table 9--Possible classification of agricultural inputs between reduced and normal rates after 1992

Inputs	Reduced rate	Normal rate
Seeds and plants	Yes	-
Livestock and animal products	Yes	-
Heating fuel	Yes	-
Motor fuel and other energy	-	Yes
Lubricants	-	Yes
Fertilizer	-	Yes
Pesticides and herbicides	-	Yes
Pharmaceutical products	Yes	-
Feedstuffs	Yes	-
Small tools and materials	-	Yes
Maintenance and repairs	-	Yes
Services	-	Yes
Other	-	Yes

Source: Authors' estimates.

Nearly all producers chose the flat-rate regime in the Netherlands and Germany but the standard regime in France, as one would expect them to do to capture the benefits of the system best suited to their case.

Neutral points corresponding to the proposed levels for harmonized VAT rates were calculated for the three countries where the flat-rate system seems favorable, assuming a likely classification of agricultural inputs between normal and reduced rates (table 9), and assuming regular and reduced VAT rates of 14 percent and 7 percent in Germany, 19 percent and 9 percent in Italy, and 19 percent and 6 percent in the Netherlands. Based on 1988 input usage patterns, projected neutral rates would slightly decline from 8.26 percent to 8.12 percent in Germany, rise from 7.03 percent to 9.29 percent in Italy, and rise from 4.96 percent to 7.74 percent in the Netherlands.

The neutral point would increase in Italy mainly because of projected VAT rate hikes on fertilizers (from 2 percent to 19 percent) and on feedstuffs of vegetable origin (from 2 percent to 9 percent). In the Netherlands, the neutral point would rise sharply because the rate applied to farm machinery is projected to increase from 6 percent to 19 percent, and because farm buildings, which are now exempt, would also be taxed at a normal rate of 19 percent. Italian and Dutch farmers are expected to switch to the normal regime if the current flat rates are maintained, making the flat-rate system less attractive. In Germany, the projected

Table 10--Effects of value-added taxes (VAT) on farm income for selected countries, by type of farm, 1986

Country 1/	All farms	Dairy farms	Cow-calf farms	Mixed farming	Mixed farming and breeding
			French francs per hectare		
France	-91	n.a.	n.a.	n.a.	n.a.
United Kingdom	0	0	0	0	0
Italy	157	249	290	-26	243
Germany	609	615	438	414	221
Netherlands	901	726	1,883	246	803

n.a. = Not available.
1/ Listed by size of subsidy, lowest to highest.
Sources: Farm Accountancy Data Network; and J.M. Coutel, "Fiscalité et compétitivité, TVA: le handicap des agriculteurs français," Les Agriculteurs de France, Vol. 37, pp. 12-15, Oct. 1989.

Table 11--Neutral and flat-rate tax rebates for selected member countries, 1988

Country	Neutral rebate	Flat-rate rebate
	Percent	
France		
Individual producers	8.66	2.55-3.65
Producers' groups	n.a.	0.85-3.05
Germany	8.26	13-14 1/
Italy	7.03	2-14 2/
Netherlands	4.96	5.4 3/

n.a. = Not available.
1/ Fourteen percent for wine, must, and beverages; 13 percent for other products.
2/ Fourteen percent for cattle, pigs, and raw milk.
3/ The rate of 5.71 percent on the price gross of VAT is equivalent to a rate of 5.4 percent on the price net of VAT.
Source: Authors' estimates, based on Eurostat, Economic Accounts for Agriculture, 1988.

new neutral point is nearly equal to the old (8.12 against 8.26), and remains well below the 11 percent flat-rate that is being applied in 1991.

To sum up, German farmers, and to a lesser extent Dutch farmers and Italian livestock producers, benefit from the current flat-rate system. After the contemplated harmonization, German farmers' situations would remain essentially unchanged, but most Dutch and Italian farmers should switch to the normal VAT system, assuming that the flat-rate rebates in the Netherlands and Italy are kept at their present levels.

Conclusions

The move to the single European market requires the removal of customs controls and, therefore, of fiscal barriers. The EC Commission has proposed a harmonization of VAT and excise duty rates to reduce the perverse effects of rate discrepancies on intra-EC trade. The budget implications of harmonization are likely to be significant for several countries.

In the agricultural sector, VAT rates and tax regimes differ significantly among countries. The special flat-rate options available to farmers in eight EC countries have distorting effects on input mixes, input-output price ratios, and incomes. German farmers are the main beneficiaries of both the current and the contemplated tax structures. Unless farmers in the Netherlands and Italy receive an increase in the flat rate to maintain their current fiscal advantages, they are likely to switch to the neutral, regular VAT regime when harmonized VAT rates go into effect in 1993.

Excise duty harmonization should have a particularly large effect on alcoholic beverages, whose excise duty rates differ widely across Europe. Harmonization would mean cheaper wine in the north and more expensive alcoholic beverages in the south, with probable consequences for consumption patterns.

The VAT system in agriculture should not be considered independently from the other agricultural and economic policy measures that contribute to distorted competition in internal European markets. The factors that allowed farmers in some countries to obtain a special regime will continue to operate. Farmers will resist tax reforms that are adverse to

their interests. When such tax reforms are imposed as part of the general harmonization of the EC economy, agricultural interest groups will likely be able to muster the political strength to obtain some new forms of special compensation. Building a unified market in Europe will require a long-run effort. But as economic integration progresses, it will contribute to disciplined national policies in the EC member states.

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EC 1992 Harmonization: Issues for Agricultural Trade

David Kelch*
Ruth Elleson

Abstract

The EC has embarked on an ambitious program to eliminate internal borders that will require EC-wide rules to replace national rules in the sensitive areas of public, animal, and plant health. This harmonization process is politically and technically complex and will not be fully complete by the time frontier controls are eliminated on January 1, 1993. Uncertainty regarding the import of non-EC goods could be a problem in the short-term and in certain sensitive areas where the EC's approach to food safety differs from its trading partners. However, exporters who can meet EC standards will probably receive long-term benefits because they will have to meet only one standard instead of standards for each of the 12 member states.

Introduction

The European Community (EC) is faced with the monumental and necessary task of setting standards and procedures for regulating the production and trade of nearly all EC food and agricultural goods by January 1, 1993. The elimination of all internal EC border controls by the end of 1992 makes this harmonization effort necessary. Among the 282 directives identified in 1985 as necessary to complete the EC's single market, establishing the 100 or so directives affecting plant, animal, and public health in 12 sovereign democratic nations is expected to be the most difficult task. Progress has been sufficiently rapid to speculate that internal borders will indeed be abolished by January 1, 1993, but many questions regarding the internal movement of EC food and agricultural products, as well as imports from third countries, will not be fully resolved by then.

The harmonization process should result in the usual trade diversion and trade creation flows associated with deepening economic integration within a customs union. However, non-EC countries with standards and procedures similar to those in the EC will likely have greater access to the EC market than previously, because they will have to meet only one set of standards and regulations. Other countries will lose EC markets when EC-wide standards and regulations are set at stricter levels than those currently prevailing in the specific markets they serve. The logical outcome of the process is that the EC is effectively setting European-wide standards through the EC 1992 harmonization process, because the EC dominates the region economically, and countries trading with the EC will readily adopt EC standards. In the absence of a GATT agreement, EC standards and procedures could become de facto world standards, because the EC is the world's largest importer of food and agricultural products.

Harmonization of Rules and Regulations Affecting Food and Agriculture

At the stroke of midnight on December 31, 1992, kings, queens, EC heads of state, ministers, EC executives, and mayors of border towns will cut celebratory ribbons to symbolically eliminate all internal EC borders so that all goods, services, capital, and people can move unhindered by physical, fiscal, or technical barriers. After copious amounts of toasting into the night, many Europeans will suffer the inevitable hangover that EC 1992 will bring.

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EC and national politicians have promoted the EC 1992 program, and pressure by commercial interests to complete the harmonization process on time has injected a sense of urgency in the process (Josling, 1989). The Treaty of Rome in 1957 set the goal of EC economic integration, and the implementation of 282 EC directives by the end of 1992 will complete the most recent phase of that promise. While all of the original EC 1992 directives will have been passed and even accepted by EC member states, many of the essential details will remain for EC regional regulatory bodies to complete. Also, implementation and application of EC laws at national levels will probably be uneven and confusing. This confusion will exist for both companies in EC member states and exporters to the EC, and will continue beyond 1993.

More than 100 of the directives are in the sanitary, phytosanitary, or food safety areas (see box, page 3). These directives have proven to be the most difficult to implement because they involve issues that have been particularly contentious since the inception of the EC. However, the political will to overcome the obstacles has continually surfaced to tackle what in the past would have been insurmountable technical and political difficulties. This has occurred in spite of the rule of unanimity required to propose and adopt directives in these sensitive areas.

EC 1992 Directives: From Proposals to National Application

The EC 1992 harmonization process is made up largely of the legislative process required to proclaim an EC Commission proposal into national law (fig. 1). The EC Commission is generally responsible for drafting the proposal that the Council of Ministers and the European Parliament must approve and, upon approval, each member state must implement into national law.1/ The process includes consultations with member-state advisory groups and the relevant industry, as well as with public and private regional and EC scientific bodies. While the process is cumbersome, the political and commercial momentum that has been created in the last 2 years has virtually guaranteed its success.

1/ This a brief description of the consultative procedure used. A cooperative procedure is used when proposals covering sensitive areas are under consideration. The cooperative procedure is more complex and involves more Council and European Parliament deliberation. If the proposal for an EC regulation is adopted, it becomes national law directly, whereas, a directive may be implemented by different methods in member states as long as the result is the same.

The key to the success of the EC 1992 program to date has been the various methodologies created to streamline the seemingly impossible harmonizing of thousands of rules and regulations that differ from one member state to another because of varying climates, political systems, economies, technical capacity, histories, and other factors. Because of the technical complexity and political sensitivity of the task, the EC amended the Treaty of Rome to streamline as much as possible the promulgation of an EC directive. The legislative process was simplified by replacing unanimity with qualified majority voting in adoption of many EC 1992 directives. However, most of the directives concerning health measures require a unanimous vote.

The basic approach to the harmonization process was set by Lord Cockfield, head of the internal market in the early 1980's, who asked the following three questions when given the task of completing the internal market: Where are we now? Where are we going? How do we get there? Lord Cockfield and his staff subsequently published an EC White Paper, which listed the roughly 300 directives (later reduced to 282) that, if implemented by all member states, would allow the 12 EC member states to eliminate all internal borders.

Prior to 1985, the EC took an average of 3 years to draft and implement a directive. Some of the directives passed as a result of the 1992 impetus had been tabled 20 years ago, such as company tax law. An astonishing number of directives were passed and adopted in 1989, but a slowdown occurred in 1990, and time will be particularly short in 1992 (See appendix I for a listing and brief summary of most of the directives related to food and agriculture). If amendments to directives and directives designed to implement approved directives are counted separately, the EC would have had to implement an EC directive every day until December 31, 1992, to meet the 1992 deadline. By that count, there were more than 800 directives remaining for implementation in November 1990.

The 282 original directives are often stated in general terms and frequently set forth only the desired outcomes. Hundreds of supporting directives will be needed to achieve these goals. The technical aspects to achieve essential requirements and the mechanisms to establish conformity are left to regional standards-making bodies (U.S International Trade Commission, July 1989). For example, the EC Council has approved a directive to establish maximum levels of pesticide residue levels for many agricultural product groupings. The relevant standard-making body must now begin establishing residue tolerance levels for each category.

Sanitary and Phytosanitary and Food Safety Policy Areas Affected by EC 1992 Directives

Animal health:

Eradication of classical swine fever

Eradication of African swine fever in Spain, Portugal, and Sardinia

Eradication of brucellosis, tuberculosis, and leukosis in cattle, sheep, and goats

Eradication of pleuropneumonia in Portugal

Control of foot-and-mouth disease

Control of rabies

Purebred breeds of cattle, sheep, and goats

Standards for porcine species

Semen of cattle and pigs

Embryos of farm animals

Trade in horses

Veterinary checks in intro-EC trade

Mutual assistance between national veterinary services

Residues of veterinary medicinal products

Expenditures in the veterinary field

Animal feedstuffs:

Additives

Pesticide residues

Compound feedstuffs

Medicated feedstuffs

Meat and meat products:

Health and veterinary inspection of third-country imports

Health problems affecting intra-EC trade

Microbiological controls of meats

Minced meat and other meat products

Antibiotic residues

Medical examination of personnel

Other animal products:

Production and trade in milk

Pesticide residues in products of animal origin

Hygiene and health problems of egg marketing

Plant health:

Prohibition of certain plant protection products

Pesticide residues in cereals

Harmful organisms in seeds and seed potatoes

Organisms harmful to plants and plant products

Certification of seeds

Food law:

Individual products: jams, frozen foods, health foods, fruit juices, and coffee extracts

Additives: antioxidants, colorings, emulsifiers, preservatives, and thickeners

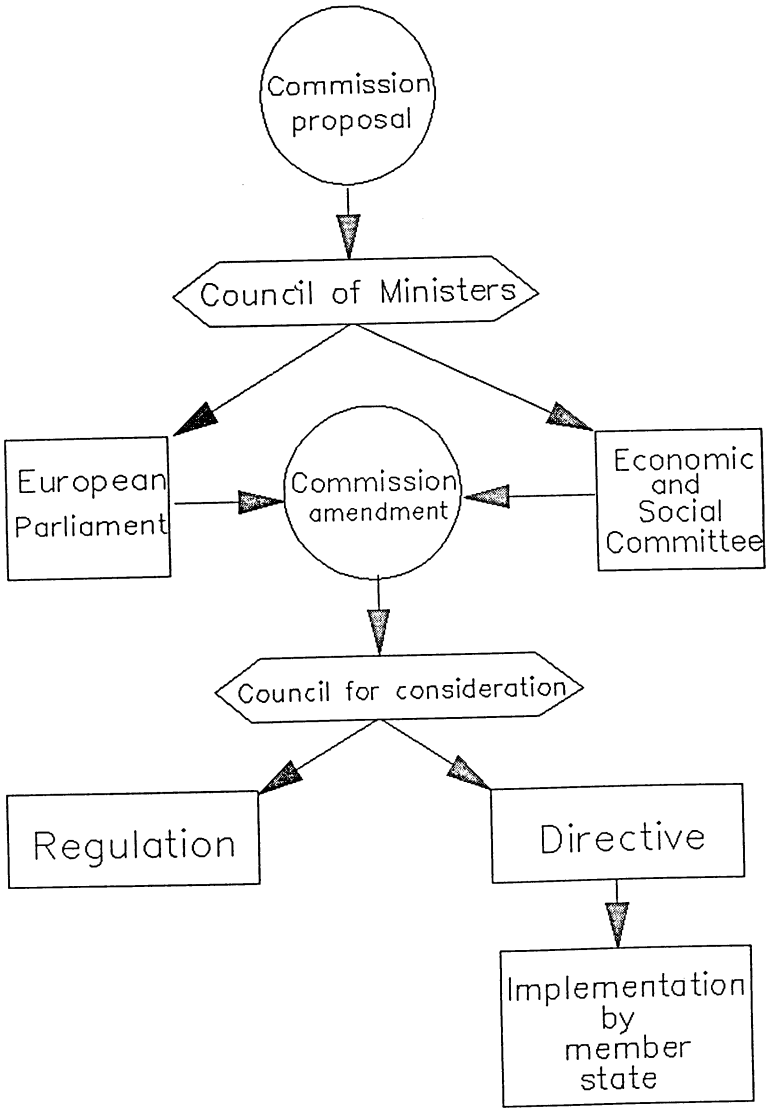
Materials and articles in contact with foods

Labeling, presentation, and advertising of foods

Sampling and methods of analysis

Source: Agra Europe, Ltd. CAP Monitor.

Figure 1
Legislative path of EC directives



The EC Commission, prior to drafting each directive proposal, held consultations with the industry involved, closely examined member state laws and regulations, and debated the various aspects of the issue. Most of the proposals were very difficult to amend once drafted, because the relevant industry in the EC had already been consulted and all 12 member states had debated the wording of the draft proposal. Nevertheless, the EC has proven to be somewhat flexible on some proposals and has revised proposed directives to accommodate both internal and non-EC countries' concerns. An example of this flexibility is a directive, which eventually was abandoned, that would have required detailed labeling of post-harvest pesticide treatment. Another directive that would have made detailed nutrition labeling mandatory was changed to a more reasonable voluntary nutritional labeling, except when nutritional claims are made.

All EC 1992 Directives Proposed, But Few Implemented

By April 1991, the EC Commission had proposed all 282 of the EC 1992 program directives, and the

Council had adopted nearly 200 (see box below). Adopted directives are sent to the member states for implementation. Directives are binding as a result to be achieved, but the form and method of implementation is left to member states. However, only 25 directives had been implemented by all member states as of April 1991. The EC Commission closely monitors national implementing legislation because trade barriers could be included. Application of the implementing laws by member states is also a concern of the EC Commission.

Implementation of EC directives has been a problem since the EC's inception, and special measures have been used to speed up the process. Italy lags in implementation and has even been forced to pass a law to expedite the backlog. On the other end of the spectrum, the Germans have assured the EC that German unification will not slow down the harmonization process, in spite of the administrative and environmental problems that the five new East German states face.

Various factors could lead member states to unevenly apply EC laws. Some directives will place some of the member countries at a disadvantage. Hence, disparate economic growth and unemployment rates between member states could result from implementation of some directives, which has led to fears of unwanted economic migration within the EC. Uneven respect for laws in general could distort the effects of the single market. For example: The French and Italians are accustomed to bypassing their national laws, and EC laws are viewed with even less respect; the British tend to adapt EC law to their own ends; Germans seem to fully follow the spirit and the letter of the law. Given the cultural and historical diversity of Europe, it is not surprising that an EC industry source believed that it could take two generations to truly implement the single market, even after border controls are removed (U.S. International Trade Commission, Mar. 1991, pp. 1-5).

Status of EC 1992 Directives on March 31, 1991

	Number
Directives in EC 1992	282
Directives proposed by EC Commission	282
Directives adopted by EC Council	187
Directives not adopted	95
Directives implemented by all member states	25

Share of adopted directives implemented as of October 1990, by member states:

	Percent
Belgium	69
Denmark	88
France	73
Germany	81
Greece	60
Ireland	69
Italy	41
Luxembourg	66
Netherlands	68
Portugal	80
Spain	74
United Kingdom	83

Source: U.S. International Trade Commission, 1992: The Effects of Greater Economic Integration Within the European Community on the United States, Mar. 1991.

Complexity Favors Large EC Companies

The complexity of incorporating an EC directive into national law favors large business firms. Industry frequently calls attention to the fact that a member state has not implemented or is not applying an approved directive, because industry normally has participated in the drafting of a proposal and has monitored its progress in anticipation of a change in the commercial environment. Small firms do not have the manpower or the budget to participate in the public debate of a proposal nor to monitor the implementation and application of a directive.

In spite of the technical and political complexity of the harmonization process, remarkable progress has been made in controversial areas. For example, EC member states have agreed to rely on either eradication or vaccination programs to control the spread of animal diseases (Forsythe and others, 1991). The type of program selected will depend on the disease and will be used by all 12 member states. Also, testing and certification of EC livestock products and EC plants will be done in a manner that will allow internal borders to be lifted without jeopardizing public health. Animal products will be tested and certified at production and consumption points rather than at borders. Plants will be accompanied by a passport, which can be inspected at any point in its journey, thus eliminating the need for internal borders.

This same treatment will not hold for third-country imports, although the principle of testing at source and destination could also be applied to international trade (Josling, 1990). The EC will continue to rely on its external borders for inspection purposes, in conjunction with EC inspection teams in non-EC countries. However, it appears that once an EC member state imports a product from outside the EC, the product can be sold anywhere in the EC (U.S. International Trade Commission, Mar. 1991, pp. 6-17.

When an EC member state imports a product, that product will have access to the entire EC market of 320 million people, and perhaps even more if one considers the future of Europe. This is an important development because the EC either has, or is developing, a special relationship with all other European countries that could lead to European wide acceptance of EC standards. A product imported into the EC would then have access to an affluent market of nearly a half billion people, with a significant number of consumers in Eastern Europe expected to enjoy high income growth in the coming decade (table 1). In the long term, the number could exceed 700 million if some of the populous republics of the U.S.S.R. adopt EC standards.

While agreement on EC-wide rules in the production and trade of food and agricultural products has been difficult, the EC's resolution of the mad cow controversy demonstrated the extent of political will to overcome the obstacles. The EC resolved the issue by accepting UK guarantees of the safety of its meat production measures. In the past, without the political will that EC 1992 created to resolve the issue, trade would have been severely disrupted for years.

Harmonization and Mutual Recognition

The EC intends to harmonize only in areas where there is genuine concern for public health, consumer safety, fairness of commercial transactions, and environmental protection (Commission of the European Communities, Oct. 1989b). The principle of mutual recognition drives this new approach to the harmonization process, whereby only essential rules are harmonized. Mutual recognition means that national standards will be recognized as legal in the absence of EC-wide rules. Thus, any good legally produced in the EC will then have access to all internal EC markets (Burns and Swinbank, 1991). It is not yet clear whether mutual recognition will be the guiding principle for EC imports. France has stated that invoking the principle of mutual recognition for third-country imports would be too dangerous, from a safety point of view.

Sanitary and phytosanitary questions (plant, animal, and public health) are excluded from the principle of mutual recognition because the EC Court of Justice considers the risks too great. Hence, harmonization of most sanitary and phytosanitary regulations is required. In most cases regarding sanitary, phytosanitary, and public health issues, the EC will require a unanimous vote.

Mutual recognition is expected to be a compelling reason for adoption of EC-wide standards, although some believe that mutual recognition could lead to even more fragmentation of markets (Burns and Swinbank, 1991). The principle of mutual recognition allows Germany to export 6-percent juice concentrate to Italy, which requires 12-percent juice concentrate from its producers. Many EC producers are concerned that neighboring countries with more- lax production standards will threaten domestic production. Countries such as France are particularly concerned that food quality will be at risk.

The harmonization of standards is not likely to add significantly to the protectionist walls that surround the EC, but testing and certification procedures may exacerbate EC protectionism. The major reason why standards are unlikely to significantly impede imports is that the EC is composed of member states with varying climates, and thus with different requirements for the protection of plants and animals. EC standards that are too strict would jeopardize production in some member states. For example, overly strict EC rules on pesticide residues would adversely affect farmers in the southern tier countries, because warm climates require heavier use of pesticides for adequate protection.

A Potential Threat: Testing and Certification

The potential for trade conflicts resulting from the EC harmonization program is more likely to surface in testing and certification procedures regarding conformity assessment. Third-country notified bodies, designated as such by member-state authorities to assess the conformance of products with EC directives, must be available for testing and certifying that the technical and quality standards of a product conform to EC standards. These notified bodies must be structured and operated to meet uniform and transparent standards of competence and conduct and will be the only entities authorized to perform required third-party testing to demonstrate compliance with EC requirements.

Contracting with EC notified bodies could be a solution, but could also be prohibitively expensive, particularly for small- and medium-sized firms that export to a small EC market. The EC has assured foreign

Table 1--Basic economic data for Europe, 1988

Region and country	Population 1/	GNP 2/	Per capita income	Grain area 3/	Grain production 3/	Meat production 2/
	Millions	*Billion US dollars*	*US dollars*	*Million acres*	*Million metric tons*	*Million metric tons*
Eastern Europe (EE):						
Poland	37.6	174	4,614	20.6	24.4	3.0
Yugoslavia	23.6	131	5,550	10.3	15.0	1.5
Romania	22.8	80	3,516	15.4	21.6	2.0
German Democratic Republic	16.6	158	9,502	5.9	9.9	2.2
Hungary	10.5	65	6,182	6.9	14.6	1.8
Czechoslovakia	15.5	121	7,808	6.3	11.8	1.6
Bulgaria	9.0	51	5,715	4.9	7.8	.9
Total EE	135.6	780	5,750	70.3	105.1	13.0
European Free Trade Association (EFTA):						
Austria	7.6	126.1	16,589	2.4	5.4	.7
Finland	4.9	104.5	21,106	3.0	2.8	.3
Iceland	.3	5.7	22,905	N.A.	N.A.	N.A.
Norway	4.2	87.4	20,802	.7	1.1	.3
Sweden	8.4	178.6	21,155	3.2	4.8	.5
Switzerland	6.6	193.2	29,495	.5	1.0	.5
Total EFTA	32.1	695.4	21,738	9.8	15.1	2.3
EC-12	324.8	5,127.6	15,787	87.7	164.7	25.7
Total Europe	492.5	6,605.0	13,411	167.8	284.9	41.0
Total US	243.8	4,880.6	19,813	133.5 4/	198.5 4/	60.8 4/

N.A. = Not applicable.

Sources: 1/ International Monetary Fund, International Financial Statistics, 1990 Yearbook. 2/ GNP denotes gross national product for EE countries: CIA, Eastern Europe: Long Road Ahead to Economic Well-Being, presented to the Subcommittee on Technology and the National Security of the Joint Economic Committee, May 16, 1990, for all other countries: International Monetary Fund, International Financial Statistics, 1990 Yearbook. 3/ For EE countries: Nancy Cochrane and Miles Lambert, Agricultural Performance in Eastern Europe, ATAD, ERS, USDA. Aug. 1989, for EFTA and EC countries: ERS, USDA, Western Europe Agriculture and Trade Report, RS-89-2, July 1989. 4/ ERS, USDA, U.S. Agricultural Update, June 1990.

suppliers that their products will have the same access to EC certification as products originating in the EC (U.S. International Trade Commission, Mar. 1991, pp. 6-21).

Mutual Recognition and a Balanced Trade Situation

The EC could also extend the principle of mutual recognition to non-EC notified bodies. Mutual recognition agreements currently exist between the U.S. and EC member states, and the elimination of internal EC borders may affect these agreements. The EC has stated that it will negotiate mutual recognition agreements with non-EC countries. However, the EC will seek a balanced situation in future mutual recognition agreements. The EC has stated that the need for a balanced situation is not connected with the volume of trade, but rather depends on the assurance that "...the parties have an equivalent guarantee of access to the market for the sector(s) covered...." However, the EC will take into consideration the level of trade involved and whether the country is a signatory to the Tokyo Round Standards Code when the timetable for mutual recognition agreements is set (U.S. International Trade Commission, Mar. 1991, pp. 4-14).

The United States is also concerned that U.S. importers of EC products will be forced to accept EC testing and certification results without reference to the EC country performing the testing and certification. The EC has proposed the use of an EC mark on conformity assessment procedures instead of country marks. The United States is concerned that there may be wide variations in the technical ability of labs located in various EC countries. Acceptance of an EC test instead of a lab identified with a country could involve risks for U.S. consumers.

The EC has assured third countries that an EC mark would denote the highest level possible in a uniform standard throughout the EC, as all labs would be inspected, monitored, and upgraded if required. However, if the United States has to treat shipments from the EC without reference to individual countries, problems could arise because some EC countries have had pest problems. African horse sickness is a case in point. All horses from the EC would have to be quarantined for 60 days due to the presence of African horse sickness in Spain. If the United States could treat countries individually, the quarantine for countries other than Spain would last the normal 3-7 days (U.S. International Trade Commission, Mar. 1991, pp. 4-18).

Positive Lists

Development and use of positive lists in the EC 1992 harmonization program is another potential problem for U.S. exporters (U.S. International Trade Commission, Mar. 1990). A positive list approach to approved ingredients means that any ingredient not listed as approved by EC authorities, whether safe or not, is prohibited. The United States believes that the EC's positive list approach can prohibit the use of food and feed additives in the EC that have been approved for use in the United States. The EC's lists are not developed in an open and transparent manner in which U.S. interests can be represented, and there are no channels for non-EC suppliers to petition for inclusion on the list. In addition, the EC definition of food additive is different from the U.S. definition, in that the EC considers a food additive something that is not normally consumed as food and is not a characteristic ingredient. Food coloring is a specific example; the EC has approved hundreds of food colorings as safe, but has not yet determined what quantities are allowable for certain foods (U.S. International Trade Commission, Mar. 1991, pp. 6-57).

EC Harmonization and the GATT

In the 1989 midterm agreement in the GATT negotiations, the EC committed itself to a process for settling disputes about sanitary and phytosanitary conflicts based on scientific evidence. A GATT agreement would be an important commitment by the EC to take its trading partners into account when setting standards (Kelch and Raney, 1989). In the midterm agreement, the EC agreed to the use of international organizations, such as the Codex Alimentarius, a subsidiary of the Food and Agricultural Organization (FAO) and the World Health Organization (WHO) of the United Nations, to resolve international trade disputes about food safety and plant and animal health issues. Before setting its own standards, the EC first considers the international standards set in the Codex.

The EC is likely to adopt many of the Codex standards because they are set at relatively strict levels and are thus acceptable to most EC member states. More importantly, Codex standards are readily available, and with the EC under a tight schedule, adoption of Codex recommendations would avoid delays in setting thousands of EC-wide standards. Officials at the Codex have recently received a general letter of acceptance from the EC on Codex standards (conversation with Codex officials). At a GATT-FAO standards

conference in Rome in March of this year, the EC seemed to agree with a simplified Codex approach to international standards so that they might be more easily adopted (Food Chemical News). In the event the EC adopts Codex standards in a last-minute flurry in 1992, the United States would have little trouble complying because it is a principal member of the Codex.

EC Directives: Current and Potential Problems for Third Countries

Some of the EC directives may present problems for U.S. exporters as the directives become more clarified by subsequent legislation or as they are implemented into member states' laws. Much of the legislation that is specific to products or processes will be enacted. Some current and potential problem directives involve quick-frozen foodstuffs, modified starches, American blended whiskeys, minced meat, food irradiation, lot marking, and labeling--to mention a few. The following are brief synopses of these current and potential problem areas:

Quick-frozen foodstuffs - The EC proposal is specific on the temperature, and the time required to reach that temperature, as well as the specific labeling of the product's shelflife. U.S. industry points out that ultrarapid freezing is inappropriate for some foods, and that shelf-life requirements are unnecessary for some foods. U.S. industry indicates that the EC requirements do not add to product safety or quality and differ substantially from the Codex Alimentarius standards. The EC imports around $40 million in frozen food from the United States (U.S. Dept. of Commerce, Vol. 2).

Modified starches - The U.S. and EC standards for modified starches diverge substantially. This divergence may place U.S. exports of corn starches and other similar items to the EC at risk. U.S. exports to the EC were valued at $7 million in 1988. Processed food exports to the EC that contain any amount of modified starches would have to be labeled specifying the quantity and the scientific name of the starch, and designated as fit for human consumption (U.S. Dept. of Commerce, Vol. 1).

American blended whiskeys - EC definitions of spiritous beverages and aromatized wines will not allow American blended whiskey to be labeled as whiskey if it has not been aged for at least 3 years. The directive has been amended to accept bourbon and Tennessee whiskey as distinctive whiskey products of the United States, but American blended whiskey is not recognized as whiskey in the EC (U.S. Department of State cables).

Lot markings - All food products in the EC must have a lot marking, which identifies the lot to which a foodstuff belongs. This marking traces the product to its origin in case of health problems. Implementation at the national level could result in a non-tariff barrier. The marking could be required for the smallest unit sold if units are sold separately, such as candy bars. This would make directive compliance difficult for exporters to the EC. Implementation is not expected until June 20, 1992, because of difficulties member states have with compliance (U.S. Department of State cables).

Minced meat - The EC proposal requires that all establishments producing minced meat, preparations of meat, or meat comminuted for industrial use be subject to periodic inspections. Specific emphasis is put on temperature controls, microbiological testing, and the freshness of meat. Given past U.S. experience with EC inspection, U.S. industry is wary of losing this $2-million market in packed minced meat. Statistics are not available for the value of products containing portions of meat exported to the EC (U.S. International Trade Commission, Mar. 1991, pp. 4-28).

Food irradiation - The EC Council proposed and adopted in December 1988 a directive proposal to allow food irradiation, but the European Parliament wanted to reduce the number of foods eligible for irradiation. Since that time, all compromises have been rejected, because Germany insists that no food irradiation be allowed. Herbs and spices present a disease risk if not irradiated, but Germany objects to all irradiation, even if labeled (U.S. International Trade Commission, Mar. 1991, pp. 4-30).

Food labeling requirements for characteristics and origin - In two of the 1991 directive proposals on certificates for specific character of foodstuffs and the protection of geographical designations of origin, the EC Commission appears to have generated a method of favoring local foodstuffs over non-EC foodstuffs. Foodstuffs may be labeled as having superior quality by virtue of special characteristics, or because they originate from certain regions in the EC. Systems of inspection in each member state will be harmonized to carry out what appears to be a bureaucratic barrier to intra-EC, as well as extra-EC, trade in foodstuffs (Commission of the European Communities, proposals 2414 and 2415, Jan. 1991).

Other directives at varying stages of development will require monitoring as they go through the EC's legislative process. Directives related to pesticide residues, food additives, food inspection, the ban on growth-promoting hormones, and the establishment of a

fourth criterion are addressed elsewhere in this and other articles in this report. Determining the overall effects on imports from non-EC countries is not yet possible, because imports have not been addressed in the directives. Some of the directives will be tested in EC and international courts of law.

A development in March of 1991 reflects the complexity of the harmonization task that could adversely affect EC imports from non-EC countries. The EC Commission admitted that rather than establish an EC Food Agency, it will have to rely on member states for greater cooperation on foodstuffs harmonization. Some had hoped that the EC's Scientific Committee for Food could be used to develop a clearinghouse for scientific appraisal of food matters. However, the workload has proven to be too burdensome, and plans for a European Food Agency have been abandoned. The EC Commission has called for greater cooperation between national organizations, both public and private, so that scientific assessment can be automatically carried out on behalf of the EC. The main areas of closer cooperation between the EC Commission and member states include:

- Assessment of risks relating to foodstuffs;
- Food intake surveys to assess conditions of additive use or to establish limit values for other substances in food; and,
- Epidemiological investigations of food-borne disease and the effects of diet components (Commission of the European Communities, Mar. 1991).

Reliance on national organizations within the EC for technical details, particularly on private organizations, could lead to less-favorable treatment for EC imports and to more disputes within the EC.

The greater prominence of environmental concerns will also affect food and agricultural policy because of EC 1992 (Tobey and Ervin, 1991). A proposal to establish an EC-wide environmental agency has been adopted; the European Environmental Agency will probably be functioning before the end of 1992. EC-wide legislation on the environment may not only affect the EC, but could also affect imports.

The EC's Hormone Ban and the Third-Country Red Meat Directive

The two most controversial directives of the EC 1992 harmonization program related to sanitary legislation concern meat production and processing regulations. Both directives became issues because they were implemented in all 12 member states, which would not have happened without the EC's drive toward harmonization. The ban on the use of growth-promoting hormones in the production of meat resulted in the loss of about $100 million for U.S. beef and beef product exporters. The Third-Country Red Meat Directive generally sets forth the conditions and processes required of slaughterhouses and meat packers. It took EC member states 12 years to agree on this directive. Because the same conditions are imposed on processors that export to the EC, the directive has been interpreted in such a way as to disrupt U.S. meat exports to the EC.

Hormone Ban

Food safety concerns in some EC member states about the use of hormonal growth promotants, in combination with a surplus of beef in the EC, led to a ban on the use of growth hormones in animal production for all member states in 1988. The ban was extended to imports of meat derived from animals treated with hormonal growth promotants. The United States repeatedly pointed out that correctly administered, scientifically approved growth hormones are safe for humans and animals and that the ban is a non-tariff trade barrier. The United States has retaliated by increasing tariffs by 100 percent on various EC products, equal to the amount of the trade damage to the United States. The ban helped to focus U.S. attention on the dangers of EC 1992 legislation for U.S. trade.

The dispute has not been resolved. The EC is unlikely to unilaterally rescind the ban, because a blocking minority of two large EC countries and one small country is sufficient to retain the ban. A solution to the conflict seems more likely to rest with an agreement on sanitary and phytosanitary disputes in the Uruguay Round of the GATT.

The Fourth Criterion. The EC has debated whether to add a fourth hurdle involving moral, ethical, social, and economic criteria to the internationally accepted criteria of safety, efficacy, and quality in judging approval of production-enhancing substances (Commission of the European Communities, Apr. 1991). The use of a fourth hurdle has been invoked in the preliminary debate about the approval of bovine somatotropin (bST), a naturally occurring protein that can be produced synthetically and injected into cows to stimulate milk production. All scientific tests have proven bST to be safe for humans and animals. Nevertheless, a significant number of consumer and environmental groups in the EC, as well as numerous

EC dairy farmers, seem intent on subjecting growth-promoting hormones or genetic manipulation to socioeconomic or ethical criteria.

If the United States approves bST, then another conflict will probably arise about U.S exports of dairy products to the EC. U.S. dairy product exports to the EC totaled $7.8 million from October 1990 to February 1991. EC food processors could also object to EC imports of processed foods that contain dairy-based products, such as whey, from non-EC countries.

Third-Country Red Meat Directive

The harmonization of regulations for meat processing plants across the EC resulted in a directive that at times is very specific and at other times is very vague. The directive is a good example of what can happen when 12 sovereign democratic states are forced to deal with legislation that is controversial in all member states. The result is a document that, if strictly interpreted, would allow only a few EC meat processing plants to operate. EC inspectors have used very narrow and arbitrary interpretations of EC regulations to de-list, or revoke approval of, U.S. meat processing plants. The de-listing effectively prohibited U.S. beef and pork exports to the EC.

The directive, as it is has been applied in the United States, negates the principle of equivalency in the GATT, which simply means that different methods can be used as long as they create a safe product. Meetings between EC and U.S. officials in May 1991 led to a more liberal interpretation by EC inspectors of the rules and to a re-listing of some U.S. plants.

The importance of a GATT agreement in the Uruguay Round is again highlighted in these sanitary disputes. An agreement in agriculture could conceivably resolve both the hormone and inspection issues if the proposal on the dispute settlements, as agreed to in April 1989, were adopted. The sole criterion for judging a product would then be based on scientific grounds and not on economic or social considerations. The EC 1992 program is likely to generate a number of trade disputes both within the EC and in the international market. The need for fair and quick judgements on trade disputes will be critical to international trade.

Effects on U.S. Trade

The trade effects of EC 1992, including the effects of monetary union, should be beneficial to U.S. agricultural trade. Further economic integration should lead to trade creation and diversion (Raney, 1991), which will have mixed effects on U.S. agricultural and food trade. The political consequences of shifting EC priorities away from the CAP that EC 1992 engenders should improve the prospects for CAP reform and trade liberalization in the EC, with beneficial consequences for U.S. agricultural exports.

Direct Effects

It is too early to determine the ultimate effects of the 1992 harmonization program on EC food and agriculture production and world trade, because the EC program is still incomplete and because many of the potential effects for agriculture are indirect. If one assumes that EC internal borders are eliminated on schedule, then there would probably be substantial direct and indirect effects on EC food and agricultural production and trade. The direct effects will occur in the food-processing industry.

U.S. food companies have had a pan-European presence since before World War II. There are contradictory views in the literature about the preponderance of U.S. food companies in the EC. The EC Commission claims that 12 of the top 20 food companies in the EC are owned or partially owned by U.S. companies (Cecchini, 1988). A U.S. Department of Commerce study points out that 8 of the top 10 EC food companies are U.S.-owned (U.S. International Trade Commission, Mar. 1990). An ERS study (Handy and Henderson, 1991) recently showed that of the top 20 food companies in the EC, only 1 was American-owned.

While the proportion of top EC food companies that are American-owned is disputed, no one disputes the conclusion that U.S. food companies in the EC will benefit from EC 1992 harmonization. U.S. food companies in the EC are large pan-European operations and expect to expand their presence in local markets that regional trade barriers have protected. In apparent anticipation of the 1992 deadline, U.S. investment in EC food companies expanded by 17 percent in 1989, to $8.7 billion (U.S. International Trade Commission, Mar. 1991, pp. 4-25).

U.S. processed-food exports to the EC should also benefit (table 2). Harmonization of standards within the EC would allow exporters to the EC to reduce costs, because they would have to meet only one set of technical standards compared with the current multiple sets of standards. This potentially positive result will depend on the ability of U.S. exporters to meet EC standards and to satisfy EC testing and certification requirements. Some nontariff barriers to U.S. food products in some EC member states will also have to be abolished because of harmonization (U.S. International

Table 2--EC imports of selected high-value agricultural products from non-EC suppliers

Commodity group and item	1970	1980	1987	Major suppliers 1/
	--------Million dollars--------			Country
Meat (fresh, chilled, and frozen)	1,077	2,570	2,436	New Zealand, Argentina, United States
Meat (dried, salted, and smoked)	50	32	8	Switzerland, Poland
Milk and cream	24	27	37	Finland, Switzerland, Austria
Butter	186	267	217	New Zealand, Sweden
Cheese and curd	150	405	507	Switzerland, Austria
Eggs	18	21	27	Israel, East Germany
Wheat, meal, or flour	7	2	4	Australia
Cereal preparations	27	131	248	Sweden, Austria, Switzerland
Bread, biscuits, cake, etc.	11	75	173	Sweden, Austria, Switzerland
Fruit and nuts (fresh)	894	3,401	4,495	United States, Turkey, South Africa
Dried fruit	75	400	431	Turkey, United States
Fruit (preserved, prepared)	337	1,082	1,535	Brazil, Israel, South Africa
Vegetables (fresh, simply prepared)	452	1,906	2,381	Thailand, Peoples Republic of China, United States
Vegetables (preserved, prepared)	138	454	445	Peoples Republic of China, Morocco, Turkey
Refined sugar	40	29	29	Austria, Sweden
Sugar preparations (nonchocolate)	7	46	76	Switzerland, Sweden, Austria
Coffee	1,182	5,646	4,896	Colombia, Brazil, Cote de Ivoire
Cocoa	446	2,140	1,841	Cote de Ivoire, Cameroon, Ghana
Chocolate and products	21	112	179	Switzerland, Sweden, Austria
Beverages	217	422	484	United States, Martinique, Yugoslavia
Cigarettes	25	115	45	Switzerland, United States
Total	5,373	19,207	20,320	

1/ Major suppliers in order of size.
Source: United Nations trade statistics, 1970-87.

Trade Commission, Mar. 1991). Although trade creation within the EC may displace some U.S. exports, U.S. products will probably not be easily displaced.

Other non-EC countries must also meet the new EC harmonized standards and testing and certification procedures. Trade diversion to other markets could occur if other non-EC countries cannot meet EC requirements. The U.S. market could be the final destination for displaced exports formerly going to the EC, although U.S. standards and procedures are similar enough to the EC's that few of these potential imports could gain access to the U.S.market. Other instances of trade diversion might affect the United States as a result of the elimination of internal EC borders, not the least of which is the dilemma of

Caribbean bananas (Neff and Raney, 1991). Some EC food processors expect to benefit by lowering unit-cost production to serve an EC-wide market instead of national or regional markets after internal borders are eliminated. EC multinational food companies should then be more competitive in the international market for processed foods and could displace U.S. exports in some markets. The U.S. market has been large and growing for processed food and drink products from the EC and will likely expand in the 1990's (table 3).

Table 3--EC exports and major markets for selected high-value agricultural products to non-EC markets

Commodity group and item	1970	1980	1987	Major markets 1/
	--------*Million dollars*--------			*Country*
Meat (fresh, chilled, and frozen)	208	1,537	2,225	Japan, Egypt, Saudi Arabia
Meat (dried, salted, and smoked)	17	27	67	Switzerland, Sweden, Somalia
Milk and cream	269	2,048	1,801	Algeria, Saudi Arabia, Venezuela
Butter	76	1,096	500	U.S.S.R., Egypt, Algeria
Cheese and curd	127	694	975	United States, Switzerland, Iran
Eggs	29	126	124	Switzerland, Algeria, Yemen
Wheat, meal, or flour	124	1,128	532	Algeria, U.S.S.R., Libya
Cereal preparations	156	937	1,211	United States, Japan, Switzerland
Bread, biscuits, and cake	56	355	564	United States, Austria, Switzerland
Fruit and nuts (fresh)	219	787	847	Austria, Switzerland
Dried fruit	20	111	39	Switzerland, United States, Austria
Fruit (preserved and prepared)	56	253	486	United States, Switzerland, Sweden
Vegetables (fresh and simply prepared)	158	716	912	Switzerland, Sweden, Austria
Vegetables (preserved and prepared)	153	586	766	United States, Saudi Arabia, Switzerland
Refined sugar	96	2,042	1,147	Iran, Algeria, Egypt
Sugar preparations (nonchocolate)	68	252	389	United States, Sweden, Austria
Coffee	35	282	402	United States, Austria, Canada
Cocoa	75	351	385	Switzerland, United States, Sweden
Chocolate and products	67	330	532	United States, Austria, Canada
Beverages	930	4,292	5,750	United States, Switzerland, Venezuela
Cigarettes	94	482	532	Saudi Arabia, Hong Kong, Singapore
Extra-EC	2,976	18,077	19,623	
Intra-EC	5,522	32,498	48,699	
Total	8,498	50,575	68,322	

1/ Major markets in 1987 in order of size.
Source: United Nations trade statistics, 1970-87.

In anticipation of EC 1992, the EC's food and drink industry has established more than 130 new joint ventures across internal EC borders since 1988 (Ernst and Young, 1990). Such ventures indicate the expectations of the industry regarding the 1992 program. Internal EC trade is expected to increase substantially in the food and drink sector, as nontariff barriers and physical borders disappear, although the EC market will continue to be fragmented because of national and regional food preferences. Food companies in the EC apparently believe that a joint venture with an established presence in a national market will allow them to tailor their products to the local market. Non-EC countries are likely to follow the same logic. Food sales by affiliates in the EC are certainly better because of freshness, knowledge of cultural influences, and proximity to the market (U.S. International Trade Commission, Mar. 1990).

Indirect Effects

The indirect effects of the EC 1992 program could be more significant than the direct effects. European economic integration, which includes the EC 1992 harmonization program and its corollary, EC monetary union, have already superseded the CAP as a priority item on the EC agenda. The budget pressures on the CAP from the imposition of the EC 1992-inspired spending guidelines, a reform of the agrimonetary system (Josling and Gardiner, 1991), and a more competitive and commercial environment in the EC should help push the CAP down the road to reform. The results of such a reform would be similar to a move toward unilateral EC trade liberalization.

Stagnant U.S. exports to the EC might be revived (table 4), not just because of lower EC production rates but also because of higher food consumption rates due to higher incomes and lower food prices. However, the largest positive effect for the United States would be higher US export levels to non-EC markets as a result of lower EC exports. The combination of direct and indirect effects on the CAP should lead to the trade effects shown schematically in figure 2.

U.S.-EC Trade

Lower EC prices and higher EC income growth should lead to lower levels of EC food production, higher food consumption, and lower net exports (McDowell, 1991). U.S. bulk commodities should benefit, particularly in third countries' markets. The United States should also gain in EC grain markets because of higher EC food consumption and lower grain production. Lower EC production and higher EC consumption of oilseeds should follow the same pattern and should result in more U.S. exports of oilseeds. However, exports of U.S. nongrain feeds, such as corn gluten, will probably decline, because EC grain prices should fall sufficiently to allow greater feeding rates for grains in the EC.

The EC should become more competitive in the world market for processed food products because of efficiencies gained from the larger EC market. The unified EC will also be more competitive in the EC and world markets and will displace some U.S. products (table 5). Least-cost sourcing of raw materials by EC food processors will probably increase the pressure to lower EC agricultural prices and to otherwise make EC agriculture more competitive internally (Josling, 1989). On the other hand, U.S. processed food exporters to the EC may find it easier to export because they will have to satisfy only one set of EC standards instead of separate standards for each member state.

Conclusions

The removal of all internal EC trade barriers by the end of 1992 will have direct and indirect effects on the economics of EC food and agricultural production, consumption, and trade. The internal effects will in turn affect world food and agricultural trade patterns in the medium to long term. The overall trade effects should be positive, with lower EC agricultural prices and production and higher consumption levels leading to lower EC net exports and higher world prices. The direct effects of EC 1992 are derived from the technical aspects of the harmonization of sanitary, phytosanitary, and food safety regulations and mostly concern the food-processing sector. However, it is the indirect effects that could most significantly affect CAP prices and production in the long term.

The Herculean task of harmonizing thousands of rules and regulations governing the production, processing, and trade of food and agricultural products will probably not be completed by the end of 1992. Nevertheless, the EC seems politically committed to eliminating frontier controls on schedule. The next 17 months will be crucial in determining the degree of confusion that will exist for internal and external EC trade after 1992. Also, the outcome of the Uruguay Round will determine, to some extent, the effect of EC 1992 on CAP reform and the compatibility of the EC's harmonization process with international rules and regulations in the sanitary and phytosanitary area.

Table 4a--Value of U.S. agricultural exports to the EC-12 1/

Commodity	1985	1988	1989
		1,000 dollars	
Animal and animal products	720,581	828,564	708,977
Meat and meat products	131,844	230,810	147,699
Beef and veal (fresh, prepared)	3,817	32,193	7,955
Pork (fresh, prepared)	7,822	2,472	2,039
Poultry meat (fresh, prepared)	6,175	16,653	17,185
Grains and preparations	1,706,343	1,681,544	1,706,639
Wheat	238,053	95,557	151,276
Wheat flour	134	363	1,465
Rice	80,076	91,244	143,706
Feed grains and products	693,978	352,173	285,500
Feeds and fodder (excluding oilcake)	684,609	1,117,270	1,083,362
Fruit and preparations (including fruit juice)	138,429	316,587	313,922
Nuts and preparations	331,498	478,413	433,502
Vegetables and preparations	125,316	192,168	195,532
Oilseeds and products	2,209,885	2,488,876	1,924,548
Soybean meal	379,949	320,490	102,299
Soybeans	61,329	1,981,552	1,643,086
Vegetable oils	60,975	89,844	59,984
Tobacco	643,808	580,353	536,060
Cotton (excluding linters)	305,333	370,431	321,095
Other	296,101	378,201	425,342
Total	6,477,294	7,315,137	6,565,617

1/ Data are for calendar years.
Source: USDA, Foreign Agricultural Trade of the United States, calendar years 1985, 1988, and 1989.

The EC 1992 program will begin against a background of CAP reform, GATT negotiations, German unification, and radical economic reforms in Eastern Europe and, perhaps, in the Soviet Union that could dramatically affect EC agricultural production and trade. At the same time, the EC 1992 program is an effort to make the EC more competitive internally.

Agriculture cannot remain immune to, nor isolated from, economic conditions that affect its internal input and output markets. The long-term result should be a more competitive processed-food industry in the EC and an agricultural environment based more on comparative advantage.

Table 4b--Volume of U.S. agricultural exports to the EC-12 1/

Commodity	1985	1988	1989
		Tons	
Meat and meat animals and products	113,769	121,646	74,993
Beef and veal (fresh, prepared)	806	7,670	2,271
Pork (fresh, prepared)	8,170	714	860
Poultry meat (fresh, prepared)	6,017	17,755	18,074
Grains and preparations	12,900,886	12,619,281	11,984,115
Wheat	1,660,110	625,822	931,977
Wheat flour	565	1,588	6,040
Rice	252,078	290,554	478,855
Feed grains and products	6,038,017	3,334,803	2,408.339
Feeds and fodder (excluding oilcake)	4,931,568	8,318,049	8,054,344
Nuts and preparations	250,897	246,292	293,160
Oilseeds and products	10,065,424	9,383,539	7,184,756
Soybean meal	2,082,726	1,390,018	408,867
Soybeans	7,499,451	7,671,442	6,445,596
Vegetable oils	79,205	121,310	79,457
Tobacco	105,164	103,488	93,040
Cotton (excluding linters)	196,478	235,138	204,711

1/ Data are for calendar years.
Source: USDA, Foreign Agricultural Trade of the United States, calendar years 1985, 1988, and 1989.

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Figure 2
EC 1992 trade effects

	US-EC	US-RW 1/	EC-US	EC-RW
HVP2/	+	O	+	++
Grains	+	++	O	−−
Oilseeds	+	O	O	−
Nongrain feeds	−	O	O	O

1/ Rest of world
2/ High-value products
+ = Small volume increase
− = Small volume decrease
O = No likely volume effect

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Table 5a--Value of U.S. agricultural imports from the EC-12 1/

Commodity	1985	1988	1989
		1,000 dollars	
Animals and animal products	1,013,825	999,887	938,776
Meat and meat products	419,222	367,810	255,511
Beef and veal (fresh, prepared)	12,613	8,655	2,744
Pork (fresh, prepared)	384,217	338,548	224,655
Dairy products	318,828	398,941	471,125
Cheese	196,049	190,016	199,684
Casein and mixtures	94,557	169,860	255,687
Grains and feeds	169,002	210,340	248,905
Biscuits and wafers	109,356	111,366	132,176
Pasta and noodles	28,546	40,771	52.910
Feeds and fodder (excluding oilcake)	20,924	29,821	31,283
Fruit and preparations (including fruit juice)	167,022	177,854	172,491
Fruit (prepared, preserved)	61,793	79,355	83,237
Fruit juices	81,974	93,575	82,318
Nuts and preparations	14,922	14,582	19,735
Chestnuts	8,403	8,133	9,564
Vegetables and preparations	298,110	370,541	420,293
Olives	83,712	127,788	139,802
Tomatoes (including paste)	50,930	47,923	39,737
Oilseeds and products	86,611	175,926	198,499
Olive oil	52,148	125,105	149,375
Sugar and related products	117,166	44,324	100,936
Confectionery products	102,581	28,511	89,088
Beverages (excluding fruit juice)	1,389,208	1,427,060	1,376,492
Wine	971,418	892,378	878,078
Malt beverages	384,876	504,743	473,497
Flowers, nursery stock	118,224	151,500	159,086
Coffee	109,198	81,137	68,624
Cocoa	175,327	100,372	159,776
Other	498,319	362,531	383,437
Total	4,156,934	4,116,054	4,247,050

1/ Data are for calendar years.
Source: U.S. Department of Agriculture, Foreign Agricultural Trade of the United States, calendar years 1985, 1988, and 1989.

Table 5b--Volume of U.S. agricultural imports from the EC-12 1/

Commodity	1985	1988	1989
		Tons	
Meat and meat products	177,323	138,619	91,421
Beef and veal (fresh, prepared)	6,347	3,841	1,183
Pork (fresh, prepared)	161,413	127,480	78,319
Cheese	67,796	49,609	57,801
Casein and mixtures	45,707	47,190	52,272
Grains and feeds	146,689	160,079	249,766
Biscuits and wafers	57,014	41,702	47,902
Pasta and noodles	51,364	61,190	77,032
Feeds and fodder (excluding oilcake)	17,571	28,675	78,384
Fruit (prepared, preserved)	80,106	77,651	83,365
Fruit juices 2/	3,964,145	3,279,856	3,364,743
Chestnuts	5,179	3,612	4,107
Olives	63,850	69,872	65,575
Tomatoes (including paste)	109,831	76,155	33,595
Confectionery products	58,029	11,991	38,399
Beverages 2/	10,517,030	8,132,426	7,952,877
Wine 2/	4,890,672	2,726,795	2,576,967
Malt beverages 2/	5,406,877	5,076,394	5,011,418
Oilseeds and products	66,278	132,246	132,795
Olive oil	41,157	70,578	78,396

1/ Data are for calendar years.
2/ In hectoliters.
Source: U.S. Department of Agriculture, Foreign Agricultural Trade of the United States, calendar years 1985, 1988, and 1989.

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Appendix I: EC 1992 Directives

The following is a list of official EC 1992 directives relating to food and agriculture. Because they were compiled in November 1990, the list is not complete. And, some of the directives do not contain summaries because technical interpretations had not been completed at that time.

Plant Health

85/574, Living Plants and Seeds--Amends 77/93 on measures to prevent the introduction into the EC of organisms harmful to plants or plant products.

86/362, Pesticide Residues on Cereals--To protect consumer health, maximum levels of pesticides and contaminants are fixed on cereals circulating within the EC.

86/355, Plant Protection--Prohibits use of ethylene oxide as a plant protection product used especially for the fumigation of plants or plant products in storage. The chemical leaves a residue that may be harmful to human or animal health.

88/380, Certification of Seeds--Adds various species, varieties, and hybrids into the seed-marketing regulations and temporarily modifies certification schemes for testing purposes, with a special exemption for Greece.

88/572, Plant Health--Adds additional protection to an earlier directive that prevented introduction into the EC of harmful organisms or plant products.

88/170, Plant and Plant Products--Proposal for protective measures against organisms harmful to plants or plant products. Requires official phytosanitary certification issued in country of origin.

88/798, Pesticide Residues--Proposal sets guidelines for maximum pesticide residues for certain products intended for human consumption, including fruit and vegetables.

89/183, Secondary Fertilizers--No summary.

Animal Health

85/320, Swine Fever--Amends standards for swine-fever-free regions when pigs and pig products are exported to other member states.

85/511, Control of Foot-and-Mouth Disease--Introduces minimum EC control measures, such as lab tests on suspected animals, measures to destroy contaminated animals (and meat), and methods of containment in the event of disease outbreaks.

86/363, Pesticide Residues, Animal Products--Sets maximum levels of pesticides and contaminants to protect consumer health.

86/649, Swine Fever Eradication--Continues financial support for the African swine fever (ASF) eradication program in Portugal for 5 years.

86/650, Swine Fever Eradication--Continues financial support for African swine fever (ASF) eradication in Spain for 5 years.

87/20, Testing Veterinary Medicinal Products--Amends 81/852, sets additional standards for testing of veterinary medicinal products and for incorporating scientific and technical advances in the testing process.

87/58, Eradication of Brucellosis--A supplementary measure for the eradication of brucellosis, tuberculosis, and leukosis in Spain, Portugal, and other EC countries where these diseases persist.

87/64, Veterinary Inspections--Amends directive on health problems affecting intra-EC trade of fresh meat; and directive on health and veterinarian inspection when importing bovine animals, pigs, and fresh meat from third countries.

87/230, Eradication of Swine Fever--Amends earlier directives establishing conditions designed to keep the EC free of classical swine fever (hog cholera). Introduces financial measures for a 5-6 period.

87/231, Control of Swine Fever Outbreaks--Amends directives to control swine fever outbreaks. Specifies that all animals must bear a special mark indicating that they have undergone vaccination before they can be exported to disease-free EC countries.

87/328, Breeding Bovine Animals--Except for health reasons, there shall be no restrictions on intra-EC trade of purebred bovine breeding animals and bovine semen. Provides mechanisms for resolving disputes.

87/487, Swine Fever Regulations--Allows discontinuation of vaccination programs in regions where classical swine fever has been eradicated.

87/488, Swine Fever Financial--Specifies procedures and continues financial support for the EC swine fever eradication program for an initial period of 6 years and a supplementary period of 4 years.

87/489, Swine Fever Regulations--Amends earlier directives by setting a minimum of 12 months as the time period that must pass between live-animal vaccination and slaughter.

87/491, Animal Health--Establishes guidelines for: (1) meat preparation procedures prior to heat treatment, and (2) heat treatment procedures to destroy African swine fever and foot-and-mouth disease agents.

87/519, Pesticides in Animal Feed--Broadens earlier directive concerning maximum pesticide levels for animal feedstuffs to include organochlorine compounds.

88/146, Hormone Growth Promoters--No summary.

88/407, Semen of Bovine Animals--Establishes rules governing trade in bovine semen to reduce the risk of disease transmission.

88/483, Feed additives--No summary.

88/616, Feed additives--No summary.

88/661, Pork Breeding--Standards governing intra-EC trade in purebred breeding pigs.

72/461, Bovine and Swine Diseases--Proposal to amend directives relating to foot-and-mouth disease, Aujeszky's disease, and swine vesicular disease.

81/795, Medicated Feedstuffs--Proposal that medicated feedstuffs be manufactured and marketed under similar conditions throughout the EC.

88/779, Veterinary Products--Proposal extends scope of earlier directive on veterinary medicinal products by establishing additional provisions for immunological veterinary medicinal products.

88/742, Animal Health and Veterinary Inspection--Proposal to amend earlier directive on health and veterinary inspection problems to include ovine and caprine animals in intra-EC trade and imports from third countries.

88/785, Animal Embryos--Proposal concerns intra-EC trade and importation from third countries of bovine embryos from domestic animals.

88/598, Pedigree Animals--Proposal to promote intra-EC trade in purebred animals and their semen, ova, and embryos by ensuring uniform policy throughout the EC; and to prevent the importation of less-desirable animals from third countries.

89/9, Poultry and Eggs--Proposal for a directive on health problems affecting the production and placing on the market of egg products.

88/388, Veterinary Checks--Physical checks applying to livestock and livestock products intended to protect animal and human health.

Food Safety

85/323, Microbiological Controls for Red Meat--Amends Directive 64/433. Establishes guidelines for microbiological controls to check and improve hygiene at slaughterhouses and cutting plants.

85/324, Microbiological Controls for Poultry Meat--Amends Directive 71/118. Requires operators of slaughterhouses and cutting plants to follow fixed procedures in conducting bacteriological examinations.

85/358, Hormone Growth Promoters--Amends Directive 81/602. Prohibits certain substances having a hormonal action, and any substances having a thyrostatic action, and requires third countries to provide the same or equivalent guarantees to the EC Commission.

85/573, Coffee Extracts--No Summary.

85/585, Wine Preservatives--Amends directives 64 and 85/172. Adds potassium acid sulphite (used in wine production) to the list of allowable preservatives.

86/102, Emulsifiers, etc.--Fourth amendment to 74/329 on laws of EC members relating to emulsifiers, stabilizers, thickeners, and gelling agents for use in foodstuffs.

86/469, Antibiotic Residues and Control--Continues financial support for the African swine fever (ASF) eradication program in Spain for 5 years.

87/153, Additives--Fixes guidelines for the evaluation of additives used in animal feed.

88/288, Fresh Meat Trade--Amends earlier directive to harmonize intra-EC regulations on handling frozen meats and sliced offals, and to harmonize hygienic conditions.

88/289, Meat Inspection--Amends earlier directive on the importation of animals and meat to include a prohibition of fresh meat containing residues of hormonal substances.

88/657, Minced Meat--Lays down requirements for the production of, and trade in, minced meat, meat in pieces, and meat preparations.

88/658, Meat Products--Harmonizes rules on health problems, such as labeling, composition of products, and limiting additives, affecting intra-EC trade in meat products; and establishes rules for temperatures that must be observed during preparation.

89/107, Food Additives--Applies to additives and labeling in the manufacture and preparation of food. Sampling procedures, methods of analysis, and purity criteria are established.

89/108, Frozen Foods--Concerns the proper adherence to manufacturing processes for quick-frozen foodstuffs.

83/665, Boar Meat--No summary.

84/726, Modified Starches--Proposal on the laws of the member states relating to labeling requirements, acceptable treatments, etc. for modified starches intended for human consumption.

86/285, Infant Formula--The proposal establishes uniform compositional and labeling requirements, and establishes prohibitions and limitations on the use of food ingredients in infant formula.

88/654, Irradiation of Foodstuffs--Proposal to harmonize laws concerning the irradiation of foods according to standards established by the United Nations and the World Health Organization.

89/227, Meat Imports--Concerns imports of meat products from third countries with respect to animal and public health.

89/107, Food Additives--Applies to additives used in the manufacture and preparation of food, as well as labeling procedures. Sampling procedures, methods of analysis, and purity criteria are established.

89/225, Food Inspection--Proposal forms general principles for official inspections of foodstuffs.

Packaging/Labeling

85/572, Plastics in Food--Amends Directive 82/7ll by listing the stimulants to be used for testing migration of constituents of plastic materials and articles intended to come into contact with foodstuffs.

86/197, Labeling, Presentation, and Advertising (Alcohol)--Amends Directive 79/112 by requiring labels to specify the percentage volume of alcohol in alcoholic beverages. Earlier directives did not require the strength of alcoholic beverages on the label.

88/388, Flavorings--Lays the groundwork for more categorized directives concerning flavorings, while covering preparation, use, and labeling requirements.
88/593, Jams--No summary.

88/489, Labeling--Proposal for compulsory nutrition labeling of foodstuffs intended for sale to consumers.

89/109, Food Containers--Materials and articles in contact with food should not transfer substances to the food that could endanger human health or unacceptably change the composition of the foodstuffs.

Miscellaneous

85/397, Production and Trade in Milk--Establishes: (1) standards for milk collection and treatment centers to safeguard human health, and (2) specific requirements for heat treatment, transport of heat-treated milk, storage of pasteurized milk, and packaging.

85/591, General Directive--Introduction of methods of sampling and analysis for monitoring foodstuffs intended for human consumption.

88/183, Secondary Fertilizers--No Summary.

88/245, Tax on Alcoholic Beverages--Directive harmonizes excise taxes on alcoholic beverages between EC members. Requires members to apply the same

rate of VAT to wine and beer, as well as the same rates to spirits and fortified wine.

88/315, Food Prices--Selling price and unit price must be clearly displayed.

85/151, Excise Duties on Wine--Lessens the distortive effects of different tax rates levied on the consumption of fortified wine and similar products in different member states.

87/328, Taxes on Alcoholic Beverages--Proposal for common rate bands for all harmonized duties on alcoholic beverages.

87/325, Cigarette Taxes--Directive proposes a 19.5-ECU specific duty per 1,000 cigarettes, which will be adjusted according to a general consumer price index.

87/327, Taxes on Mineral Oils--Proposal for common rate bands for all harmonized excise duties on mineral oils.

88/47, Fish and Fish Products--Proposal for harmonized health conditions for marketing fish and fish products concerning nematodes.

89/106, Construction Products--Establishes conditions for a harmonized system of general rules in the construction industry.

The Implications of The EC Single Market for Agricultural Input Industries

Carla Henry*

Abstract

The objective of this study was to assess the effects of the proposed EC single market on five agricultural input industries, with special attention being given to price effects. The findings suggest that the current single-market proposals will affect the feed, energy, fertilizer, plant protection, and agricultural machinery industries, but that other market forces may well overshadow the proposals' influence. Almost all of the industries analyzed are expected to reach higher levels of concentration in the medium term, as a result of both existing market trends and single market effects. Price effects were shown to be mixed. The timeframe needed to achieve the single market objectives will also stretch well into the next decade for most of the industries considered.

Introduction

The European Community's (EC) move toward achieving a single market by the end of 1992 is well underway. The effects that the internal market will have on future farm income are of primary concern. Assuring an adequate income to EC farmers has been and continues to be the driving force behind the EC's Common Agricultural Policy (CAP). Over the past decade, input costs have risen faster than most agricultural product prices. To counteract the subsequent strain on farm income, the CAP has subsidized EC farmers through various agricultural support programs. However, growing constraints to EC budget expenditures and pressure for change through GATT rulings are threatening the future of EC farm supports. A further weakening of agricultural price supports and program cuts that reduce farm revenue could have far-reaching effects on the volume and distribution of EC agricultural production.

A key question to the issue of farm income within an EC single market is the degree to which input costs to EC farmers will be affected. Because of both the variability between national input markets and divergent national agricultural structures, the effects of reform will differ by country and agricultural activity. Projecting likely effects of a single market on input costs to EC farmers is, therefore, of interest.

This paper assesses the effects of single-market proposals on selected agricultural input industries. The five industries--feed, energy, fertilizer, plant protection, and agricultural machinery are analyzed to determine current market conditions and trends. Using this information as a base, the potential effects of single-market proposals and rulings on each industry are assessed.

Single Market Effects on Agricultural Input Industries

Many authors have analyzed the potential gains from removing EC internal trade barriers. The main impetus for the single EC market is thought to come from increased competition through a vastly expanded market. The rationalization of production and market networks should bring potential gains through economies of scale and greater efficiency. Consumers should also gain through more favorable prices, improved quality, and a wider choice of goods and services.

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The full removal of physical, technical, and fiscal barriers will influence EC agricultural input markets in several ways. Indirect gains from harmonized technical standards, an end to border delays and related administrative burdens, and an opening-up of financial, transport, and communication services could noticeably reduce costs to agricultural input industries. Increased competitiveness, anticipated in many markets, should transfer these gains into improved quality and lower prices for farmers. The extent to which these gains can be realized will depend on existing market structures and the actual form of EC policy reform. How closely the Commission of the European Community's (EC Commission) optimism will align with the actual market response becomes the crucial question.

EC directives that alter existing market practices will also directly influence agricultural input markets. Most notable are the proposed removal of monetary compensatory amounts (MCA's) and the proposed harmonization of value-added taxes (VAT's) and excise duties.

As industry-specific studies have shown, the internal market will probably affect each industry differently. The producers and suppliers of agricultural inputs are no exception. Diverse market structures, production constraints, and legal environments define the differences in type and degree of potential benefits and losses each industry will encounter.

Present market structures vary considerably, not only between industries, but also between countries. Where a handful of firms dominate an industry in one country, the same industry in another country may be highly fragmented, with many firms sharing the market. National infrastructures that support and protect national industries also vary between countries, allowing a more favorable position for some firms when the borders open.

The maturity of a market will also determine how an internal market will change the industry. For several input industries, most notably fertilizer and farm machinery, demand has slackened due to shifts in agricultural practices. Where demand stagnates, firms are forced to compete strongly for market share. A number of industries have already moved toward a multinationalization of enterprises and have restructured their production and marketing networks. Gains from economies of scale and the reduction of excess capacity will be minor for many of these industries.

The effects of a single market will be different in the short and medium term. In many countries, the position of small and medium firms will be weakened as increased competition calls for greater technical change and investment. The recent trend toward mergers will also move industries to higher levels of market concentration. This could, in turn, have adverse effects on price competition, as firms under oligopolistic conditions seek nonprice means of competing.

Environmental concerns are having a much greater influence on the direction and magnitude of consumption. In many of the outstanding proposals and directives already adopted, health and environmental standards are a central theme. Overall, the direction of change is toward much more stringent EC-wide standards. However, differences in socioeconomic factors between member countries, as well as mandatory Council of Ministers unanimity called for in all measures related to human health and environment, makes adoption of many proposals highly improbable, at least in the short term. Adoption by the Council alone does not guarantee a rapid response from member country legislators in translating directives into national law.

Finally, the actual form in which EC directives are implemented will determine the degree to which industries will respond. National governments have the responsibility of translating EC rulings into national law and, subsequently, can shape the legal structure and timeframe for implementation. Solving the immense political problems plaguing almost all of the remaining EC Commission proposals may result in considerably weakened directives, or directives that unproportionally serve the interests of more influential member countries. Where directives fail to remove the real barriers to trade, industry response may be minimal.

The Feed Industry

Feed constitutes the largest variable input cost for EC farmers as a whole. In value, feed accounts for an average 43 percent of total expenditures of purchased intermediate inputs. Feed's share of total input expenditures ranges from a low of 31 percent in Germany to an estimated 69 percent in Portugal.

Purchased feed is most important in northern member countries, particularly Belgium, the Netherlands, and Denmark, where livestock production dominates the agricultural sector. Intra-EC trade also provides an essential source of feed supply for many grain-deficient livestock-producing areas.

Consumption and Demand

EC feed consumption is growing slowly. Gains in agricultural productivity have brought down per-unit demand for feedstuffs. In addition, feed consumption by ruminant livestock has stagnated, partly from the adoption of dairy quotas in 1984, which reduced dairy- and beef-cattle herds. Despite an annual average increase in feed consumption of 3.4 percent since 1985, demand for purchased feed has fallen compared with growth in pig and poultry production.

EC introduction of the coresponsibility levy for grains in the CAP has raised onfarm mixing of feedgrains and has also cut feed purchases. About 54 percent of grain used in EC animal feed is consumed on the farms where the feed was produced (Agra Europe, Ltd., 1989).

The composition of feedstuffs is also changing. Over the past decade, feedgrain prices caused either a stagnation or a reduction in the share of grains in total feedstuffs throughout the EC. The share of soft wheat, barley, and corn in total purchased feed for the EC dropped from 44.5 percent in 1980 to 38.5 percent in 1988. The EC's share of alternative feed inputs, such as manioc, corn gluten, citrus pellets, and EC-produced pulses and oilseeds, has risen steadily in recent years.

Intra-EC Trade in Feedgrains

Supplies for feedstuff inputs are widely traded between EC countries (table 1). Intra-EC trade in feedgrains is of particular interest, because border removal could significantly shift production and trade patterns. Wheat, barley, and corn for feed are traded between a number of EC countries. France is the dominant exporter of all three feedgrains. French exports of wheat make up about 65 percent of total intra-EC exports, followed by Great Britain, with 16 percent of wheat exports. Italy is the largest importer of wheat, followed by Germany, the Netherlands, and Belgium-Luxembourg.

Intra-EC trade provides a valuable market outlet for large grain-producing areas. Competition between intra-EC exporting countries exists and will grow if a weaker intervention system can no longer guarantee high prices and international market outlets for excess production.

The EC feed industry is highly responsive to price changes between national markets. Despite self-sufficiency in soft wheat, Germany has regularly imported large amounts from France, placing a considerable share in intervention. In analyzing this trend, von Cramon-Taubadel (1989) found that differences in quality could not account for the imports. Instead, he found that differences in market prices stemming from daily fluctuations in the market exchange rate and diverging internal market prices for wheat (which differ from intervention prices) could explain why firms import wheat in Germany. The analysis points strongly to the sensitivity of grain markets to even small shifts in prices (von Cramon-Taubadel, 1989).

In summary, two market trends characterize the feed industry: (1) EC feed demand is growing at a slow pace, compared with past periods; and (2) the feed industry is highly responsive to price changes between feed ingredients and between national market prices for feedgrains.

Table 1--Intra-EC trade flows of soft wheat and barley, 1987

Item and countries	Amount
	1,000 metric tons
Soft Wheat:	
France-Italy	2,445
France-Netherlands	858
France-Belgium/Luxembourg	831
France-Germany	824
France-UK	661
UK-Italy	503
UK-Germany	343
Barley:	
France-Belgium/Luxembourg	549
France-Italy	507
UK-Italy	410
Denmark-Germany	327
France-Netherlands	325
Denmark-Belgium/Luxembourg	291
UK-Belgium/Luxembourg	280

Source: Eurostat, Series C-6, Vol. A.

Potential Single Market Effects on Feedstuff Prices

The formation of a single market will affect the EC feedstuffs industry through reduced transport costs and the removal of MCA's, among other factors.1/

Transportation. Transport costs are a major determinant of regional production and trade in the agricultural sector, especially for bulky or highly perishable agricultural products. The EC transport sector, which national, bilateral, and multilateral laws and directives partially regulate, is targeted for harmonization.

Domestic Transport. Domestic transport policies vary widely between member countries. Germany, France, and Italy enforce rigid market orders to control internal freight rates, and submit concessions for road and ship transport to control their national transport capacities. These countries also enforce national laws that bar unregistered companies from carrying freight in their country, and maintain transport quota rulings as well as binding freight rates. All other EC countries except Greece are less restrictive.

In more restricted countries, firms often set up company-owned transport networks, which are used solely for carrying company-owned goods, to avoid market order restrictions. In many industries, firms dominate the transport networks. Company-owned transport carries more than 50 percent of grain shipments in France and Germany (Schinke, 1989).

Intra-EC Transport. Bilateral and EC licenses regulate cross-border transport. This system of licenses is subject to quotas, which limit international transport to only a fraction of all road transport. Cross-border rates are usually lower, under the multilateral system, than internal rates, and are determined more by market forces.

The price-distorting effects of national market orders have altered the competitiveness of national transport sectors. To avoid the costlier national rates, many road transports detour to a neighboring country to acquire cross-border freight rates.

The cost savings from crossing borders can be significant. Table 2 shows the road freight costs for a ton of grain to travel different distances within the EC, expressed as a percentage ratio of the costs of intra-Germany freight rates. Cross-border road transport costs are roughly half of the transport costs incurred within Germany.

The Single Market Effects on EC Feedgrain Transport Costs. Although the divergences in road transport costs are shown in a very limited scope, table 2 points out a large potential for reducing freight costs through liberalization of market entry. The Council of Ministers has already adopted the ruling to eliminate cabotage (COM(85) 617 Final), which will permit EC national transport companies to transport goods in other EC countries where those companies are not registered. The elimination of cabotage will increase competition between transport companies and will significantly reduce the internal and cross-border freight rates in highly regulated countries, such as Germany, Italy, and France.

The EC Commission has also proposed the phasing-out of national quotas, which limit cross-border transport, by January 1992. Instead, an EC-wide system of qualitative market barriers to entry would be adopted, which would raise significantly cross-border road transport capacity. (Kosters and Lammers,1987).

The transport industry will need to end the massive underutilization of transport equipment in the EC system. Price differences will be diminished but not eliminated. Transport costs could fall as much as 10-20 percent, if one compares existing divergences in road transport as a reference. This decrease of transport costs could, in turn, lower prices of goods shipped, depending on the share of transport costs in total input costs. For marketed grains, transport's share can be up to 10 percent of the intervention price per ton. For other products, such as fertilizer and oil, the transport cost share is much lower.

Removal of Monetary Compensatory Amounts (MCA's). Of the anticipated changes from single market legislation, one of the potentially most influential measures for the feed industry is the proposed removal of MCA's. The MCA system, since its inception in 1969, has become an integral part of the CAP pricing system through its role of counteracting the effects of exchange-rate movements on domestic agricultural prices. As a provision to alleviate short-term fluctuations in domestic agricultural prices, MCA's are allocated for traded agricultural commodities when domestic prices, determined by commodity-specific green rates, diverge beyond a designated acceptable margin from ECU-exchange-rate determined prices.

1/ Several EC directives and proposals are aimed specifically at the feed industry. These directives call for more stringent controls for feed additives, including medicated feed, and regulating pesticide residue in feeds. These are not analyzed in this paper, because their potential effect on the feed industry is considered to be minor.

Table 2--Freight costs of cross-border and German road transport, 1986

Route	Distance	Cost	German share of cost
	km	*ECU*	*Percent*
In Germany	100	12.22	100.0
Germany to France	100	5.90	48.3
Germany to Netherlands	100	7.64	62.6
Germany to Belgium	100	7.39	60.5
Within the UK	50	5.53	N.A.
Within the UK	100	6.83	55.9
Within the UK	200	9.67	N.A.
In Germany	300	27.48	100.0
Germany to France	300	14.72	53.7
Germany to Italy	300	20.10	73.2
Germany to Netherlands	300	14.13	51.4
Germany to Belgium	300	13.66	49.7
In Germany	500	38.64	100.0
Germany to France	500	20.76	53.7
Germany to Italy	500	25.12	65.0
Germany to Netherlands	500	20.36	52.7
Germany to Belgium	500	19.71	51.0

N.A. = Not applicable.
Source: Schinke, M. Der Handel mit Getreide innerhalb der Europäische Gemeinschaft, 1989.

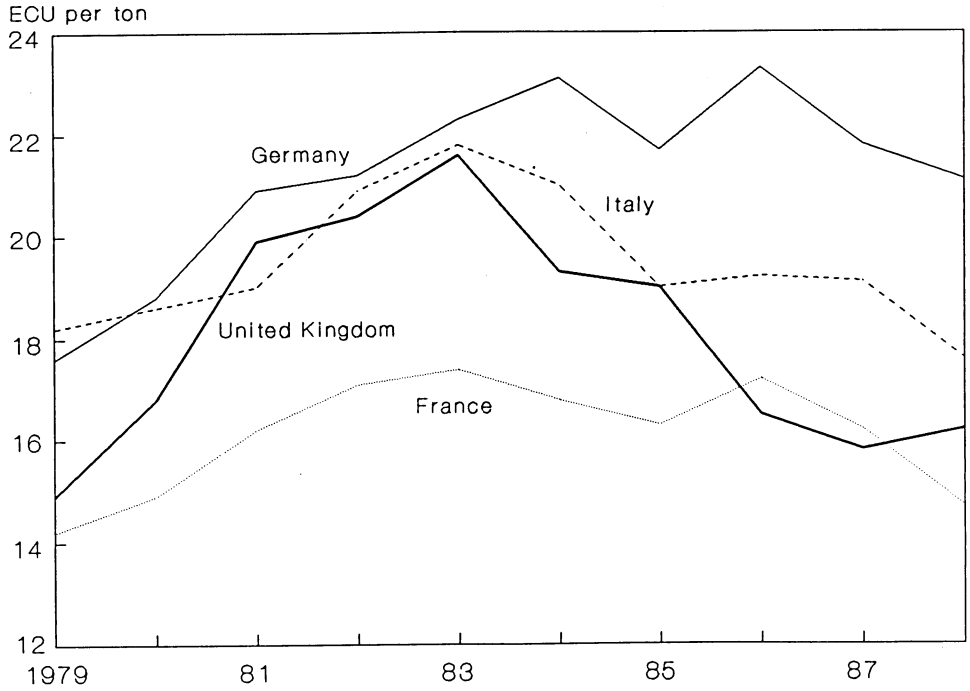
Although intended as a temporary measure, the MCA system has evolved into a tool for sheltering agricultural income or dampening food price rises that would otherwise result from exchange-rate movements. MCA's have had the longrun effects of raising intervention prices above levels intended by the Council of Ministers, as well as permitting domestic agricultural prices to diverge significantly between member countries (Swinbank, 1988). Figure 1 traces differences in intervention prices between major traders in soft wheat, when expressed in ECU. In 1988, the intervention price for wheat was 19 percent higher in Germany than in France, and 43 percent higher in Italy than in France, when expressed in ECU.

The MCA's, paid at the border, are targeted for elimination in a multistep process, with total elimination to be achieved by the end of 1992. In grains, fixed MCA rates have been sharply reduced over the past 2 years (table 3). By 1991, MCA's will cover only Spain and the United Kingdom.

Cuts in MCA levels have been extensive since 1988, but major obstacles remain to a full and permanent removal of MCA's. The goal of common CAP pricing requires not only the full removal of MCA's but also the means to prevent any new MCA's from emerging. How to accomplish this goal remains to be negotiated; however, there appears little alternative to either a tightly controlled exchange-rate system or persistent and prompt amendments to member states' green rates, both of which appear politically unacceptable to at least some member countries.

CAP Policy and Feed Prices. The shrinking share of CAP-supported feedgrains in EC animal rations and persistently high grain production at subsidized prices have heavily burdened the EC agricultural budget and

Figure 1
Intervention prices for soft wheat in selected member countries



Source: Eurostat, Agricultural Prices, 1979-1988, 1989.

Table 3--EC monetary compensatory rates for grains

Country	Marketing year				
	1986/87	1987/88	1988/89	1989/90	1990/91
			ECU		
Germany	2.4	1.0	0	0	0
Netherlands	2.4	1.0	0	0	0
France	-8.0	-3.5	-2.0	0	0
Belgium	0	0	0	0	0
Luxembourg	0	0	0	0	0
Denmark	-2.0	0	0	0	0
Ireland	-9.0	-3.6	-2.1	0	0
Italy	n.a.	-6.5	-6.5	-1.5	0
*UK	n.a.	-13.8	-13.8	-19.7	-8.0
*Greece	n.a.	-37.6	-37.6	-9.9	0
*Spain	n.a.	0	0	-1.2	-1.2
*Portugal	n.a.	0	0	-2.1	0

n.a. = Not available.
*MCA rates for these countries vary according to exchange-rate movements.

have forced the Council of Ministers to earnestly seek policies that discourage overproduction of cereals while boosting feed grain demand through more favorable prices. The effects of these policies on feed prices could be dramatic, and may well outweigh single market influences.

Beginning with the 1987/88 price review, notable changes have occurred to grain pricing policies. The introduction of the stabilizer program for grains set up a system of automatic price cuts to be applied to the following year's intervention price when total cereal production exceeds a specified limit. The system of automatic price cuts has been used in both the 1988/89 and 1989/90 marketing years, when production exceeded maximum guaranteed quantity (MGQ) of 160 million metric tons. In both years, nominal intervention prices were cut by 3 percent (Agra Europe, Ltd., 1990). Admittedly, some of the policy effects were whittled away through manipulations of green rates and internal production aid measures. However, added pressure that the removal of MCA's brings should assure that future price responses will be more severe. In the 1990/91 CAP Price Review, the Council of Ministers announced another 3-percent cut in nominal intervention prices, in response to overproduction in the 1989/90 marketing year.

Indirect price influences have also been applied to feed grains to weaken the price support mechanism. The shortening of the intervention period, cuts in monthly increments of intervention prices, and changes in quality specifications have been estimated to add a 1-1.5-percent reduction in price (Töpfer International, 1989). The production levy, which reduces the buy-in price to 94 percent of the intervention rate, is applied whenever production in the previous year has exceeded the MGQ. The 3-percent levy is only refunded when production in the current year remains below the MGQ. The interpretation and enforcement of these unofficial price influences differ markedly between member countries; however, they have generally worked to dampen price incentives for overproduction.

The removal of MCA's will change feed grain price differences between some member countries. This, in turn, could alter production and intra-EC trade patterns between grain producers and consumers. The amount of change may be limited, due to the geographical advantages of maintaining grain production in the vicinity of major livestock areas. Proposed changes to transportation rates may also alter comparative price advantages between countries or regions such that feedstuff production and trade are altered.

A far greater influence on feed prices will come from reductions in CAP intervention prices. Price drops from these measures will, in the medium term, outweigh price drops from a removal of MCA's. An overall decline in grain intervention prices could reverse the downward trend in grain's share of feed. Where these shifts reduce costs, quality and prices could be altered. While national aids are expected, at least in the short term, to alleviate much of the adverse effects from agrimonetary reform, increased EC budget pressure, and pressure to remove trade distortions, will continue to override national interests when implementing CAP price policies.

EC Energy Policy and the Single Market

Energy use and energy costs have risen steadily for agriculture since 1980. The total value of energy used in agriculture in the EC-12 reached 7.6 billion ECU in 1988, or roughly 15 percent of total agricultural input expenditures. This figure is compared with 5 billion ECU in 1979, a 50-percent increase.

Energy markets vary significantly between member countries by the types of energy produced and by the way the various types are produced, sold, and consumed. The political dispositions, tax policies, resource bases, and the variety and relative importance of market operators vary considerably from country to country. These differences are a primary reason for the continued separation of national energy markets within the EC.

Table 4 summarizes the share of energy types in agriculture for the EC-10. As the table suggests, large differences existed between member countries in the types of energy used for agriculture. These differences resulted not only from the different agricultural practices, but also from the different domestic supplies and national energy policies.

When the borders open under the single market legislation, EC energy markets could be altered significantly. Though not directly covered in the Single European Act, the harmonization of energy markets is considered essential to a fully integrated European market. EC member states will reform energy markets along the lines already defined within the 1995 EC energy agenda, although with some notable changes.

The set of 1995 policy proposals is based on reducing the EC's vulnerability to energy supply disruptions and price increases, with a number of objectives set for

Table 4--Breakdown of energy consumption in agriculture as a share of input purchases for the EC-10, 1985

Type	D	F	I	NL	B	L	UK	IRL	DK	GR
						Percent				
Total energy	16.0	10.9	6.9	12.3	11.2	12.9	9.6	11.8	7.7	26.8
Heating fuel	4.3	2.3	0.2	7.6	4.0	0	1.6	.4	2.2	4.0
Motor fuels	7.4	6.4	4.3	2.4	4.1	6.9	5.5	8.6	3.3	18.5
Electricity	3.0	1.4	1.6	2.2	2.8	6.1	2.1	2.5	1.9	1.5
Lubricants	1.4	.9	.8	.1	.3	0	.4	.3	.2	2.7

D=Germany; F=France; I=Italy; NL=Netherlands; B=Belgium; L=Luxembourg; UK=United Kingdom; I=Ireland; DK=Denmark; GR=Greece.
Sources: Eurostat; Cronos database; and own calculations.

1995. The measures call for increased efforts toward improving energy efficiency, limiting dependency on oil as an energy source, promoting solid fuels, and emphasizing environmental concerns and the development of renewable energy sources.

In addition to the 1995 objectives, and somewhat in contrast, specific policy goals for the formation of an internal energy market (IEM) have also been set. These goals are aimed at reducing energy costs; gaining greater control over the security of energy supply for all member countries; and bringing greater advantages from complementarities, improved cost structures, rationalized energy production, and transmission and distribution activities (Commission of the European Communities, 1988a). The Cost of Non-Europe energy report (Commission of the European Communities, 1988b), has set potential gains as high as 0.5 percent of the EC's gross domestic product (GDP) (roughly 20 billion ECU).

The obstacles to realizing an IEM are formidable. The energy sector is one of Europe's least-integrated sectors. Most forms of energy share some common barriers. Major discrepancies still exist between member states regarding price and cost structures, tax policy, the transparency of prices, and the domestic price levels for all types of energy. Differences in the legal framework regarding ownership rights and development restrictions also constitute major barriers to an integrated and competitive market.

The proposed reforms to the energy sector will involve the harmonization of rules and technical barriers and the opening-up of public procurement of energy and related services. Public procurement of energy equipment and services is often restricted to only national firms through requirements of import licenses or certificates of origin, technical requirements for products, and incitements to purchase national products, among others.

In July 1989, the EC Commission set down four proposals to move toward the formation of an IEM. These proposals called for: (1) measures to improve price transparency of gas and electricity; (2) regulations to facilitate coordination of future energy project investments; (3) formation of electricity transit networks through transmission grids; and (4) guidelines for an EC-wide high-pressure natural gas grid (Palinkas, 1989). The proposals remain highly controversial, and passage by the Council of Ministers will be a long time in coming.

The large differences in energy tax, which may well be the most important obstacle to an open market, are also set to be harmonized. Environmental and health and safety standards will also be harmonized. The application of EC law will break down government-authorized monopolies with exclusive rights to supply consumers in certain areas. State aids and subsidies also contradict EC law, and will be subject to approval by the EC Commission beginning in 1993.

Tax Harmonization and Energy Prices

The harmonization of taxes remains one of the more controversial areas targeted for the formation of a single market. If accomplished, the results of tax harmonization would affect input costs to farmers for a variety of purchases. Two types of tax changes affect energy: value-added taxes (VAT) and excise duties.

Differences in taxation between member states lead to considerable energy price differences.

Value Added Taxes (VAT). The EC Commission has proposed a set of measures to harmonize VAT and excise duties for all member countries. VAT's are widely used in the EC, but at uneven rates and with various commodities being covered. The proposed harmonization of VAT rates will be achieved by requiring all member countries to maintain VAT rates that fall within the following ranges: (1) reduced rate: 4-9 percent, (2) standard rate: 14-20 percent, where reduced rates would apply to energy products for heating and lighting. These proposed rates represent averages of the rates charged in the member countries. A breakdown of VAT rates currently applied to energy products for member countries appears in table 5.

The effect of changing VAT rates on energy costs is difficult to surmise, due to diverging national policies for refunding VAT to farmers. VAT are charged on every sale of a product in every stage of the production and marketing chain. Since the final consumer must ultimately pay VAT, the VAT that farmers pay cover only the 'value added,' which is the difference between the VAT invoiced on their sales and the deductible VAT paid on inputs.2/

Table 5--EC-12 value-added tax on sales of fuel oil, gasoline, diesel fuel, and electricity, by country

Country	Fuel oil	Gasoline	Diesel	Electricity
		Percent		
Germany	14.0	14.0	14.0	14.0
France	18.6	18.6	18.6	18.6
Italy	19.0	19.0	0	9.0
Netherlands	0	18.5	0	18.5
Belgium	17.0	25.0	25.0	17.0
Luxembourg	6.0	6.0	6.0	6.0
United Kingdom	0	15.0	15.0	0
Ireland	10.0	25.0	10.0	5.0
Denmark	0	22.0	0	22.0
Greece	6.0	36.0	6.0	16.0
Spain	12.0	12.0	12.0	12.0
Portugal	8.0	n.a.	n.a.	n.a.

n.a. = Not available.
Source: International Energy Agency, OECD, Energy Prices and Taxes, 4th Quarter. 1989.

The harmonization of VAT rates will likely have only a minimal effect on energy input costs to farmers. Assuming that farmers will continue to be compensated for VAT paid on input purchases, changes in VAT rates will comparably adjust the amounts refunded. The harmonization will, however, standardize VAT refund policies within the EC, reducing the potential for governments to use the system to indirectly subsidize or tax agriculture.

Excise Taxes. Excise duties, which are normally applied to purchases of petroleum products, also diverge between member countries (table 6). In 1989, excise duties for diesel ranged from none in Luxembourg and Belgium to 287 ECU per 1,000 liters in Ireland. As with VAT, excise rates also vary by energy type.

Excise taxes differ significantly from VAT in that they are not refunded to farmers. Excise taxes can, therefore, be treated as a direct cost to agricultural production. Excise duties account for a larger share of the selling price than do VAT rates. In the Netherlands, for example, excise taxes amounted to 162 percent of the pretax price for gasoline, compared with the VAT rate of 18.5 percent.

According to the EC Commission's proposals, the harmonization of excise duties will be calculated as the arithmetic average of the excise duty charged on each product in the member states. The proposed harmonization of excise taxes could considerably alter energy prices to agriculture (table 6). Assuming that arithmetic averages for 1989's excise rates would be used in setting rates for the single market, all member countries would make adjustments for gasoline, ranging from a 102-percent increase in Greece to a 48-percent decrease in Italy. These adjustments, in turn, would change prices offered to farmers. The actual magnitude of price change would depend on the mix of energy products used (table 4).

One can roughly estimate the effects of tax harmonization on energy prices by assuming that energy prices will change in those countries where current excise rates fall outside of the EC Commission's proposed excise tax level for diesel and fuel oil. Estimates of percentage changes in excise rates for

2/ For a description of the VAT system and how it affects EC farmers, see Guyomard and Mahe, 1991.

diesel and fuel oil are calculated from the tax levels listed in table 6. One can construct a weighting scheme using the share in value of each of the two energy types to total value of energy used for each member country (table 4), and the share of the excise tax in the total price. The resulting weights represent the estimated percentage change in energy prices that would result from a harmonization of excise taxes (table 7).

The obstacles to achieving a full harmonization of EC national energy markets are numerous and complex. The strategic importance of the commodities and the interlinkages between the public and private sectors at all stages of the markets will make the harmonization process long and drawn out, the outcome of which is difficult to foresee. Conflicts between the IEM goals of market liberalization, and national goals of supply security and environmental protection, may well prove unresolvable. With energy prices once again soaring, and supplies in jeopardy, progress toward an intra-EC energy market will, no doubt, be slowed further.

Table 6--Excise duty rates for petroleum products, 1989

Country	Gasoline	Fuel oil	Diesel
	ECU per 1,000 liters		
Germany	314	28	213
France	413	249	252
Italy	649	249	248
Netherlands	373	51	123
Spain	255	62	124
Portugal	n.a.	n.a.	n.a.
Belgium	295	151	0
Luxembourg	230	99	0
Greece	173	45	45
United Kingdom	304	16	257
Denmark	450	219	219
Ireland	391	48	287
Average 1/	350	111	174

n.a. = Not available.
1/ Average excludes Portugal.
Sources: International Energy Agency, OECD, Energy Prices and Taxation, 4th Quarter, 1989; and own calculations.

The EC Commission's proposals for harmonizing taxes are not geared specifically to the energy sector and may affect future energy prices to agriculture, primarily through changes in excise levels and, to a lesser extent, through changes in VAT rates. The proposed harmonization, however, remains highly controversial, and the Council of Ministers' adoption is not expected for some time to come.

The Fertilizer Industry

The EC fertilizer industry is undergoing considerable changes, due to stagnating demand for its products. Between 1980 and 1988, consumption of fertilizer in the EC grew from 8.5 million tons to 9 million tons, just under 1 percent per year. Nitrogenous fertilizers constitute slightly more than half of the total, with a growing share in the form of ammonia and urea. Fertilizer represents nearly 14 percent of total intermediate input costs to farmers.

World fertilizer production and consumption levels strongly influence the European fertilizer industry. While EC producers once played a major role in the

Table 7--Estimated price changes for diesel and fuel oil, resulting from excise tax harmonization, by country

Country	Fuel oil	Diesel	Total
	Percentage change		
Germany	12	-4	8
France	-4	-11	-15
Italy	-1	-10	-11
Netherlands	17	3	20
Spain	4	8	12
Portugal	n.a.	n.a.	n.a.
Belgium	-13	18	5
Luxembourg	0	32	32
Greece	5	4	9
United Kingdom	10	-1	9
Denmark	-7	-4	-11
Ireland	9	-15	-6

n.a. = Not available.

world supply of fertilizers, particularly to developing nations, the steady production growth in many developing countries and Eastern Europe has taken away much of the EC's traditional export markets and has weakened its market position within Europe. Imported fertilizers from developing countries, Eastern Europe, and the Soviet Union have cut into intra-EC markets and have turned the EC into a net importer of fertilizers (table 8).

In the late 1980's, the overall stagnation in demand and decreasing market share induced the fertilizer industry to undergo a major restructuring and rationalization to bolster its competitiveness. Production gluts and the consequent downward trend in prices pushed firms to cut costs and to raise productivity. Production operations were transferred to supply sources, and marketing channels were set up to operate at both the national and European level. The high cost of innovation also drove many firms from the market. In 1979, there were some 33 manufacturers of nitrogenous fertilizer; at the end of 1990, only 9 will remain (BGDP düngen und schützen, 1990).

A handful of multinational firms dominate the EC fertilizer market. The fertilizer market is becoming increasingly concentrated, as small firms drop from the market or are absorbed by larger firms. Because the industry is highly capital-intensive, and plants are often large integrated operations where chemicals for other products are developed, high startup costs assure few new market entrants.

The fertilizer industry is highly competitive, in large part from the homogeneity of the products and from competitively priced fertilizer imports. The fertilizer industry is also ridden with a high amount of overcapacity. In Germany, by the end of 1990, more than 5.2 million annual tons of capacity will be idled. Only two firms--BASF and Nordsk Hydro--will continue producing fertilizer in Germany. Further restructurings are also expected in Italy, Spain, and France, which all carry excess capacity.

The Single Market and Future Fertilizer Prices

Fertilizer is widely traded across EC borders. A number of EC measures are already in place that regulate labeling, sampling, packing, and analysis of solid fertilizers. Some nontariff trade barriers remain for the fluid market sector, which is growing in market share, and for fertilizers containing micro-nutrients, which are used primarily for horticulture crops.

The harmonization of the EC fertilizer market is to be achieved through a set of proposals that call for expanding EC standards already in place. The Council of Ministers has already adopted two of the three proposals, which await implementation. Directive 88/183 calls for the registration of fertilizer types, the standardization of fertilizer labeling, and sampling, packing, and analysis methods for all fluid fertilizers. Guidelines for the capacity and construction of storage are also set. Directive 89/284 expands existing EC regulation controlling mineral amounts in solid fertilizers to cover fluid fertilizers. The time of application and location of fertilizer applications will be restricted.

A proposal to control the levels of micronutrients in fertilizers was set forth in 1988 (COM(88) 562). The proposal contains a comprehensive list of EC fertilizer types for pure micronutrients in fluid or solid form, as well as in mixtures of fertilizers. The list closely resembles that of Germany's standards. After passage, fertilizers in the list of types can be marketed throughout the EC without need for registration.

The measures set forth by the EC Commission for harmonizing the fertilizer market represent further steps in a process that has been going on for some time. Growing concern for health and environmental protection at both the national and the Community level has targeted the fertilizer industry for increasing regulation. This trend shows no signs of diminishing.

The fertilizer industry has not reacted strongly to the call for a single market, partly because the proposed changes are not expected to greatly alter the competitive positions of firms already in the market, most of which maintain EC-wide marketing networks and anticipate a further tightening of EC regulations.

Perhaps a better explanation appears in the future outlook of the industry. The European fertilizer industry is in a weak market position to respond to increased world fertilizer demand. World demand for fertilizer is expected to climb, due to rapid population growth and food production in developing countries. However, because of access to cheaper raw materials and lower energy prices, fertilizer producers outside of the EC will capture most of the growing demand. Within the EC, future demand for fertilizer is expected to decline over the next few years, as the EC Commission focuses on curbing overproduction in agriculture.

Finally, many in the fertilizer industry consider the unfolding of recent events in Eastern Europe and the Soviet Union to be a much greater determinant of future EC fertilizer production and price levels. The EC currently has the highest prices in the world for

Table 8--EC production and foreign trade of fertilizer

Item	1980	1981	1982	1983	1984	1985	1986	1987
				Million ECU				
Production:								
Current value 1/	5,800	6,300	6,500	6,400	7,300	8,100	7,600	6,500
Constant value	5,800	5,792	5,482	5,131	4,956	5,883	5,348	4,472
Trade:								
Extra-EC imports 2/	606	613	670	826	893	1,024	1,034	1,030
Extra-EC exports 2/	739	860	603	685	991	1,066	690	520
Exports/imports	1.22	1.40	.90	.83	1.11	1.04	.67	.51

1/ EC-10 from 1980-85 (excludes Spain and Portugal); EC-12 for 1986 and 1987. Manufactures made from semifinished products not counted in EC production.
2/ EC-10 from 1980-86; EC-12 for 1987.
Source: Commission of the European Communities, Panorama of EC Industry, 1989.

fertilizer materials. The industry has filed a number of antidumping suits with the EC Commission against Eastern European competitors, whose subsidized production and energy have kept prices well below those in the EC.

The effects of harmonizing EC markets may raise production costs for fertilizers, due to more stringent health and environmental regulations, while also improving quality. The current trend toward greater market concentration will likely continue, given the EC industry's weak position in world fertilizer markets. However, price competition should remain strong, due to the EC's continued access to competitively priced fertilizer imports.

The Plant Protection Industry

The plant protection industry supplies a wide selection of plant herbicides, pesticides, and fungicides to agriculture that together constitute about 5 percent of total intermediate input costs of EC agriculture.

The market for plant protection products grew steadily during the past decade, after several years of stormy development. In value, consumption grew 55 percent between 1980 and 1988. The rapid increase stemmed from the proliferation of specialized product types and uses and significantly improved product quality.

Plant protection products are produced primarily by a small number of multinational chemical companies, which, in many cases, are also major suppliers of fertilizers, veterinary products, and industrial chemicals. These firms usually operate a network of local subsidiaries that develop, produce, and market plant protection products to meet national licensing requirements. A large share of the pesticides produced within the EC is exported to other EC countries. In 1988, 46 percent of Germany's plant protection product exports went to other EC countries (Böttcher, 1989).

The barriers to trade in plant protection products are considerable. Differences between chemical contents, testing, and licensing procedures have divided national markets, where product types and prices vary considerably between member countries.

All member countries have laws for marketing and registering plant protection products that share common principles, especially for evaluating human and plant health effects (biological efficiency). Large differences still exist, however, in setting standards and testing procedures related to ecological cycles. Plant protection products cannot be freely traded until this last area is harmonized.

The Single Market and the Plant Protection Industry

In February 1989, the EC Commission put out a proposal package that set guidelines for regulating pesticides. The heart of the proposal is a common positive list of substances for pesticides (not mixtures) to be put out by the EC Commission that are viewed as generally not harmful to humans, animals, and the environment. Pesticides that contain mixtures of only these ingredients are to be maintained on national registration lists so that the products can be traded

freely. According to the proposal, substances for the positive list would be approved initially for 10 years, and could thereafter be reapproved at 5-year intervals. National registration would remain a requirement, and member countries could approve pesticides whose substances did not appear on the positive list within 3 years.

The proposal also calls for mutual recognition of registration and testing, so long as the preconditions concerning application of pesticides, and the standards for biological efficiency, human health, animal health, and the environment, are comparable.

Several other EC proposals aim at regulating maximum amounts of pesticides found in meat, feed, fruit, and vegetables. These proposals will indirectly affect the plant protection industry. Harmonizing these at maximum levels is not yet agreed to, but needs to be resolved before trade can be opened. Previous directives have restricted the use of some chemicals, as well as grading, labeling, and packaging of pesticides. Guidelines for producing and storing dangerous substances have also been proposed.

The EC Commission's proposal for harmonization is a step in the right direction, although many of the proposed changes spelled out in the proposals remain controversial. In their present form, the proposed measures may well delay registration and increase bureaucratic costs.

In the short term, no major changes are predicted for the plant protection industry for several reasons. First, the socioeconomic differences between countries will hamper harmonization. Countries with high health and environmental standards are not eager to weaken existing regulations, while other member countries are not yet willing to absorb the costs associated with adopting higher EC-wide guidelines. Because the European Parliament has exempted measures related to health and the environment from the principle of mutual recognition, achieving unanimity within the Council of Ministers over the remaining proposals will probably be tediously slow.

Second, the proposed positive list of chemicals is not widely accepted throughout the industry; many feel that the proposal does not go far enough in harmonizing the market. So long as national laws remain decisive in registering products, instead of easing product registration procedures, firms anticipate a doubled effort in having to meet both EC and national standards. Further problems may arise in the maintenance of a positive list, where substances acceptable at the EC level are found harmful under national standards. Of the approximately 450 substances currently used in plant protection products, only 60 are accepted in all member countries.

Finally, the research and testing involved in having a product approved, if experiences in the pharmaceutical industry are any indication, will take much longer than the estimated 3-year period that the EC Commission anticipates.

Full harmonization of the plant protection industry remains a dim prospect in the short term. The industry will continue to increasingly respond to health and environmental concerns, which will require extensive research and product testing. Strong lobbies will complicate the consensus-building process needed for the Council's approval.

Because of the high costs involved, many firms will move toward joint research, which will increase mergers and raise market concentration. Overall, tighter regulation will likely raise prices and improve product quality.

The Farm Machinery Industry

The costs associated with maintaining and repairing farm machinery and parts constitute roughly 6 percent of total intermediate input costs to agriculture for the EC. The prices of farm machinery for investment and spare parts are a major determinant of these costs. In calling for a single market, the EC Commission has targeted agricultural tractor and machinery industries for harmonization. Where the market harmonization induces changes in the parts industry, costs of machinery repair and maintenance will be affected.

The agricultural machinery industry produces a wide range of products, from sophisticated tractors to simple hand-powered tools. A small number of multinational firms, many of which are American, are the primary producers of tractors and some larger machinery. Small and medium-sized firms produce most other machinery.

Demand for farm machinery within the EC has dropped steadily throughout the 1980's. Rising costs of other intermediate inputs--primarily fertilizer and energy--and rising land values have forced farmers to cut back on machinery investments. The types of machines demanded have also changed. A tendency now exists for farmers to substitute volume of purchases with more powerful machinery. The agricultural machinery industry is also becoming highly specialized. Despite being a major world producer of tractors, the United Kingdom imports up to 45 percent of its requirements

in agricultural machinery to meet the specialized needs of its agricultural operations.

The EC is a major world supplier of farm machinery, exporting roughly 2 billion ECU in tractors and machinery. Agricultural machinery is widely traded in the EC; Germany exports more than half of its machinery output, and Italy more than 40 percent.

The EC farm machinery industry is highly competitive. With demand falling, international competitors are entering markets already plagued with chronic excess capacity. The entire industry is estimated to be operating at 70 percent of capacity (Commission of the European Communities, 1989). Exports have also declined in the 1980's, due in part to the deteriorating U.S. farm situation and rising debt problems in developing countries.

Despite the depressed demand, few of the large tractor and heavy machinery producers have left the market. These firms, which dominate the market, are highly diversified and have proven very resilient to occasional heavy losses. Smaller firms, however, have not fared so well, with firm closings and job cuts widespread.

The Single Market and Machinery Prices

Nontariff barriers to intra-EC trade in agricultural machinery exist in several forms. Unique national vehicle equipment specifications have required manufacturers to duplicate production and testing to meet existing national standards. Differing taxation levels and policies for refunding VAT distort relative prices, as do national subsidies that support domestic firms.

The EC Commission has completed a large part of its program to harmonize markets. Three separate directives have been adopted to directly address the harmonization of the agricultural machinery industry. These directives call for EC minimum safety standards for tractors and for EC specification standards for important parts that would replace or add to existing national codes.

The directives will have only minor effects on the agricultural machinery industry in the short term. The high costs associated with changing the design and production of all elements of machinery and tractors to EC standards will limit major redesigning to only those products with wide market demand.

In the medium term, though, savings could come from lower engineering expenses, in the form of component test rigs and operating prototypes. With a common set of technical regulations, EC-wide approval will be more easily obtained. Firms will also probably streamline distribution systems and cut down on the number of tractor and machinery models.

These measures could indirectly induce industrial reorganization and technological change in component manufacturing. Component parts will be more standardized and accessible, as component-makers influence machine manufacturers to adopt components common among makes and models.

Other single-market measures, particularly from the harmonization of road transport and taxes, will also reduce costs associated with cross-border sales. Where this increases competition, less-efficient manufacturers will be forced from the market. Subsequent gains in economies of scale and reduced overcapacity could bring positive price effects to farmers. On the down side, market concentration will also probably increase.

Conclusions

The objective of this study was to assess the effects of the proposed EC single market on selected agricultural input industries, with special attention being given to price effects. The five industries--feed, energy, fertilizer, plant protection, and agricultural machinery--were first analyzed to determine current market conditions and trends. Using this information as a base, the potential effects of existing single-market proposals and rulings on each industry were assessed. This study did not attempt to cover all measures affecting the industries, but instead to focus on the two or three that could have the greatest effects on the industries in the future.

The findings suggest that the current single-market proposals will affect the agricultural input industries, but that other, stronger market forces may well overshadow the proposals' influence. The CAP price policies for grains, unstable world supplies, prices for energy, and intensifying foreign competition in the fertilizer industry will all influence future market structures and price developments, and could well overshadow factors stemming from single-market rulings.

In the medium term, changes in market structures, spurred on by greater levels of competition, could have far-reaching effects. The core of the Cecchini (1988) report rested on the assumption that increased competition would spur greater efficiency, thus reducing costs and prices. While this study showed industries to be highly competitive, greater competition was not

found to necessarily lead to sizable cost savings and lower prices in the medium term. Instead, almost all of the industries analyzed, we found, are expected to reach higher levels of concentration as a result of both existing market trends and single-market effects.

Market concentration will rise for several reasons. First, technological innovation will be needed to meet greater competition, but for most of the industries, the high costs involved will force weaker firms to leave the market or to merge with stronger firms. The plant protection and agricultural machinery industries, especially, will see a number of mergers and plant closings. This pattern is being repeated in many industrial economies, and would probably also take place within the EC in the absence of a single market, though perhaps at a slower pace.

Second, almost all of the industries analyzed are plagued with high levels of excess capacity. With the EC agricultural sector expected to grow at a slow pace, stagnant growth in demand will pressure weaker firms to exit the market. The fertilizer industry, and agricultural machinery industries in particular, currently carry considerable over-capacity.

We found the price effects stemming from a removal of barriers difficult to predict. In some cases, particularly for feed and energy, single-market measures could be isolated, and their effects on future prices could be estimated. The results of these analyses showed price effects to be mixed, with price changes being different depending on the agricultural activity and the member country in question. The removal of MCA's could change relative feedgrain prices between some member countries, with subsequent production and trade changes likely. The harmonization of excise taxes could also alter energy costs to agriculture, raising costs in some countries while lowering them in others.

The study also found what many have already conceded: the full removal of trade barriers affecting agricultural input industries will take considerably longer than the remaining 2 years. The high level of controversy surrounding proposals in the energy and plant protection industries assure that major changes in these industries will be a long time in coming. A full integration of markets will also require strong industry responses that, in many cases, will be very costly and often not in the long-term interest of individual firms.

To gain greater insight into the effects of a single market on input costs to farmers would require more indepth studies of individual input industries. Such studies would certainly encounter limitations from the unresolved nature of many single-market proposals, but the insights gained through a more thorough analysis of issues concerning each member country in each input market sector would definitely be useful.

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The EC Single Market Program Effects on Trade in Animal Products

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Abstract

The European Community is harmonizing and upgrading sanitary regulations at the Community level as part of the Single Market program. Sanitary regulations have a considerable potential for overriding existing institutional arrangements, on the basis of protecting public and animal health. If upgrading sanitary regulations takes priority over maintaining the institutional arrangements, third-country access to the EC beef market may be substantially reduced. Otherwise, institutional arrangements will guarantee a minimum level of third-country access to this market. The EC single market is not expected to have any major effect on other third-country meat trade because of low levels of EC imports of these products.

Introduction

The impetus for the single European market began with Lord Cockfield's Completing the Internal Market in 1985. Formation of the European Community (EC) in 1957 had eliminated tariff barriers to intra-Community trade in agricultural and raw commodities. The White Paper emphasized that significant nontariff barriers persisted, and were of particular importance to trade in processed products and services. A set of 279 directives were identified to eliminate those trade barriers and to achieve the ideal of a single European market. A goal of December 31, 1992, was set for enactment of those directives, referred to as EC 1992, and for implementation of the single European market. Many directives have already been enacted, and work continues on the remainder. However, several of the critical and more contentious issues, such as fiscal and monetary reform, are yet to be resolved.

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Many in Europe believe that EC 1992 will hold little significance for agriculture. The Common Agricultural Policy (CAP), established in 1967, had already accomplished free trade in agricultural commodities within the EC, according to the EC Commission in The Agricultural Situation in the Community: 1988 Report. We found that this view has been echoed by producers and farm organization representatives, slaughterhouse managers, meat processors, and traders from several countries:

- "Tres, tres petit peu!" ("Very, very small!") (French pork producer)
- "The [EC 1992] program will have very little impact on my business." (Danish meat processor and exporter)
- "Live animals and meat products are traded freely within the Community." (UK Livestock Commission)
- "We have virtually eliminated foot-and-mouth disease so the [EC 1992] program will have little impact on Spain." (Spanish Pork Producers Union)

- "Trade in meat products is not overly restricted. Any restrictions are well-known and accepted as necessary." (Danish Farmers Organization)

- "MCA's are too small to have much impact on animal or meat trade." (French Chambres d'Agricole)

Many perceptions were found to underlie these evaluations. First, there is widespread skepticism about the emergence of a common currency, usually thought of as a fixed-exchange-rate regime and not a common currency, and of the subsequent elimination of monetary compensatory amounts (MCA's). Second, many believe that exceptions and derogations for special cases will gut any hard-hitting EC legislation, such as slaughterhouse regulations, that could affect meat trade. In a similar vein, many controversial legislative initiatives, particularly for processed foods regulation, are expected to find agreement in the Council of Ministers as only weak, ineffective legislation. In some cases, a compromise agreement simply may not be reached and legislation may not be enacted.

Third countries (non-EC members), however, are concerned that the unification of the European market could create a Fortress Europe. The Fortress Europe scenario envisions freer internal EC trade, but common and more restrictive barriers to third-country trade.

The many factors in the production, processing, and trade of meat products in the EC, as well as EC bureaucrats, do not anticipate changes in the many institutional features of EC meat policies. Community preference is one of the most important features of EC meat policies that EC 1992 will not affect. Community preference is enabled through a pricing mechanism and related market interventions that insure lower prices for meat produced within the EC over available imported products.

The basic market philosophy underlying community preference is that the role of markets is to discover the quantity that gives the right, or anticipated, price. A more cynical definition is the discovery of the surplus quantity that EC taxpayers are willing to pay for disposal of in export markets. Supply management--or controlling the quantity coming into EC markets through variable levies and export restitutions, market interventions, and even production quotas--will be an essential institutional feature after the completion of the single European market. Also considered as enduring institutional features are the many multilateral and bilateral import access commitments that help to maintain high levels of beef and sheepmeat imports.

These two types of institutional features, community preference and import access commitments, are not necessarily compatible with one another. Import access agreements frequently place constraints on policy instruments designed to promote community preference.

It appears that certain nontariff barriers and widely accepted institutional arrangements affect the free movement of products within the EC. Some of these must change if certain EC goals are to be achieved. These goals include eradication of serious livestock diseases and the upgrading and harmonization of public standards of health. The greatest institutional changes associated with meat trade in the single European market are expected to occur in sanitary regulations for the control of animal diseases, collectively termed animal health regulations, and public health regulations for the assurance of the safety of meat and meat products. These changes may also adversely affect market access by third-country trading partners.

Adoption of animal health regulations has stirred several controversies, both within the EC and between the EC and its trading partners. The extent of disease incidence and control programs have differed significantly among EC member states. Single-market directives address control programs for certain diseases and seek to harmonize sanitary regulations among EC member states. Regulations governing facilities exporting to the EC have also been adopted in the Third Country Red Meat Directive, and are viewed by some as quite protectionist.

Institutional Features of the EC Meat Market

The CAP contains provisions for community preference, self-sufficiency and meat trade, and import access concessions and agreements that regulate current EC meat trade. But, how will EC 1992 affect these CAP provisions?

Community Preference

A central pillar of the CAP, community preference, creates a (usually large) gap between the price of products produced in the EC and those available in international markets. Community preference has characteristically resulted in the EC reaching self-sufficiency in the production of most meat products, as farmers have adopted supply-increasing technology. Self-sufficiency, and the elimination of imports, is the expected economic result of community preference.

Attaining self-sufficiency has not been the end result of community preference, as the EC has typically used variable export restitutions to move surpluses into international markets. This is an integral (and necessary) part of the policies to bring the quantity onto the market that gives the right price. If imports are maintained, whether through access agreements or product differentiation, in the face of self-sufficiency, then subsidized exports are an expected result of community preference. In the hypothetical case where self-sufficiency has been reached, but existing import access agreements are eliminated or overridden by other legislation, the EC 1992 program might rearrange intra-EC trade flows but might not increase competition beyond current levels in third-country markets, as long as CAP policies constrain production.

However, certain conditions could exist in conjunction with the nullification of import access agreements and constrained production that could lead to increased competition in certain important segments of the third-country market. Suppose that (1) some third-country markets have excluded EC imports through sanitary regulations; (2) prices are higher in these markets than in markets with lesser sanitary requirements; and (3) the increased EC sanitary standards now allow access that had been previously denied. Increased competition in these markets would then be expected, as EC exports are diverted from the lower priced markets. EC imports eliminated through the increase in sanitary restrictions may be diverted to third countries in the lower priced markets. The rearrangement of trade flows is, of course, subject to the constraints of multilateral and bilateral agreements.

Self-Sufficiency and Meat Trade

With the exception of sheepmeat, the EC has reached self-sufficiency of about 105 percent for meat (fig. 1). The adoption of technology in pork and poultry production has virtually eliminated imports, while subsidized exports of pork have exceeded 550,000 metric tons and those of poultry have exceeded 400,000 metric tons in recent years. EC exporters of poultry and pork argue that they would be internationally competitive if they faced the same feed costs as other exporters. They also reason that export restitutions do not provide an unfair advantage, because the restitutions cover only a portion of their increased feed costs. Yet, there is a lesser potential for effects on third-country trade of these products, compared with trade of beef, from successful implementation of the EC 1992 program.

At first blush, EC beef trade is a puzzle. Despite self-sufficiency levels ranging up to 110 percent, the EC is a sizable importer and exporter of beef. Dairy production quotas have recently constrained the beef supply, as an estimated 75 percent of beef production originates in the dairy sector. Thus, the level of self-sufficiency has fallen in the past 5 years. However, exports have averaged about 800,000 metric tons, even in recent years, and imports have been relatively stable at about 500,000 metric tons. Beef trade seems to be the exception to the basic contention that self-sufficiency and the elimination of third-country imports will result from community preference.

Import Access Concessions and Agreements

To a large extent, the level of beef imports persists because of international EC obligations from GATT negotiations and bilateral agreements (table 1). These concessionary agreements include minimum access on imports of frozen beef and veal, live animals, high-quality cuts, manufacturing-grade beef, and young male cattle; an African, Caribbean, and Pacific (ACP) concession; a bilateral agreement with Yugoslavia; and so-called inward processing provisions. A rough estimate is that import access commitments explain 90 percent of beef imports in the EC.

The variable import levies for beef have been very high, sometimes approaching 100 percent of the world price. Annual concessionary quotas, exclusive of the inward processing provisions, have been given on about 150,000 metric tons of fresh and frozen beef and about 212,000 head of live cattle. These are permitted into the EC with the variable levy or customs duty, or both, being reduced or eliminated. The variable levy serves as nearly an absolute barrier against beef imports, except those allowed under import access commitments.

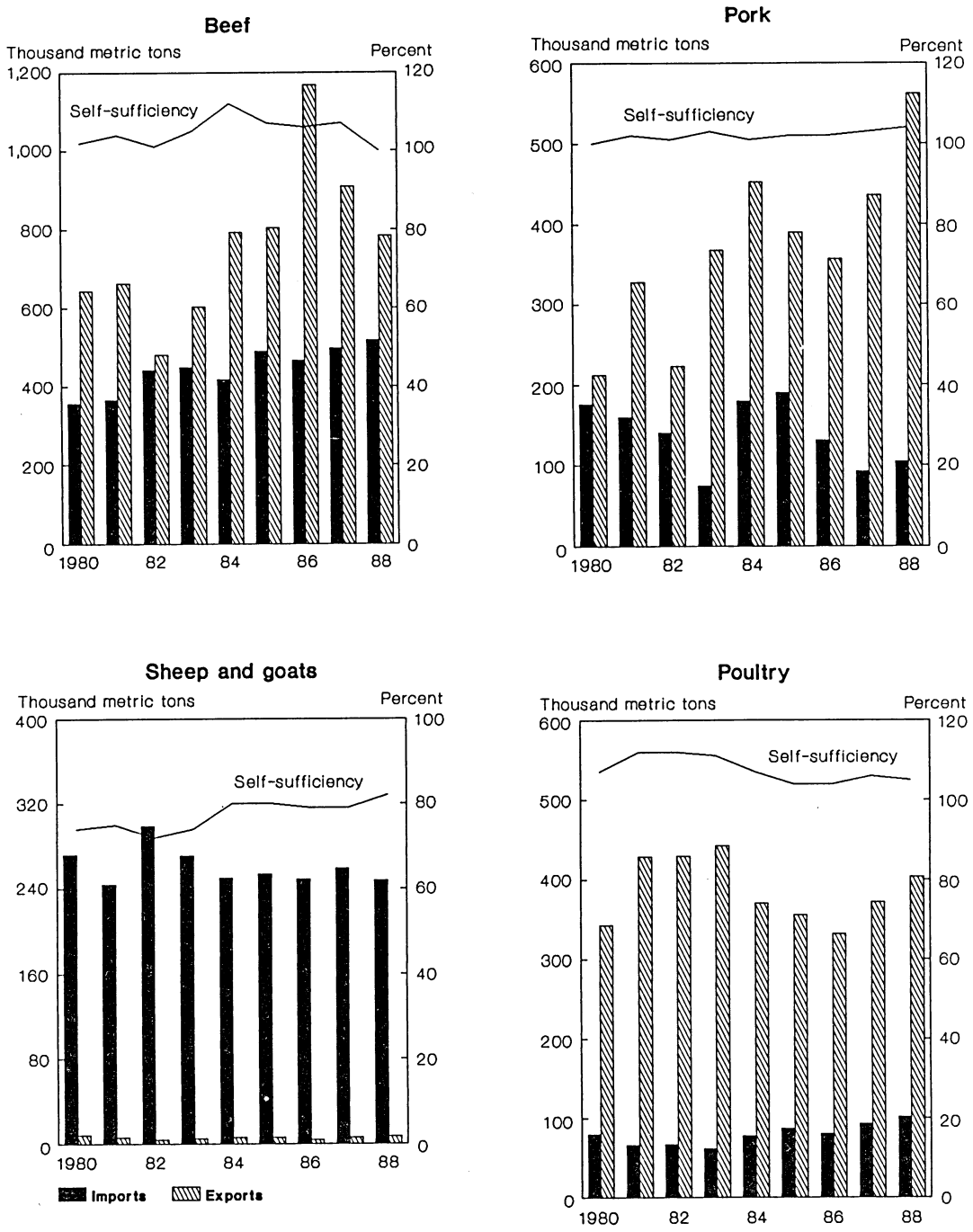
The inward processing provisions allow both the variable levy and the customs duty to be waived on beef imported for processing, if this beef is then reexported to third countries. The EC reserves the right to suspend all beef and cattle imports from third countries in the event of a severe market disturbance.

Meat trade: Destinations and sources

While concessionary agreements offer a partial explanation for the high level of EC beef imports, an additional explanation may be found in product differentiation. Perhaps beef imports differ in character from beef produced domestically and subsequently exported.

To obtain a clearer picture of intra-EC and third-country beef trade, we need to evaluate the types of products traded and the sources of imports. Intra-EC

Figure 1
EC third-country trade and self-sufficiency for animal products



Source: Commission of the European Communities, Agricultural Situation in the Community, 1988 Report.

Table 1--Multilateral and bilateral minimum-access agreements for beef

Agreement	Countries involved	Quantity
GATT quotas:		
Live animals--		
Mountain and alpine breeds (head)	Australia	47,600
Frozen beef	All eligible third countries	53,000
GATT/bilateral/agreements:		
Fresh/frozen/chilled beef	Argentina	19,500
	Australia	5,680
	Uruguay	3,300
	United States and Canada	10,000
	Brazil	1,650
	New Zealand	170
	Total	40,300
ACP countries/Lome/Convention:		
Fresh/frozen/chilled beef	Allocated yearly by country; often not binding on specific countries.	38,100
Balance sheets-meat/for manufacturing:		
Live--		
Young cattle for fattening (head)	All eligible third countries	175,000
Frozen beef	All eligible third countries	20,000
EC/Yugoslavia bilateral/agreement:		
Baby beef	Yugoslavia	50,400

Source: Agra Europe, Ltd., CAP Monitor, May 3, 1989.

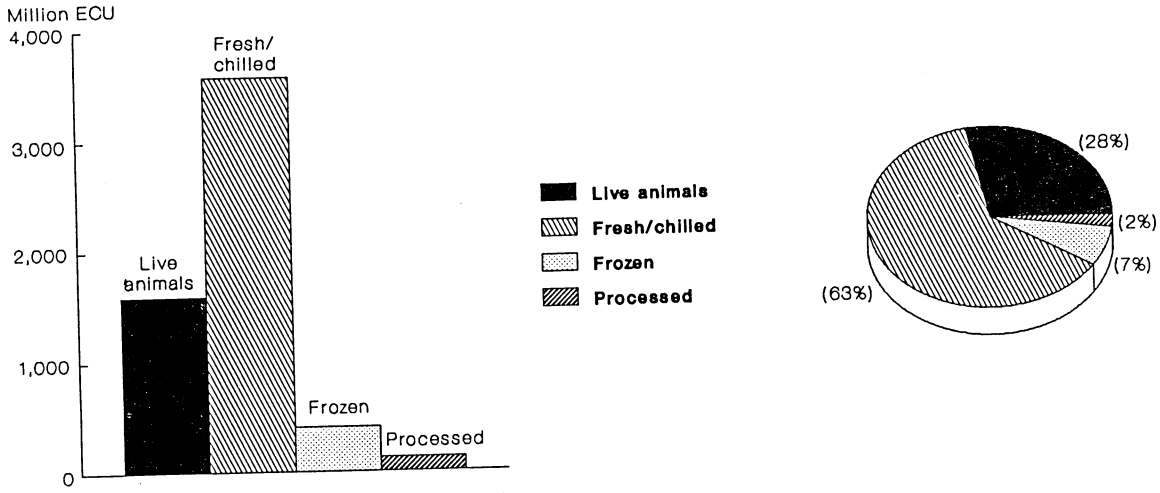
trade consists almost entirely of live animals and fresh/chilled meat (fig. 2); these two product types account for more than 90 percent of EC trade value. The very small proportion of trade value that processed products account for is important.

Live animal and fresh/chilled imports dominate EC imports from third countries. These imports amount to about 650 million European currency units (ECU) annually (fig. 3), and account for 54 percent of total EC beef imports. Imports of frozen beef, primarily from South American countries, account for about a quarter of the value of beef imports, as do imports of processed products. On the other hand, frozen beef dominates exports, accounting for almost three-fourths of the EC trade value of beef exports. Exports of processed products are insignificant, accounting for only 6 percent of the value of beef exports.

Germany and Italy account for most EC imports of beef (fig. 4). Italy receives more than three-fourths of EC live animal imports, with Austria and Eastern Europe as the primary sources. Italy and Germany account for about equal proportions of fresh/chilled beef imports, with Argentina, Austria, and Eastern Europe as the primary sources. The United Kingdom, Italy, and Germany receive most EC frozen beef imports, with several South American countries providing the bulk of these imports.

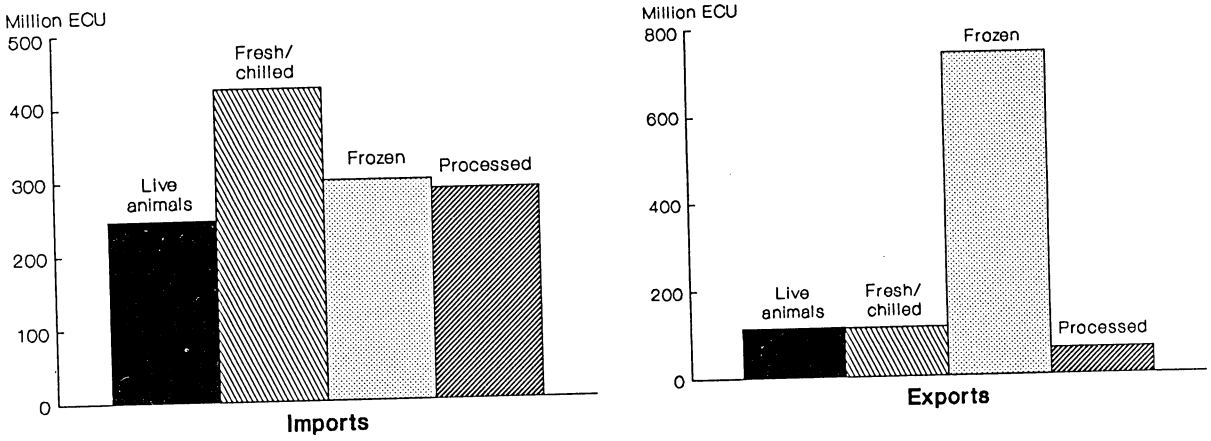
Given concessionary agreements and product differentiation as possible explanations for the high level of beef imports, the important question is whether the single European market will limit third-country beef imports. The EC imports and exports about 900 million ECU of live animals and fresh and frozen beef. Can the EC 1992 provisions internalize that trade, that is, allow surplus EC beef production to replace the equivalent level of EC beef imports?

Figure 2
Intra-EC trade in live animals and beef



Source: NIMEXE, Analytical Tables of External Trade, 1987.

Figure 3
Third-country trade in live animals and beef



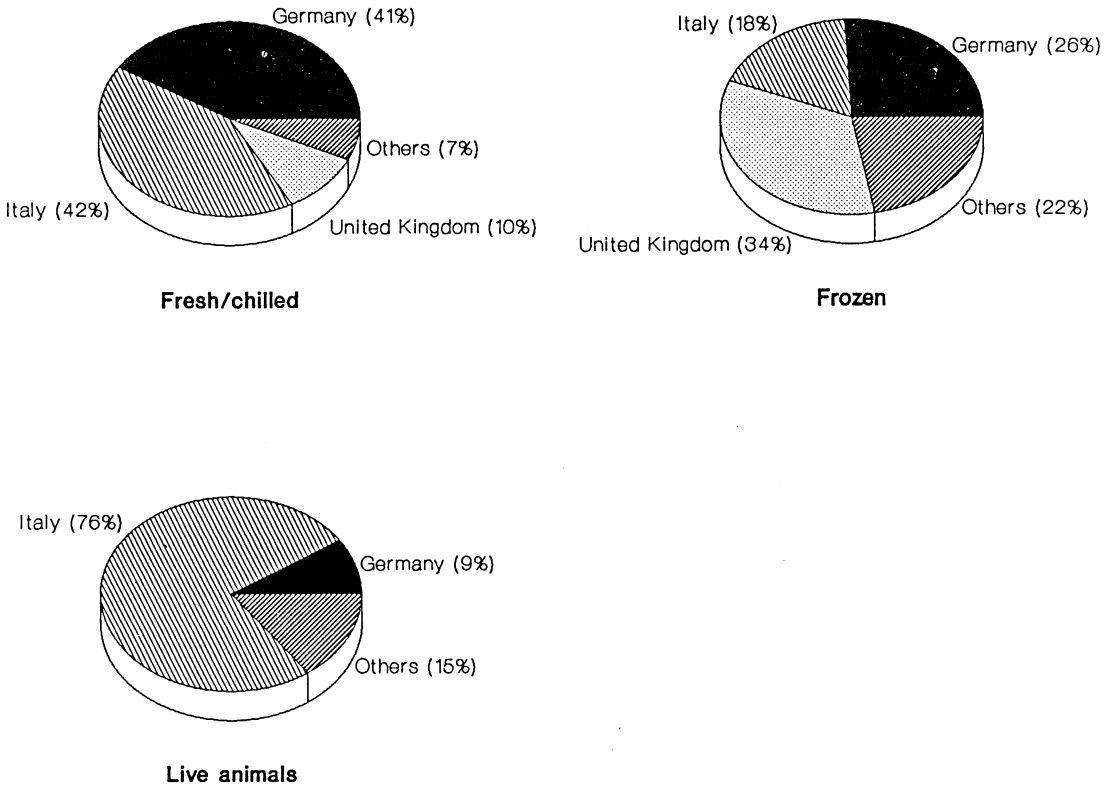
Source: NIMEXE, Analytical Tables of External Trade, 1987.

Changes in the Institutional Setting

The EC has developed extensive legislation in the areas of animal health (disease control) and public health (safety and wholesomeness of animal products). The determination and certification of compliance with these EC regulations has remained largely at the national level, which has required the application of border checks and controls. This strategy is argued to have increased administrative costs to member states, and has placed costs and delays on shipments of animals and animal products entering the intra-EC market. Certain regulations, particularly certain production and processing-method standards for meat, apply only to intra-EC and third-country trade, and not to national trade. This practice is seen as promoting national markets rather than intra-EC trade. National, rather than EC standards for meat processing clearly affect intra-EC trade patterns.

The EC, despite legislation and financial assistance to member states, has not successfully eradicated certain diseases in all areas of the member states. Disease incidence in a small geographic area of a member state

Figure 4
Third-country imports, by country and product



Source: NIMEXE, Analytical Tables of External Trade, 1987.

can effectively disrupt the free flow of animal and animal products from the entirety of that member state to other member states and to third countries. The disruption of trade flows, or even the outright prohibition of trade, due to the uneven success across member states in eradicating animal disease, is considered unacceptable in the proposed single European market. Moreover, the methods to eradicate diseases vary across member states, and this variance is a source of contention and an impediment to free intra-EC trade.

The EC 1992 strategy for animal and public health standards embraces two key concepts: point-of-origin inspection and certification, and an increase in the average level of animal and public health across the member states (table 2). These concepts could dismantle border inspections and checks, at least from a technical or administrative view. The concepts and the goal are simple enough, but implementation will take time and will be costly.

Distrust in the member states for each other's animal- and public-health standards and enforcement capabilities is one of the more difficult obstacles to overcome. This distrust hampers the point-of-origin strategy. In the spirit of the single European market, the same level of inspection and certification ideally should exist for intra- and international trade within the EC. A recent proposal that would retain national control of inspection and certification requires an exporter to notify his/her government 24 hours in advance of his/her intent to ship. The exporter's government then notifies the importer's government, which determines if inspection and certification requirements are met at the point of origin. In principle, to be consistent with the goal of a

single European market, the same process should be followed within a country's borders. This unnecessarily increases the difficulty in shipping products for domestic consumption. To be effective, a point-of-origin inspection and certification system must be controlled at the EC, rather than national, level.

All member states have maintained some type of live-animal inspection, certification, or quarantine system to prevent the introduction of animal diseases. To eliminate those barriers to the free movement of animals, certain animal diseases must be entirely eradicated in the EC. To this end, the EC 1992 legislation amends earlier directives to complete the eradication of target diseases, and initiates new action programs to eradicate target diseases in Spain and Portugal. Quite clearly, this is an ambitious goal that will require several years, if ever, to fully eradicate the target diseases.

An interim solution to gradually free the movement of animals would be determination of "disease-free zones" between which animals might be freely traded. EC officials emphasize that these zones need not follow geographic borders. This solution has several shortcomings: trade between two disease-free zones may require movement through zones that have not eradicated diseases; and third countries base disease status, a condition for free imports, on national borders. The determination of supranational disease-free zones could result in the withdrawal of import rights by certain third countries. Even disease-free areas periodically experience disease outbreaks. Therefore, the acceptable process to limit both an outbreak of a disease and conditions for temporary suspension of export rights must be determined.

The determination of disease-free status is an issue in itself. One view is that a comprehensive vaccination program is sufficient to eradicate a disease. The opposing view is that a vaccination program simply masks the problem, and that an institutionalized isolation and slaughter program is required.

Animal Health

Legislation is now in process to harmonize animal health regulations within the EC. The Commission of the European Communities (EC Commission) has classified livestock diseases into three groups, according to the seriousness of each disease (U.S.-EC Mission, 1990). The first group includes serious livestock diseases that have significant epizootic potential, meaning they could quickly devastate livestock populations over large geographic areas. The diseases in this group are targeted for total eradication within the EC. The most important disease in this category with regard to beef and cattle trade is foot-and-mouth disease (FMD). The proposed FMD control program is considered a model for the control of other diseases in this category, such as African swine fever.

The second group includes diseases that are more enzootic in nature, meaning that the incidence of the disease tends to be more localized. Eradication is the ultimate goal for these diseases, though the steps taken to accomplish this may be less stringent than those taken for diseases in the first group. Cattle diseases in this category include bovine leukosis, brucellosis, and tuberculosis. The third group includes less serious diseases that are not considered a serious threat to the animal population. An example of these diseases is Newcastle's disease in poultry. Eradication is not necessarily a goal for these diseases.

FMD is of major concern because it is highly contagious, with the potential for total devastation of a nation's beef and cattle industry. The disease spreads quickly, and can be transported by such diverse media as packing materials, vehicles, other animal species, and even human beings. An outbreak in Mexico in 1946 spread at the alarming rate of 500 square miles daily, reflecting the very short (24-hour) incubation period and the transportability of the disease (U.S. Animal Health Association, 1984). Prevention of the introduction of FMD is a legitimate concern of all nations. The United States, free of FMD since 1929, maintains stringent controls on imports of live animals and uncooked meat.

Present proposals intend to bring all member states up to a level of FMD control approaching that practiced in the FMD-free countries of the United Kingdom, Denmark, and Ireland. These countries, foregoing the use of FMD vaccine, eradicate infected animals to control FMD. This policy insures that the antibodies that vaccines produce do not mask the presence of the active FMD virus. Eradication requires not only the slaughter of infected animals but also the disinfection or destruction of infected production and processing materials. Other EC member states have used vaccination to control FMD. All member states have effectively controlled FMD in recent years, except Germany and Italy. These two nations, Italy in particular, continue to experience serious periodic outbreaks of FMD. Even those countries using eradication programs have experienced occasional outbreaks as the virus spreads from other areas of the EC. These outbreaks have generally been quickly stamped out.

Table 2--Principles and concepts for animal and public health to promote unrestricted intra-EC beef trade

Product stage	Animal and public health concerns	Principle or concepts to promote unrestricted intra-EC trade
Live animals	Introduction and spread of animal diseases. (Classic and African swine fever, foot-and-mouth disease, Aujeszky's disease, brucellosis, tuberculosis, and leukosis)	Disease eradication program (primarily in Spain and Portugal) Demarkation of sub- or supranational disease-free zones
	Rabies	Disease incidence control (destruction versus eradication) Harmonization of other national rules and regulations
Fresh and frozen meat	Introduction and spread of animal diseases	Point of origin/production testing and certification
	Product hygiene	Microbiological testing and analysis
	Production practices: Residues/medicines	Harmonized approach to detection and limitation.
	Growth promotants	Banned for beef production, concept of positive lists
	Inspection	Harmonize inspection procedures and personnel training Establish identical or equivalent procedures for national and intra-EC trade
Processed meat	Introduction and spread of animal diseases	Product (heat) treatment standards

The EC Commission submitted proposal 89/C 327/17 to the EC Council on October 30, 1989, to amend the existing directive 85/511/EEC codifying EC measures for FMD control. The proposal required that by January 1, 1991, all EC member states must "bring into force the laws, regulations and administrative provisions necessary" to discontinue the use of their current vaccination programs and, furthermore, "prohibit the manipulation, manufacture, storage, sale or use of foot-and-mouth disease virus, anti-serum or vaccines in their territories" (Commission of the European Communities, 1989c). Passage of the proposal would be a move toward installing EC control and prevention measures equivalent to the highest level currently practiced in member states.

To implement this proposal, beginning January 1, 1992, other EC member states will not be permitted to export cattle to the United Kingdom, Denmark, or Ireland. In turn, those nations will abandon their quantitative and other restrictions to beef trade. Also, third countries will not be permitted to export cattle to any EC member, unless or until they are certified to be free of FMD. Council Directive 84/643/EEC states that "member states which have been free of foot-and-mouth disease for at least two years, which do not practice vaccination and which do not allow on to their territory animals which have been vaccinated less than one year previously may make introduction on to their territory of live cattle...where the animals come from a Member State satisfying the same criteria..." (Commission of the European Communities, 1984). As a result, beginning January 1, 1993, any EC member that has not experienced an outbreak of FMD since January 1, 1991, will be considered to be free of the disease and may resume cattle trade with FMD-free member states.

The cattle diseases classified by the EC Commission as enzootic have far less economic effects than FMD. Bovine leukosis is of little economic importance because it is uncommon and generally strikes animals older than slaughter age. Its main effect is in breeding herds. Bovine brucellosis, or Bang's disease, is easy to control through appropriate sanitary practices. The organism that causes bovine tuberculosis is very sensitive to direct sunlight, and thus cannot survive in pastures for any length of time.

Foot-and-Mouth Disease and World Beef Trade

FMD is certainly among the livestock diseases with the most significant potential to disrupt trade in meat and livestock. The EC's proposed FMD legislation currently deals only with live cattle trade and not with the equally important trade in beef products. Trade in beef products has been as carefully regulated by FMD-free countries as trade in live animals. U.S. regulations prohibit imports of uncooked beef from countries that have not eradicated FMD, and place restrictions on imports from countries that may be FMD-free but that import live cattle (or swine) and uncooked beef (or pork) from countries that have not eradicated the disease. The United States considers the cooking (or curing) of meat to be necessary to kill the FMD virus. The cooked meat must then be shipped in sterilized sealed containers to prevent recontamination. To believe that the EC will not be able to achieve its stated goal of eradicating FMD without adopting additional import regulations regarding beef products from countries infected with FMD is reasonable. These additional import regulations will likely be of a similar nature to those of the United States.

de las Carreras (1978) argued that the U.S. FMD-trade restrictions, combined with the appearance of Japan (an FMD-free country) as a major importer of beef, contributed to the emergence of two distinct world markets for beef and cattle in the 1960's and early 1970's. The "clean" markets included those countries free of FMD; the "dirty" markets consisted of those that were not. The price for traded beef among FMD-free countries was at times 50-percent higher than the trade in the dirty markets. This situation lasted into the mid-1970's, when decreased meat supplies and expanded demand in the dirty markets caused the prices to converge (de las Carreras, 1978, p. 60). Countries that are not free of FMD or that practice a vaccination program are more vulnerable to trade disruptions and price variability because they lack access to an important part of the international market.

Three possible consequences are suggested if the EC successfully eradicates FMD:

(1) New markets may become open for subsidized EC beef and cattle exports in FMD-free areas.

(2) The EC beef and cattle industry may be isolated from current competition with third countries not free of FMD, and with whom the EC has minimum-access commitments.

(3) Beef trade among third countries may be significantly rearranged.

Figure 5 illustrates the current world trade situation for beef. The shaded arrows indicate the access of EC and third-country exporters to importers in each of two groups. These groups are (1) FMD-free countries, and (2) FMD-infected countries. The latter group includes countries using vaccination programs to control FMD, and countries experiencing outbreaks of FMD in the

last 2 years for which data are available (1987 and 1988). As shown in the diagram, FMD-infected countries do not have unrestricted access to FMD-free areas. FMD-free areas, however, have unrestricted access (at least in regard to their FMD-status) to countries in both groups. The black arrow going from EC and third-country exporters, other than the so-called White List countries, to White-Listed importers indicates conditional access of these countries. Conditional access is defined below.

The White List, as defined for this discussion, refers to those countries certified by the United States to be free of FMD (and rinderpest). Other countries are certified by the United States to be free of FMD, but are given a separate designation because: (1) their import regulations allow importation of uncooked or uncured beef (or pork) from FMD-infected countries (shown in the dialogues by the white arrows); (2) they have a common land border with an FMD-infected country (e.g. Denmark' border with Germany); or (3) they import live ruminants or swine from FMD-infected countries under conditions less stringent than the United States considers acceptable. EC countries included in this separate designation are the United Kingdom and Denmark. The United States must certify that individual processing plants in these countries do not process meat imported from FMD-infected countries. This prevents the commingling of meat products from White List and separately designated countries. These countries' access to the White List is referred to as conditional.

If the EC successfully eradicates FMD, FMD-infected EC countries will move into the FMD-free group, and possibly even onto the U.S. White List (fig. 6). Third-country suppliers that are FMD-infected would no longer enjoy unrestricted access to the EC. This would also result in the EC countries having unrestricted access (in regard to their FMD-status) to FMD-free importers of beef and cattle. Thus, the EC's eradication of FMD would significantly change EC market access, enlarging the world market for FMD-free beef and cattle, and reducing market access for FMD-infected beef and cattle.

To analyze the potential effects of the EC's eradication of FMD on world trade, we need to determine the volume of trade that may be affected. Using data from the United Nations Animal Health Yearbook, the top 20 beef importers and exporters were classified as either FMD-free, vaccinating, or outbreaking. This coincides with the three groups described above.

Several EC countries rank among the top beef importers of the world (table 3). Some have been major destinations for beef exports from FMD-infected third countries, particularly those in South America and Eastern Europe. In 1987, FMD-infected third countries exported 1.1 billion ECU of beef and cattle to the EC (table 4). To eradicate FMD successfully, the EC may put trade barriers into place as FMD import regulations to divert some of this trade flow to FMD-infected third countries. Seventy-four percent (816 million ECU of the 1.1 billion ECU) of the trade flow consisted of fresh, chilled, or frozen beef and live cattle and would have been subject to such regulations (the remainder being cooked, cured, or otherwise processed). Potential recipients of this diverted trade are the Soviet Union, Egypt, and other North African and Middle Eastern countries.

Implications of an FMD-Free EC

An FMD-free European Community will have increased access to an FMD-free third-country market, which annually imports more than 1 million metric tons of beef. This access, of course, would be subject to existing multi- and bilateral trade agreements and restrictions. The pre-1992 FMD status of the EC has at least partly denied this access in the past.

To achieve its stated goal and truly rid itself of FMD, the EC may have to substantially reduce the level of beef and cattle imports it now receives from FMD-infected third countries. This ban on imports, based on animal health criteria, may take precedence over current minimum-access commitments and would partially isolate the EC domestic beef and cattle industry from competition with these third countries. These effects give credence to the concerns that the single European market could erect common, more restrictive barriers to third-country trade.

The significant trade flow from FMD-infected third countries to the EC will likely be diverted, to some extent, to other FMD-infected third countries. This diversion may increase the competition among FMD-infected third countries for FMD-infected import markets in the Soviet Union or Arabic countries. The diversion may induce some of these third countries (e.g., Australia and Switzerland) to implement their own FMD eradication programs, which would further enlarge the clean beef market.

The trade-diverting aspects of eradicating FMD in the EC may be quite significant. However, from the severity of this disease and its economic consequences, legislation designed to eradicate FMD is clearly needed to safeguard the EC's livestock population.

Figure 5
Foot-and-mouth disease (FMD) status of EC and third countries prior to EC FMD eradication

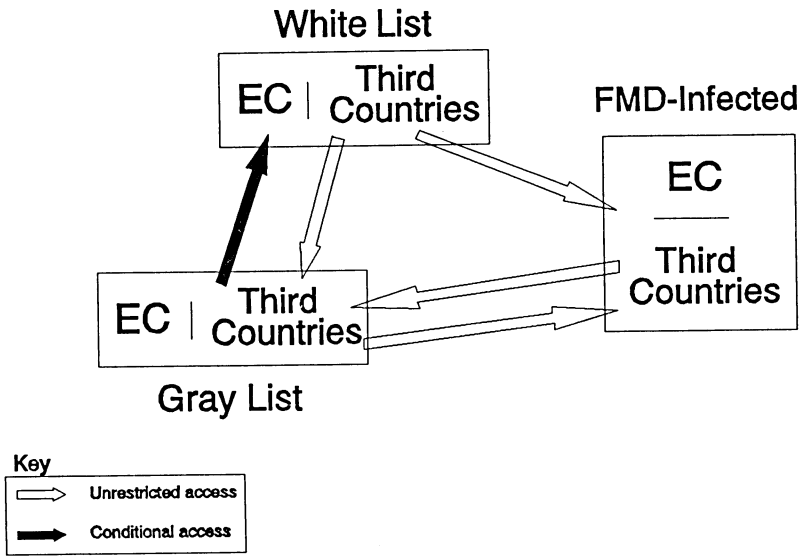


Figure 6
Foot-and-mouth disease (FMD) status of EC and third countries following EC FMD eradication

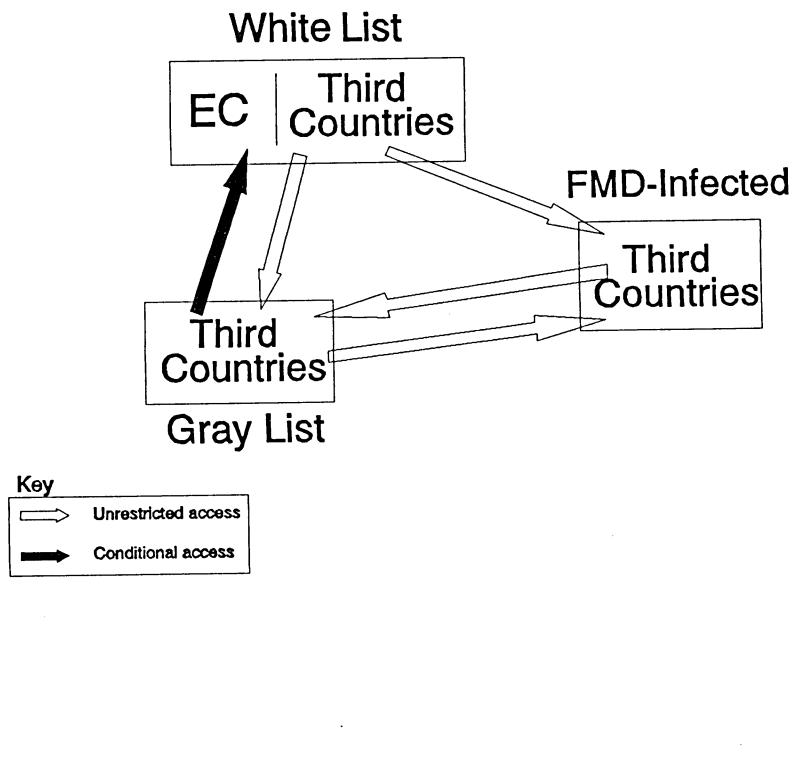


Table 3--Foot-and-mouth disease (FMD) status of the top 20 exporters and importers of beef in 1987 1/

FMD-free	Vaccinating	Outbreaking
EC exporters:		
Ireland (303.2)	France (393.5)	Germany (434.2)
United Kingdom (160.7)	Netherlands (309.1)	Italy (86.6)
Denmark (118.5)	Belgium/ Luxembourg (101.7)	
Third-country exporters:		
Australia (570.3)	Hungary (116.1)	Brazil (72.0)
New Zealand (304.4)	Australia (62.9)	Argentina (64.0)
United States (224.3)	Romania (58.2)	Uruguay (55.6)
Canada (72.5)	Yugoslavia (29.0)	
Poland (40.9)		
EC importers:		
United Kingdom (208.4)	France (291.7)	Italy (449.0)
	Greece (157.6)	Germany (223.3)
		Netherlands (62.4)
		Spain (33.9)
Third-country importers:		
United States (676.4)	U.S.S.R. (270.0)	Egypt (143.0)
Japan (220.0)	Iraq (44.8)	Brazil (142.7)
Canada (92.3)	Yugoslavia (40.9)	Iran (57.7)
Taiwan (32.8)	Saudi Arabia (57.7)	
Hong Kong (29.2)	Israel (39.8)	

1/ Numbers in parentheses represent 1,000 metric tons.

Public Health

Free movement of meat products must accompany free movement of live animals to eliminate trade distortions. Removal of border measures that safeguard the health and safety of fresh, frozen, and processed meat will require many complementary public health measures. An ambitious program to that end has been initiated, but the EC Commission has yet to propose many of the necessary specific regulations. Some have only recently entered the legislative process. Much of the effect on intra-EC and third-country trade therefore remains undetermined.

While much of the legislation is yet to be proposed, the broad-based public concern about food safety will have a pronounced effect on both the process with which food safety issues will be considered and the substance of food safety legislation. Despite charges by the United States and other nations that the EC's surplus of beef motivated its ban on the use of growth promotants in beef production, the reaction of consumer groups, which was amplified and sensationalized by the popular press, was a key factor in the total ban of the use of growth promotants. To be sure, the process within which the safety of growth promotants was considered was determined, by all concerned, to be flawed and badly managed. Moreover, the tainted legacy of the beef growth promotant ban will influence decisions reached in other areas of food safety.

A review of the evolution of the events leading to the growth promotant ban shows its effects on the atmosphere for public health legislation. The EC Commission initially proposed regulations that were very similar to other countries that currently accept the use of growth promotants: a withdrawal period before marketing and slaughter, maximum residue levels, and other scientifically based criteria for use in beef production. The proposal followed the general approach used in EC legislation of creating positive lists of substances that can be used legally. The collapse of the EC veal markets, particularly in Germany and the Netherlands, as cases of misuse of growth hormones surfaced, prompted both the EC Commission to scrap that proposal and the Council of Ministers to quickly ban the use of growth promotants.

However, a large majority of producer groups in the EC opposed the growth promotants ban. The opposers argue that the ban is not enforceable, that it replaces more sensible legislation, and that the surplus of beef

Table 4--Trade flows of beef and cattle in million ECU, 1987

Importer	Exporter		
Beef trade matrix:			
		Third countries	
	FMD-free	Vaccinating	Outbreaking
EC FMD-free	94.1	54.7*	181.2*
EC Vaccinating	118.4	25.8*	68.4*
EC FMD-infected	31.3	253.3*	330.0*
		EC members	
EC FMD-free	369.6	133.7*	62.8*
EC Vaccinating	454.8	669.4	637.2
EC FMD-infected	360.2	1,127.4	405.1
Cattle trade matrix:			
		Third countries	
EC FMD-free	.7	0*	0*
EC Vaccinating	8.3	44.9*	0*
EC FMD-infected	48.5	142.1*	0*
		EC members	
EC FMD-free	120.1	1.9*	.5*
EC Vaccinating	78.0	248.0	112.4
EC FMD-infected	3.9	946.2	79.9

* = Those trade flows that the EC 1992 FMD control could affect.
Source: NIMEXE, Analytical Tables of External Trade, 1987.

was temporary. They reason that the reduction in the dairy herd that followed imposition of the dairy production quotas has resulted in a temporary surplus of beef. Privately, these producer groups express disappointment that the United States has dropped its aggressive opposition to the imposition of the growth promotants ban.

Whatever the level of internal and international pressure, the growth promotants ban will not be rescinded, and many in the EC Commission feel compelled to defend their actions. Some EC Commission representatives publicly note the past failures of the scientific evaluation of such substances to detect longrun effects detrimental to public health, and conclude that such evaluation may be too unreliable to be the sole criteria for judging the safety of products. This disingenuous defense of their past actions admits the possibility of capricious, and certainly unscientific, decisionmaking in the food safety area.

Technology Approval

Determining use-approval of production inputs, such as growth promotants, has been based on three criteria: efficacy, safety, and purity or quality. Judgment of satisfaction of these criteria rests largely in the domain of scientific research and analysis. Scientific judgment supports the legislation or administrative determination of positive lists of substances that satisfy the three criteria. Any substance not expressly approved for use is considered banned. The legacy of the beef hormone ban is the expansion of public health criteria to include what is known as The Fourth Hurdle, or the Social and Economic Need criterion. This criterion would judge approval of production-enhancing technological

innovations. The test for approval would be based on the potential economic or social effects of the technology. This may include proof of consumer need for the technology and evidence that it does not contribute to an oversupply of agricultural products.

For example, the Committee of Inquiry into the Problem of the Quality in the Meat Sector of the European Parliament concluded:

> ...it is not convinced of the necessity of hormone use from the consumer's point of view and believes that...proven necessity should be the only criteria of acceptability; and, that only a total ban on the use of growth promoters is concordant with the strategic aims now adopted for the Common Agricultural Policy, in particular the reduction of surpluses and the safeguarding of a viable regionally-diversified farming community.

This criterion may have far-reaching effects in the fast-rising area of biotechnology. There is considerable controversy over the possible use of a genetically engineered hormone bovine Somatotropin (bST), which enhances milk production in dairy cows. The use of this hormone in the EC or in the production of dairy products imported into the EC would contribute to existent oversupply problems in the EC's dairy sector. The fourth hurdle may prevent the approval of the use of this and other new biotechnologies. If implemented, this criterion may carry substantial weight as one of the four criteria for technology approval.

Health Rules

The EC Commission has proposed health rules for the production and marketing of meat and meat products. The proposals extend to the domestic EC markets, the rules already in place for intra-EC trade, and third-country imports. These rules would take effect on January 1, 1993, and are extremely detailed, covering such areas as:

- General conditions for approval of establishments;
- Hygiene and cleanliness of staff and premises;
- Wrapping, packaging, marking, and labeling; and
- Storage and transport.

The level of detail and rigor in the proposed rules may make conformance difficult for EC processors not now in compliance. This has been proven with the Third Country Red Meat Directive, which established standards for all intra- and extra-EC red meat trade. Prior to this directive, more than 300 U.S. meat processing plants were exporting to the EC. Following the directive's implementation, only 148 of these plants were able to meet the EC standards, and at considerable expense (Kelch and Raney, 1989). Recent actions threaten to reduce the number of approved slaughterhouses to one for beef and one for pork. To limit the effects of these rules on EC processing establishments, the proposals grant "limited and temporary derogations in order to ensure smooth transition to the definitive rules" (Commission of the European Communities, 1990, p. 35). EC meat processors have raised concern that the cost of compliance with these rules may be prohibitive in the short run, and that the prolonged granting of derogations would violate the principle of the single European market. A possible solution is for EC 1992 to provide subsidies to facilitate the reconversion process. Subsidies may be a more politically acceptable solution than the development of long lists of processors who have been granted exceptions to the health rules.

Mutual Recognition

The EC's principle of mutual recognition is intended as a catchall for products for which no EC-wide standard is developed under EC 1992. Under this principle, products legally manufactured and sold in any EC member country, and meeting essential minimum requirements, may be freely traded with other EC member countries. No national barriers to intra-EC trade in these products would be permitted, regardless of existing national standards.

Third countries are concerned that the principle of mutual recognition may not extend to third-country exports to the EC. The single European market program attempts to replace individual national regulations with EC-wide regulations based on the highest currently existing standards of health in the EC. These regulations apply to third-country exports to the EC as well. However, for standards of health that are not covered under the program, third countries may have to meet 12 different sets of national regulations to gain access to the entire EC market. EC members, on the other hand, would only have to meet one set of regulations, their own. This may drive national standards of health not covered under EC 1992 down to lower levels to remain competitive in the intra-EC trade market.

Intra-Community trade is encouraged, therefore, through mutual recognition, with no comparable encouragement necessarily provided to third countries. Public standards of health covered under the single European market program may be raised to significantly higher levels, requiring substantial investment for reconversion of plants processing products for the EC market. If the EC subsidizes this reconversion, EC processors would gain a substantial advantage over third-country processors trying to tap the EC market. Thus, public health regulations in the program may create an environment where intra-EC trade is encouraged over third-country trade.

Conclusions

Many in Europe, particularly those in the agricultural community, hold the opinion that the single European market will have little real effect on agriculture. Nevertheless, third-country concerns about the possible creation of a Fortress Europe as a result of the EC 1992 program persist. A Fortress Europe scenario suggests increased intra-EC trade flows from reductions in internal trade barriers, while common and more restrictive barriers reduce imports from third-countries.

This study examines the problem of meat trade with the EC. The single European market is not expected to have any significant effects on third-country trade in pork and poultry, because EC imports of these products have already been virtually eliminated. The effects on third-country trade in sheepmeat is also not expected to be significant, provided minimum-access commitments remain.

EC beef trade, however, presents some special issues. While more than self-sufficient in beef production, the EC continues to import large amounts of beef. Existing institutional arrangements guarantee a minimum level of third-country access to the EC beef market. If these arrangements remain essentially unchanged after EC 1992, then the possibility of a Fortress Europe, in terms of beef trade, is substantially reduced.

Animal and public health regulations have a significant potential for overriding the existing institutional arrangements for beef on the basis of protecting animal and human health. Among the EC's goals with the single European market is to increase the general level of EC animal and public health. To achieve this, third countries that do not meet the new standards of health for beef imports in the single European market must be restricted from the EC market, regardless of any concessionary agreements. If the concessionary agreements are maintained, then real change in animal and public health becomes less likely. The issue then becomes a matter of priority. Which takes precedence, the goals underlying existing institutional arrangements, or the goals of increased standards of health?

If health standards take priority, then, as with the eradication of foot-and-mouth disease, we can expect more EC access to both intra- and extra-EC beef markets previously unavailable because of the lower standards of individual member states. Third-country access to the EC would be further reduced as member states' required levels of standards increased to the new EC level.

A number of general principles arise from the single European market that may help to divert beef trade away from the EC. The Social and Economic Need Criterion would discourage imports from third countries, making use of new technological innovations, particularly those in the area of biotechnology.

Health rules would require substantial capital investment for reconverting plants in third countries producing for the EC market. Since production for third countries does not necessarily require this new capital investment, trade flows between third countries are encouraged rather than trade from third countries to the EC.

The mutual recognition principle encourages intra-EC trade flows by reducing standards of health not specifically covered by the program to the lowest current standard of any individual member state. This same encouragement is not necessarily extended to third countries.

All of these areas of the single European market program can facilitate achievement of the goals of community preference. This is consistent with the scenario of a Fortress Europe, which has caused concern among third countries. There is no indication that EC officials are deliberately attempting to create a Fortress Europe through the use of health regulations. In fact, assuming that their motives regarding the single European market are genuine, concern for public and animal health and safety is quite reasonable. However, a Fortress Europe for agricultural trade could result, intentionally or not, if the EC's goals on animal and public health are to be achieved.

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An Exploration of the Economic Implications of Mutual Recognition in the Food Sector

Jim Burns*
Alan Swinbank

Abstract

The food manufacturing industry in Europe has begun a period of major structural change that will lead to the emergence of large-scale enterprises that are likely to dominate the processed, market-orientated sector. While this outcome may be the result of real gains from the EC 1992 program (for example, in raw materials supply or marketing), the psychological impetus to cross-border acquisition is not unimportant. The Commission of the European Community's approach to completing the internal market through mutual recognition is unlikely to break down all trade barriers. While it will encourage intra-European Community (EC) trade, mutual recognition has a differential effect on EC-based firms, depending on the domestic legislation in force, and confers no advantage on foreign-based firms. Thus, the location of investment in the food and drink industries will still depend in part on national legislation. Consumer groups fear a proliferation of apparently similar, but in fact dissimilar, goods and debasement of product quality. These problems, and those of enforcement, will ultimately lead to more EC legislation, not less.

Introduction

This paper explores some of the economic and legal implications of the use of the principle of mutual recognition, as opposed to harmonization of legislation, as a device for creating a single European market for foodstuffs by 1993.

The Economics of a Single Market

In signing the Single European Act, member states agreed to adopt legislation designed to remove internal barriers to trade within the European Community's (EC) market by December 31, 1992, and to thereby create an area "...without internal frontiers in which the free movement of goods, persons, services and capital is ensured..." (Article 8A). A series of studies on "The Costs of Non-Europe" sought to quantify the losses that arise through immobilities and imperfections that non-tariff barriers caused and, hence, to demonstrate the opportunities that greater market integration will offer the EC through increased intra-Community trade (Commission of the European Communities, 1988a).

At a microeconomic level, the studies assessed the effects of nontariff barriers and of the competitive, integrated market. The orders of magnitude appear to be substantial, with an average estimate of total medium-term gain in gross domestic product (GDP) at 5.3 percent (Emerson, 1988, p. 201). Applying these microeconomic effects to two macroeconomic models (Hermes and Interlink) gives relative average gains of 4.5 percent of GDP, and lower consumer prices of about 6 percent over the medium term of 5-6 years.

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Emerson (1988) assesses the relative scale of these events:

> In general it can be expected that for the Community's internal program, the direct effects . . . may be less big than the indirect effects on efficiency and costs as a result of enhanced competition, and that the medium to long-run and dynamic effects may be relatively large compared to the short-term static effects (p. 28).

Unless the existing barriers are substantial, the indirect effects may appear to arise mostly from the 'Europeanizing' of business attitudes, a process already underway. In this respect, the psychology of EC 1992 is considerably significant to achieving the perceived gains.

EC 1992 and Food Processing

The effects of the EC 1992 program on the food sector have been relatively little researched, but there is some evidence of a fragmented market. For example, a survey conducted by the consultancy group Runzheimer Mitchell Europe (de Jonquières, 1990b), and reported in table 1, demonstrates that retail pre-tax prices for some items can differ significantly from one member state to another, but this is not, in itself, evidence of significant gains to be won from a single market.

The Commission of the European Communities' (EC Commission) official study by Groupe Mac (1988) identified some 218 nontariff barriers to the 10 productscovered across 7 of the member states.1/ However, only six barriers covering four product markets (chocolate, beer, ice cream, and pasta), the reduction in packaging and labeling costs (such as plastic and recycled containers), and the removal of bureaucratic obstacles to imports (such as Spanish imports of spirits) accounted for 80 percent of the total benefits measured (Emerson, 1988, p. 70).

While the gains from lowering nontariff barriers analyzed in the Groupe Mac study appear less than substantial and convincing, still more limited are the estimates of the indirect, dynamic effects. Only the German beer purity law is quantified, wherein competitive imports and mergers in the fragmented industry are forecast to lower production costs by 3-7 percent of the German beer industry's value-added tax, amounting to benefits of 90-215 million European currency units (ECU) per year.

However, Groupe Mac "...has not been able to put figures on the likely effects of the restructuring of the food industry and the creation of truly European-scale industrial groups for all food products: economies of scale, specialization, improved learning curve..." (Emerson, 1988, p. 70).

The restricted research time involved in the study, and its limited scope, make the total estimates of potential

1/ Biscuits, ice cream, chocolate, beer, mineral water, pasta, soup, baby food, nonalcoholic beverages, and spirits across Belgium, Denmark, Germany, France, Italy, the Netherlands, and the UK.

Table 1--Pre-tax price gap for selected food items in the European Community, March-April 1990 1/

Item	City with the		Price ratio
	Lowest price	Highest price	
Cocoa-Cola, 1.51 bottle	Amsterdam	Copenhagen	2.10
Heinz ketchup, 570 g.	London	Madrid	1.98
Kelloggs cornflakes, 375 g.	Amsterdam	Cologne	1.72
Mars Bar	London	Copenhagen	2.04
Nescafé, 200 g.	Athens	Milan	2.26
Toblerone, 100 g.	Amsterdam	Lisbon	1.92

1/ Runzheimer's researchers checked prices of the same brands of products in at least three large department stores or supermarkets in each of more than a dozen European cities in March and April 1990. Factors affecting the comparison, according to de Jonquiéres, are that Mars Bars in the UK contain less chocolate than those sold elsewhere in the EC, and the additional cost imposed on Coca-Cola in Denmark as a result of the Danish legislation on returnable containers. Variations in raw material costs, as a result of the green money/MCA system may also have a marginal effect.

Source: de Jonquiéres, 1990b.

gain open to question. The study was a brave, but flawed, attempt to evaluate a complex situation, and too much credence should not be placed on the numbers generated. (For further discussion, see Swinbank, 1990c.)

Economies of Scale

The importance of economies of scale in European industry are reviewed in Pratten's (1988) study for the EC. For plant scale economies, Pratten finds only a few examples of advantages on a European scale relating to food or drink: chocolate confectionery, breakfast cereals, and potato crisps. Generally, he considers the minimum efficient plant scale (MES) in the food industry to be relatively small, although in some areas, such as brewing and canning, moderate economies are mentioned. The analysis ranked food processing 15th, and drink and tobacco 14th, out of 20 industries by economies of scale in production and development. While Pratten's estimates suggest that, "...in most industries the EC market can support 20 or more MES plants..." (p. 75), the number would be somewhat larger for food and drink.

At the firm level, Pratten concedes "...in many food trades there is scope for economies of scale for marketing and/or distribution..." (p. 62), and he notes chocolate confectionery, brewing, and pet foods as specific cases where marketing economies are important. Even where transport costs restrict and/or limit production economies, Pratten recognizes that large firms, through multiplant operations, may benefit from European-wide branding, market research, and segmentation (p. 100).

Pratten concludes his review by noting:

> The fact that the industries subject to the largest economies of scale are the most concentrated suggests that economies of scale are more fully exploited in these industries . . . It therefore seems unlikely that the economies of scale effects of completion of the EC will be concentrated on industries subject to especially large economies of scale. The effects will be spread right across manufacturing and service trade (p. 151).

Given that the food, drink, and tobacco industries rank fairly low on Pratten's ranking of economies of scale, we may infer some scale benefits to the food and drink sector. Coupled with the general slow growth rate in markets, rationalization of production facilities could also prove important. In her review of EC 1992 and the sugar industry, Noble (1990) suggests:

> There have had to be some economies of scale, and I would predict more rationalization to come. Indeed, the 1992 ideal will remove non-tariff barriers in foodstuffs and the increased competition will probably encourage further rationalization not just in the sugar industry but for the sugar-using industries as well. This has already started to happen (p. 127).

Structural Changes

The European food industry has been traditionally described as "...fragmented in structure and local in character..." (McGee and Segal-Horn, 1990, p. 14), although there are significant areas of concentration, such as in the UK, the Netherlands, and Denmark. This orientation may also result from differentiated food markets that have important national, regional, and local preferences. Some sections of the industry may retain close links with domestic agriculture. Groupe Mac also suggests that trade barriers have:

> ...served to protect potentially weak domestic companies, and inversely, have encouraged strong companies to expand domestically rather than attempt cross-border expansion. These features of trade barriers have reinforced the relative fragmentation of the EEC food industry.

Various phases of structural change have occurred in the food and drink industries, with periods of takeover and merger frequently followed by rationalization, divestment, and stability. However, even the leading firms have hitherto retained a limited presence across Europe. Emerson (1988, p. 71) indicates that:

> Of the 46 largest European companies in the food-processing sector, 44 percent operate in only one EC country in addition to their country of origin. Only 10 percent of these major companies operate in at least four of the largest EC countries. The major European groups are therefore very largely orientated towards their national markets alone.

Perhaps surprisingly, the UK, which appears well-placed in terms of relative firm size, with 14 of the largest 20 European food and drink companies (Cooke, 1990), has remained relatively non-European in focus. A recent analysis of 17 large UK food companies (excluding Unilever) by Smith New Court UK (Institute of Grocery Distribution, 1990), estimates that less than 10 percent of their profits are derived from their European activities (average historic earnings). By comparison, 18 percent of profits arose from activities in the United States.

Despite, or perhaps because of, this starting point, the pace of recent structural change among Europe's major food and drink producers has been remarkably rapid. In a recent report, the EC Commission notes that of the 12 industrial sectors monitored, food and drink ranked second (to chemical) in the number of mergers and majority acquisitions among large EC firms during the June 1988-June 1989 period 2/ (Commission of the European Communities, 1990, p. 217).

The 76 mergers and acquisitions monitored in the food and drink sector represented an almost 50-percent increase in number compared with the previous period. The EC Commission continues:

> Everything points to the fact that this industry is engaged in intensive preparations for the completion of the internal market and for competition from multinational undertakings, chiefly in the USA. As these acquisitions mainly involved large firms, there is undeniably some concentration taking place, in view of the very modest growth in the market overall. Since barriers to trade persist, the degree of concentration in this industry is generally higher nationally than at a Community level. In most member states, there is a decline in the number, but an increase in the size, of firms. This is why a close watch should be kept on restructuring which, whilst certainly necessary for the completion of the internal market and to cope with strong competition from third countries, can nevertheless lead to restrictions of competition (p. 219).

2/ Since the EC Commission gathers reports on the leading 1,000 EC industrial firms and the 500 largest industrial firms worldwide, the data include acquisitions to firms by international companies.

Evidence from Translink European Review suggests that this upsurge in cross-border takeover activity continued through 1989 (de Jonquières, 1990c), with the second half of the year seeing a substantial increase in the value of mergers and acquisitions compared with the first half. The busiest sectors, in terms of numbers of deals, were reported to have been food and food retailing. Notably, U.S. firms headed the list of acquirers of European companies according to value.

Business Strategies

Emerson (1988), referring to the situation in the mid-1980's, notes the importance of U.S. food companies in Europe (at the time, 8 out of the top 10), and contrasts the European food businesses with their American counterparts:

> These (U.S.) companies have pursued a twofold strategy over the last 5 years: on the one hand, they have specialized in products for which they have the largest market share and on which they could therefore earn the best return; on the other, they have achieved economies of scale by obtaining the highest possible volume of production through geographical diversification (pp. 70-71).

Emerson implies the advantages for leading European food companies of specialization in the areas in which they have comparative advantage, and of diversification geographically across the Community--the approaches already taken by U.S. firms. McGee and Segal-Horn (1990), in their analysis of longrun strategies for the food industry, emphasize the importance of pan-European manufacturers in the future development of competition in the sector. For these producers, the authors note "...the choice of geographic coverage and brand characteristics as key strategic dimensions in this industry..." (p. 20).

This appears not too far removed from current business strategy, which stresses merger and acquisition as a route to expand their international market presence and, hence, the globalization of markets. de Jonquières (1990c) summarizes major European food companies' motives for cross-border mergers, as "...in food, the main reason has been to secure established brands and distribution networks. The '1992' effect has facilitated cross-border mergers and brought many more operatives into the game. But a wide diversity of other motives is at work, many of which pre-date the European Community's single market program...."

These other motives for mergers and less formal links may include attempts to secure traditional markets and to prevent the effects of competitive imports. In declining markets, of which the European food and drink sector has many, mergers can provide the main source of company growth, and can bring about rationalization of excess capacity. de Jonquières (1990a) also suggests that some European acquisitions of the 1980's occurred because national barriers seemed so impenetrable that cross-border mergers were the only effective way to gain access to another country's market. Hence, we argue that the momentum of EC 1992 has stimulated food firms to become more European-oriented, in a context where other pressures and strategic decisions are pointing in a similar direction. Indeed, if barriers remain, a similar strategy could also make sense, as de Jonquières indicates. So far, we have assumed that a single European market for foodstuffs will be created, but doubts remain.

Mutual Recognition

The principle of mutual recognition has come to play an important role in the EC's strategy for completion of the internal market by December 31, 1992 (Swinbank 1990a, b, and d). Although mutual recognition may well break down barriers to intra-EC trade, it will not, of itself, create a single European market for EC-based companies, and especially not for those manufacturing in third countries.

Although protectionist policies have, from time to time, undoubtedly affected intra-EC trade in agricultural raw materials and semi-processed and processed foodstuffs, other nontariff barriers have emerged because the member states have followed divergent strategies in seeking to achieve similar ends, be it the protection of public or plant and animal health, the environment, or animal welfare. Early in its history, the EC sought to harmonize, or approximate, the laws of the member states to break down the trade barriers, which were the consequence of differences in national provisions. Indeed, Gray (1990) points out that, "...the first directive ever adopted by the Council of Ministers was the directive on food colours in 1962..." (p. 111).

Before ratification of the Single European Act in 1987, which amended the Treaty of Rome, the harmonization program was largely based on Article 100 of the EEC Treaty, which required the unanimous approval of the Council of Ministers.3/ Unsurprisingly, given the perceived lack of urgency associated with many of the EC Commission's proposals and the political opposition conjured up by the prospect of Euro-beer and Euro-bread, particularly in the UK in the mid-1970's, the harmonization program advanced at a snail's pace. Horror stories are easy to find: "...the legislation on the health and hygiene standards for the heat-treatment of milk, for example,..." which "...took nearly 15 years before agreement was reached..." (Evanson, 1990, p. 140); or the mineral water directive of 1980, which, in June 1969, the Council of Ministers had resolved to adopt before July 1, 1970 (Jukes, 1988).

Legislative Changes/Obstacles

As Jukes and others have recorded, the slippage in the original food law harmonization program was considerable. Thus, even before the Cassis de Dijon 4/ ruling of February 1979, the EC Commission's strategy had changed. An announcement in December 1976 by the late Finn Gundelach, then-Commissioner for the Internal Market, that the EC Commission was withdrawing its proposed harmonization measures for beer, bread, ice cream, and some other products changed the strategy.

Cassis de Dijon is a French-made black-currant liqueur with an alcohol content of 15-20 percent. An attempt had been made to sell it in West Germany, where it ran afoul of German legislation, which prohibited "...the marketing of potable spirits with a wine-alcohol content of under 32 percent..." (Flowerdew, 1984, p. 48). The case centered on Articles 30 and 36 of the Treaty of Rome, with the German Government arguing that:

> ...the fixing of a lower limit for the alcohol content of certain liqueurs is designed to protect the consumer against unfair practices on the part of producers and distributors of alcoholic beverages...;

and that:

3/ Some food law was nonetheless based on Article 43 of the EEC Treaty, which provides for the establishment of a common agricultural policy, and on the catchall Article 235 when environmental matters were concerned. For additional information, see Harris, Swinbank, and Wilkinson, 1983, p. 290.

4/ Judgment of February 20, 1979, in Case 120/79, European Court Reports, 1979, p. 649. For additional information, see Mattera, 1981.

> ...the lowering of the alcohol content secures a competitive advantage in relation to beverages with a higher alcohol content, since alcohol constitutes by far the most expensive constituent of beverages by reason of the high rate of tax to which it is subject... (Paragraph 12, first and second indents) (Mattera, 1981).

Article 30 establishes the free-trading principles of the EC:

> Quantitative restrictions on imports and all measures having equivalent effect shall, without prejudice to the following measures, be prohibited between Member States.

Article 36 qualifies this provision, in that it allows import prohibitions or restrictions that are justified, for example, on grounds of public morality, public policy, public security, or the protection of health and life of humans, animals, and plants, provided such prohibitions or restrictions do not "...constitute a means of arbitrary discrimination or a disguised restriction on trade between Member States...."

In Cassis de Dijon, and a string of similar rulings, Article 30 prevailed. In particular, the European Court ruled:

> The concept of "measures having an effect equivalent to quantitative restrictions on imports," contained in Article 30 of the EEC Treaty, is to be understood to mean that the fixing of a minimum alcohol content for alcoholic beverages intended for human consumption by the legislation of a Member State also falls within the prohibition laid down by law in that provision where the importation of alcoholic beverages lawfully produced and marketed in another Member State is concerned (Paragraph 15) (Mattera, 1981).

The concept of proportionality has been of crucial importance in European court rulings. Thus, in the absence of EC provisions, member states are entitled to protect consumer (or other) interests in accordance with Article 36 of the EEC Treaty, but the means they use to do so must be proportionate to the ends, and should involve the minimum disruption to intra-EC trade. In Cassis de Dijon, the European court commented that if products were adequately labeled with an indication of origin and of alcohol content, then consumer interests would be safeguarded (Paragraph 13).

The Principle of Mutual Recognition

In its report, Completing the Internal Market (p. 24), the EC Commission (1988b) said, of the concept of mutual recognition, that:

> The Court of Justice has developed this principle in its case law, notably in the Cassis de Dijon judgement. It signifies acceptance by all Member States of products lawfully and fairly manufactured and sold in any other Member State, even if such products are manufactured on the basis of technical specifications different from those laid down by national laws in force in so far as the products in question protect in an equivalent fashion the legitimate interests involved.

Gray (p. 112), referring to a new approach, points out that although Cassis de Dijon:

> ...represented a turning point it was not new. The freedom of circulation of goods inherent in the EEC Treaty and expressed in Article 30 was primary Community legislation. Up to this time it had been the practice to resort to harmonization without asking whether harmonization was really necessary. The Court judgement implied not that Member States should rescind existing laws but merely that they should adapt them to allow foods from other Member States which had been lawfully produced in the Member State of origin to have access to other national markets.

As a consequence of Cassis de Dijon and similar rulings, Gray (1990, pp. 112-13) reports that by 1984:

> ...it was clear that it was necessary to put in hand a new policy on food law which would be adapted to a modern democratic Community. The Commission therefore, in its Communication of 8 November 1985 (Commission, 1985), stated that the legislative approach followed in the

past needed to be revised by drawing a distinction between, "on the one hand, matters which by their nature must continue to be the subject of legislation and on the other hand, those whose characteristics do not need to be regulated" (point 7). According to the Commission, Community legislation on foodstuffs should be limited to provisions justified by the need to: protect public health; provide consumers with information and protection in matters other than health and ensure fair trading; and provide for the necessary public controls [point 9].

It was against this background that the EC Commission's 1985 White Paper was issued (Commission of the European Communities, 1985), detailing a series of harmonization measures that, in conjunction with the principle of mutual recognition, would, in the EC Commission's view, allow the internal market to be achieved in processed foodstuffs.5/ Thus, any assessment of the EC's progress toward completion of the internal market by December 31, 1992, must consider not only the success rate in implementing the proposed legislation listed in the 1985 White Paper, but also the strengths and weaknesses of the mutual recognition approach.

In particular, note that in its latest communication on the matter, the EC Commission (1989, p. 3) has stated:

> In the absence of harmonized Community rules the Member States have the power to lay down, in respect of their own production, rules governing the manufacture, composition, packaging and presentation of foodstuffs. On the other hand they are required to admit to their territory foodstuffs lawfully produced and marketed in other Member States. The importation and marketing of foodstuffs lawfully produced and marketed in another Member State may be restricted, in the absence of harmonized rules at Community level, only where such a measure: can be demonstrated to be necessary in order to satisfy mandatory requirements (public health, protection of consumers, fairness of commercial transactions, environmental protection); is proportionate to the desired objective; and is the means of achieving that objective which least hinders trade.

This simply restates that, in the absence of specific EC legislation on the matter, the principle of mutual recognition rests on the application of Articles 30 and 36 of the Treaty of Rome, as interpreted by the European Court. But does this give rise to a single European market?

Mutual Recognition: A Single or Fragmented Market?

The Cassis de Dijon ruling, and the principle of mutual recognition, do not require a member state to change its national legislation pertaining to goods produced and consumed at home, but only to allow onto its domestic market goods lawfully produced and marketed in other Member States. Thus, Josling (1990, p. 155) has commented: "'Mutual recognition' has turned a border tax into a producer tax." The trade journal Eurofood (AgraEurope, Ltd., May 1990) vividly describes the dilemma mutual recognition can present to companies, when it reported that the Danish dairy company, MD Foods, was contemplating launching a mixed-vegetable oil-butter spread in Denmark in defiance of Danish law. The managing director of MD Foods, Ole Willemann, was quoted as saying:

> We are in a totally grotesque situation, since we must choose between importing legally, or producing illegally. It is a serious matter for a large company of excellent repute to break the law. But we have opted for home-based production using domestic raw materials, rather than accepting a hair-splitting interpretation of legislation (p. 18).

As a result of European Court action, German firms also found that milk substitutes could be imported, but could not be manufactured locally. Apparently, "...many companies had been forced to manufacture them in other EC countries and then import their own products back into West Germany..." (Agra Europe, Ltd., Nov. 24, 1989, p. N/2).

Mutual recognition means not only that domestic producers may face different legislation than their

5/ The introduction of Article 100a into the EEC Treaty, under the Single European Act of 1987, allowed these measures to be adopted by qualified majority vote, albeit with an enhanced role for the European Parliament.

competitors located elsewhere in the EC, hereby potentially affecting costs of production, or (as in the case of imitation dairy products cited above) denying the legal possibility of selling a product that competes directly with imports, but mutual recognition also differentiates between producers in other member states. Imports from Member State A must conform to legislation in Member State A; imports from Member State B must conform to legislation in Member State B; and so forth.

This would seem to create particular difficulties for the enforcement agencies and the national courts. Enforcement agencies would apparently need to enforce the law of not 1, but 12 member states, for the imported product can only be legally sold if it has been lawfully produced in the member state of manufacture, and one cannot presume that only domestic manufacturers willfully or accidentally transgress. Furthermore, under what powers can the courts of one member state enforce the legislative provisions of another member state?

There is a subsidiary problem connected with the enforcement of legislation if there is a separation of powers between local/regional government (for which, say, the enforcement officers work) and national government. The national government might, for example, take a policy decision that the principle of mutual recognition should apply to a particular import, whether out of realization that the defence of an import ban under Article 36 before the European Court would be rejected, or simply because it suits the government to have EC rules force its hand in this manner. Local enforcement officers, however, might take a different view, and may attempt to enforce the current national provisions on the statute books. If, for example, food products legally irradiated in another member state were to be imported into the UK, how the national and local authorities would respond would be interesting.

The principle of mutual recognition might also be said to fragment the European market in the treatment of imports from non-EC countries. Cassis de Dijon and mutual recognition refer only to imports from other member states. Thus, the provisions enshrined in national legislation will still regulate imports from third countries. A foreign-based manufacturer of a product not regulated by harmonized EC legislation will, in the extreme, have to manufacture different products for each of the national markets in the EC. Mutual recognition breaks down barriers to intra-EC trade and, thereby, selectively benefits EC manufacturers, but foreign-based companies will still face a fragmented European market.

Thus, we contend that the principle of mutual recognition does not lead to a single European market, but rather simply breaks down barriers to intra-EC trade and, thereby, creates potential distortions in the competitive position of food companies depending on the location of their manufacturing plant. The practical significance of these potential competitive distortions in the processed foods industries is, of course, an empirical question; but the authors are not aware of any research completed, or in progress, that would cast light on the matter. The distortions, if they exist, are conceivably of trivial significance, but we suspect not.

If mutual recognition does create the competitive distortions outlined above, one can draw three conclusions:

- That companies planning new investment will, other things being equal, be induced to set up new manufacturing plants in those EC countries with the least stringent national legislation in place for the product in question;
- That companies located in member states with stringent legislation that impedes their ability to compete on the domestic market, and in other member states, with companies located elsewhere in the EC will petition their national governments for repeal of the national provisions; and
- That the competitive deregulation thereby induced, together with consumer concerns, will generate lobbies for harmonized EC legislation.

Thus, mutual recognition will result in more EC food law, not less, and the challenge will be that of resisting the Euro-food tendencies of the 1960's and early 1970's. The French Government, in its memorandum to the European Council of Ministers in 1988, argued for more EC legislation:

> The French authorities recognize that it is neither possible nor realistic to carry out sectorial harmonization for all foodstuffs. The time this would take would be incompatible with the objective of completing the Internal Market by 1992, particularly since this sector is becoming daily more diversified with the appearance of new manufactured products.

> Nonetheless, exclusive recourse to mutual recognition of national standards and technical rules involves risks for fair trading and will sooner or later lead to alignment on the least demanding quality requirements. Mutual recognition will also not prevent one and the same name, which constitutes an essential "cultural" reference for the European consumer, being placed on products whose composition may well differ fundamentally from one State to the other.

Consumer Fears

Provided the EC does not succumb to protectionist tendencies, either in terms of direct trade controls on third countries or more restrictive EC food law adopted to expedite the completion of the internal market, the single European market program, in which the principle of mutual recognition forms an integral part, offers to consumers the prospect of a wider range of quality food products at lower prices. Estimates of the extent of these benefits are few and far between. The official study by Groupe Mac (1988), as argued earlier, has its shortcomings, and other material is often anecdotal in nature.

Consequently, consumer lobby groups have tended to concentrate on the potential dangers of the EC 1992 program in general, and on mutual recognition in particular. Aside from the view that manufacturers and retailers will somehow manage to capture all of the benefits to the exclusion of their final customers, consumer concern about mutual recognition focuses on the possible debasement of quality and safety standards, and on their inability to discern real differences between apparently similar products (encapsulated by the quotation from the French Government's memorandum of January 1988 noted above).

The EC Commission has vigorously denied that mutual recognition would oblige member states to accept products onto their domestic markets that were demonstrably unsafe, because member states will still have recourse to Article 36. But the belief that quality standards could be eroded is less easy to dispel.

In the absence of EC legislation laying down compositional standards (referred to as "recipe law"), national provisions will be rendered obsolete, in that products imported from other member states that do not conform can nonetheless be sold. Foster (1990, p. 25), of Britain's National Consumer Council, has commented:

> Compositional standards or "reserved descriptions" are a double-edged tool for the consumer. On the one hand they do maintain certain basic standards; they enable the consumer to place an element of trust in established product descriptions and in the names of traditional foods; they protect consumers against fraud and exploitation. On the other hand they can impede progress especially in relation to the increasing demand for "healthier" products with lower fat or sugar content. Furthermore, it is arguable that "high" compositional requirements deny low-income consumers access to a wider range of cheaper foods.

And she goes on to claim that, "There is a clear and known risk that food standards may fall if compositional standards are abolished...," citing UK experience in 1987, in which a study of 22 meat products showed that, in every case, meat content fell when "...the standards for some meat products were removed and percentage meat declarations were introduced...."

Mutual recognition and Cassis de Dijon-like rulings rely on the use of adequate labeling to inform the buyer of the characteristics and content of the product. The benefits of the single European market do, therefore, impose a cost on the consumer: that greater and more frequent scrutiny of labels helps to determine product choice. For some consumers, the task conceivably will be insurmountable, and they will be left with a bewildering array of products between which they cannot differentiate, except on grounds of price, appearance, and taste. One should not forget that the science of communicating product information to consumers on labels is in its infancy, as a UK nutritional labeling survey showed some years ago (Yeomans, 1986).

Plant and Animal Health Legislation 6/

The need to protect the health and life of humans, animals, and plants tempers the free-trading provisions of Article 30 of the EC Treaty, and some of the more

6/ This section is adapted directly from Swinbank, 1990d.

profound problems of establishing a genuine single European market have been encountered with veterinary and phytosanitary controls. Given the geographic and climatic spread of the EC, and the fact that the sea isolates some member states from their mainland partners, it is not surprising to find that plant and animal diseases endemic in one region are absent in another. Under such circumstances, restrictions are likely to be placed on the free movement of animals, plants, meat, milk, fruit, and vegetables from one region to another.7/

The EC Commission's unwillingness to countenance any border controls in the single European market, combined with a reluctance on the part of the disease-free countries to accept the validity of quarantine arrangements in infected zones, has led to a renewed and ambitious attempt to eradicate certain diseases from the EC. The stricter standards would then apply to all imports from third countries, not just to imports destined for regions previously free of disease. Many third countries, certainly those with an infected stock, could find difficulty in meeting the higher standards, and might regard the EC actions as unjustified protectionism. Certainly, in the past, some have suggested that the African beneficiaries of the ACP 8/ arrangements for beef imports into the EC have seen the need to meet the EC's stringent veterinary regulations, particularly with respect to foot-and-mouth disease, negate the value of the ACP concessions.

Similar concerns arise regarding pesticide and hormone residues, and on animal welfare grounds. European food markets, certainly in the UK and other northern member states, show an increasing fastidiousness about the food supply. Eggs are judged not only on their size, color, taste, and freshness, but also on the conditions under which the hens that laid them were kept. Pressures are mounting to introduce more stringent animal welfare legislation, which, in a single market, must apply throughout the EC, even in those regions where consumers were less concerned about conditions under which the livestock were kept. But what about products imported from third countries?

7/ A graphic example of the problems raised in the case of bovine spongiform encephalopathy (BSE), or mad-cow disease, in the UK in the winter of 1989/90. There was fear that the disease could be transmitted to man, and various control measures were put in force. In particular, the EC banned the movement of live animals from the UK, in contravention of EC law. This, and similar action, for a time seemed to threaten the entire 1993 program until a compromise was thrashed out at a special meeting of the Farm Council in June (Agra Europe, June 8, 1990, pp. P/5-9).

8/ African, Caribbean and Pacific States linked to the EC through the Lomé Convention.

Consumer concerns about residues or other contaminants, even when unsubstantiated by scientific bodies, will likely lead to EC bans on the use of such substances, protecting the commercial interests of local producers. A sufficiently vocal protest by a small group in one region of the EC could, as a consequence of the single European market, lead to a ban throughout the EC, and not only in the member state concerned. Third-country suppliers tend to view such measures as protectionist devices, as was evident in recent trade disputes between the United States and the EC over the latter's import ban on beef grown with the aid of naturally occurring hormones.

Despite the EC Commission's protestations that the single European market program will lead to a less protectionist, not a more protectionist, Europe, to see how this can be, in a single market that attempts to satisfy the food concerns of all its constituent parts, is difficult.

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EC 1992 Market Imperfections and Their Implications for the Food Sector

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Abstract

This paper focuses on the effects of market imperfections on the gains from completion of the European Community's (EC's) internal market. In the case of the food industry, the conventional gains from integration will probably be relatively small. Once the assumption of perfect competition is dropped, the effects of integration are expected to be highly sensitive to the importance of scale economies and the nature of competition between firms. The effects of increasing demand for food safety standards and health are also considered. The focus is the reasons why such standards represent potential market failure and how that failure is resolved through the process of standards-setting or harmonization. Also, the possible economic effects of food safety and health standards on the benefits of the integration process and EC external trade are examined.

Introduction

In the past year, the dynamics of European economic and political integration have become increasingly complex. The planned completion of the European Community's (EC) internal market has initialized policies that encourage freer movement of goods and factors as national borders become more permeable under, for example, the Schengen Agreement.1/ Some initiatives would move toward greater political and economic union, such as moves to complete European monetary union. The political and economic reorganization occurring in Central and Eastern Europe, and the closer economic ties evolving between the European Free Trade Association (EFTA) and the EC, also are making the nature of European integration more dynamic.

Unraveling the potential implications of these changes for the European food and agricultural sector is becoming increasingly difficult. Pressure for reform of agricultural support policies in the Uruguay Round of the GATT and the growing demands for food safety and health standards and environmental regulation in agriculture compound the problem. Bearing these broad-reaching influences in mind, this paper focuses on the completion of the EC internal market and its potential effects on the EC food industry. In particular, we aim to consider conceptually how market imperfections might affect the economic outcome of this process.2/

Conventional Gains from Integration

The central thrust of the EC's 1992 initiative is to complete the internal market in which goods, factors, and services can move freely across national borders. The objective of the program is to improve social welfare in the EC with trade and efficiency gains from market integration. The emphasis of the EC 1992

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1/ An agreement covering free movement across borders between Belgium, France, Luxembourg, the Netherlands, and West Germany.

2/ This paper is based on research conducted as part of North Central Region research project NC-194, entitled "The Organization and Performance of World Food Systems: Implications for U.S. Policies."

process, therefore, is on the removal of trade barriers, in particular nontariff barriers, such as differing product standards and differing levels of value-added taxes. Empirical evidence suggests that such barriers are important; for example, the Groupe Mac 3/ study (1988) of 10 food product sectors found a total of 218 nontariff barriers that were estimated to generate costs in the range of 0.5 billion to 1 billion European Currency Units (ECU) (0.33 percent to 1.5 percent of food-industry turnover). The Commission of the European Communities (EC Commission) (1988) also reports significant price dispersion in food products within the EC for which differing transport and marketing costs simply cannot account.

The traditional method for modeling and evaluating the effects of removing trade barriers is rooted in partial equilibrium customs-union theory.4/ The predictions of such a model include the critical assumptions that markets are perfectly competitive, and that goods are homogeneous and are produced under nonincreasing returns to scale. Using excess supply and demand curves, figure 1 illustrates the static welfare gains from removing trade barriers in a three-country framework, where country I imports from the rest of the EC, (C) and the rest of the world (R).

3/ A French-based consulting firm. See Commission of the European Communities (1988) for a summary of these results, and Swinbank (1990a) for a critique.

4/ See Robson (1987) for discussion.

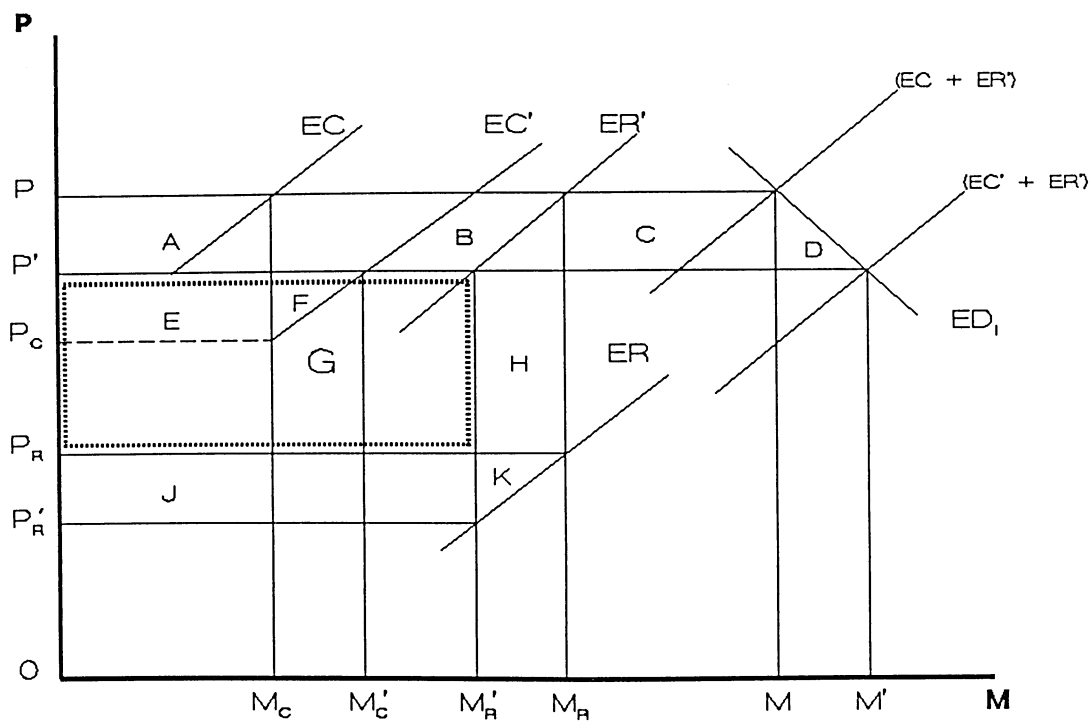
ED_I is the import demand curve for country I, while (EC+ER') is the aggregate export supply curve for the remaining EC countries and the rest of the world. It is assumed that a per unit, common external tariff is levied on imports from R, shifting up its supply curve from ER to ER'. The initial equilibrium is one where the market clears at price P and quantity M, with I importing OM_C from C and OM_R from R. Country I earns tariff revenue of the areas (A+B+H+G), but necessarily forgoes tariff revenue on imports from C. If the nontariff barriers are removed, the export supply curve shifts to EC', moving the aggregate supply curve to (EC'+ER'). The common external tariff is maintained, inclusive of any remaining nontariff barriers. The new equilibrium is therefore at price P' and quantity M', and imports by I from C increase to OM_C' and fall to OM_R' from R.

This comparative static exercise identifies the following welfare changes:

- Consumers in country I gain surplus made up of the areas (A+B+C+D), while there is a net loss in tariff revenue of the area (A+B+H)-J.5/ Hence, the net welfare gain to I is (C+D-H+J); area C is the terms of trade gain on the original level of imports from C

5/ While not shown here, there is also a loss in producer surplus in I as domestic firms' output declines in the face of imports from C.

Figure 1
Removal of trade barriers: Partial equilibrium effects



(the lower price P′ prevails); area D is the gain on additional imports from C, that is, trade creation as cheaper imports from C replace production in I; area H is trade diversion, as more expensive imports from C replace imports from R, that is, a terms of trade loss; and area J is a terms of trade gain, getting imports from R at a lower price.

- For the exporters, EC firms in C gain producer surplus of (E+F), where E is the terms of trade gain on existing exports to I and F is the gain from extra exports to I. The rest of the world (R) firms lose producer surplus of (J+K), which is a terms of trade loss.

Based on this model structure, the EC Commission has calculated both the trade effects and the welfare changes from completion of the internal EC market for food products, using data from the NACE 3-digit industry classification and a 1985 baseline. Averaging across the food subsectors, the results indicate that intra-EC imports will increase by 2.3 percent, compared with an average for the manufacturing sector of 4.5 percent. Extra-EC imports are predicted to decline, on average, by 2.8 percent, compared with an average for manufacturing of 10.3 percent.6/ As Table 1 shows, the predicted welfare gains for the food industry, averaged across the subsectors, is 1.5 billion ECU, or an average 2.3 percent of EC food industry output, and is identical to the predicted average welfare gains in manufacturing. As other studies of reducing trade barriers have indicated, the static welfare gains tend to be very small, although the redistribution of tariff revenues can be quite large, as consumption switches from rest of the world imports to EC production.

Critical to any estimate of the effects of removing trade barriers on the food industry is the nature of integration in the agricultural sector, in particular, the removal of monetary compensatory amounts (MCA's) and the level of support prices. From the EC Commission's analysis, what assumptions were made in this respect is not clear. There is also some debate as to whether or not changes in the agrimonetary system are included in the EC 1992 process (Josling, 1990; Ichter, 1990).

When processed food products cross borders within the EC, they are subject to MCA's, the amount of which depends on their input content that is covered by CAP regimes. Following revaluation of the ECU, in line

6/ The EC Commission assumed that products affected by CAP regimes would exhibit no change in imports, thus, the common external tariff is maintained at current levels. However, if intra-EC imports increase, some part of this may represent trade diversion.

Table 1--Estimated welfare effects on EC food industry of removing non-tariff barriers

Product	Welfare gains
	Billion ECU
Meats, preserves	1.8
Dairy products	2.0
Other food	2.7
Beverages	.5
Tobacco products	.3
Food-industry average	1.5
Manufacturing average	1.5

Source: EC Commission.

with the Deutsche mark in 1984, most MCA's are now negative, such that they take the form of export taxes or import subsidies in countries with weak currencies. MCA's also act as a trade barrier, in that an administrative cost is incurred as goods cross borders. The previous analysis holds, in the sense that the export supply curve, EC, would shift down to reflect the removal of administrative costs (fig. 1). However, in the case of removing export taxes and subsidies, the net effect of removing MCA's in the food processing sector is not obvious. For example, if net trade flows in processed foods are predominantly from high-currency to low-currency countries, then the removal of export/import subsidies will reduce the degree of trade creation, that is, area D will be smaller.

Even if MCA's are not explicitly removed, the EC's exchange-rate mechanism (ERM) will ensure that exchange-rate disparities are maintained within certain bands, thus removing the need for MCA's. Whatever the eventual outcome, what is important, from the viewpoint of food industry material costs, is the level at which EC agricultural prices are eventually harmonized. For example, a recent study by Gleckler and Tweeten (1990), using the USDA SWOPSIM model for 1986 data, simulates the welfare effects of harmonizing the internal EC price for a sample of 12 agricultural and food products. On average, if prices were harmonized at the low UK level, the welfare gain would be 0.48 billion ECU, 7/ but if prices were harmonized at the high Italian level, the welfare loss would be -0.05 billion ECU. Assuming that these changes would be passed on in processed food prices, they may have an important effect on economic welfare. Therefore, as

7/ This assumes an exchange rate of 1 ECU = $1.22.

Josling argues, integration in the food sector may impose significant pressure on the CAP, as food processing firms seek the lowest cost materials.

Market Integration and Imperfect Competition

The analysis outlined above explicitly assumes that markets are perfectly competitive. However, as Cox and Harris (1985) have shown in their modeling of free trade between the United States and Canada, when economies of scale and imperfect competition are taken into account, the market integration effects of trade liberalization may be considerably higher than those predicted by neoclassical trade theory.

When markets are treated as imperfectly competitive, two distinctive aspects arise from completion of the internal market. First, there is the removal of existing nontariff barriers. Second, there are the dynamic effects of integration, whereby a uniform market may lead to greater efficiency gains as greater competition removes price differences between national markets and economies of scale are realized. Smith and Venables (1988) argue that this latter aspect of EC 1992 is, "much closer to the spirit of what is meant by 'completing the internal market' than is a mere reduction in trade barriers..." (p. 1502).

Compared with the estimation of direct trade effects from removal of trade barriers where markets are perfectly competitive, there is no general methodology for dealing with the effects of imperfect competition on market integration. In the following discussion, a simple analytical framework is outlined first, to highlight the basic distinction between the two effects of completing the internal market. Then a more sophisticated analysis is presented, which emphasizes the role of competition between firms in affecting the post-1992 outcome.

Following a framework that McCorriston (1990) suggested, suppose that two markets (A and B) characterized a particular EC food industry, and that monopoly structures characterized each of the two markets. The two markets face similar declining cost curves, and both set the profit-maximizing level of output. However, prices are higher in market B than in A, due to a lower level of demand in B and to various trade and competition barriers. The effects of removing the trade barriers are shown in figure 2.

Prices in each market fall to P'_A and P'_B, respectively; the benefits being the consumption effects of ABC and DEF and the scale effects of U and V. However, market fragmentation remains, and is reflected in the price differential between markets A and B.

With full integration, firm A alone can efficiently supply EC market demand (D_A+D_B) (fig. 3). The uniform market price is P'_A, which generates an additional consumption gain of GHJ in market B. Total supply by firm A is ($Q'_A+Q'_B$), resulting in a total gain of XYZ from economies of scale. Also, firm A increases its profits to the area $P'_ARSC''_A$. Hence, in addition to the gains from the removal of trade barriers, market restructuring results in greater gains. Additional gains to consumers would be made if firm A were to set Ramsey prices.8/

In the above analysis, no account is taken of firms' behavior as the market becomes a natural monopoly after integration. In a more sophisticated attempt to model EC 1992 in the context of imperfect competition, Smith and Venables (1988) consider a situation where multibrand firms make output decisions both for a given brand and regarding the number of brands. The industry equilibrium is similar to that described by Krugman (1979 and 1980), where firms operate under increasing returns to scale and produce differentiated products; consumers have Dixit and Stiglitz (1977)-type preferences 9/, and intraindustry trade characterizes the trade equilibrium.

The model is quite complex, so only an intuition is given here.10/ The initial situation is one wherein the EC market is segmented, such that firms price discriminate between markets. In any firm's first-order condition for profit maximization, the perceived elasticity of demand for a given product depends critically on both the price elasticity of demand for the product and the firm's beliefs about the effects of its actions on industry supply. The relevant strategic variable can be either price or quantity, allowing for Bertrand and Cournot outcomes. Firms also choose the number of brands they want to produce, so that the perceived elasticity will depend on the expected response of other firms to a change in the number of brands produced and the effects of a new brand on the demand for existing brands. The game firms play in any given period will also affect demand for new versus existing brands; for example, if firms play Bertrand, prices remain constant and output changes, and vice-versa if they play Cournot.

8/ This is the equilibrium where firm A sets price equal to average cost.

9/ The utility function is one where all available varieties of goods are consumed.

10/ See Venables and Smith (1986) for a full outline of the model.

Figure 2
Effects of removing non-tariff barriers

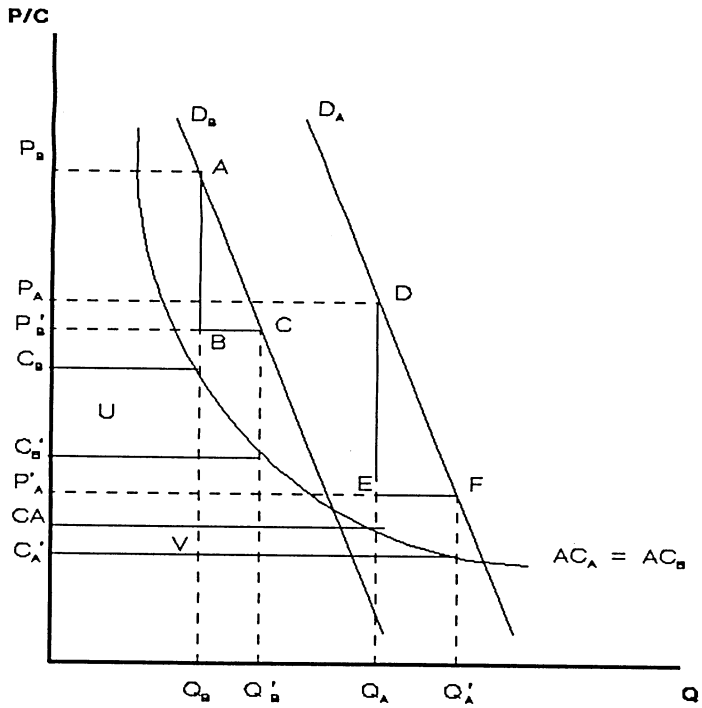
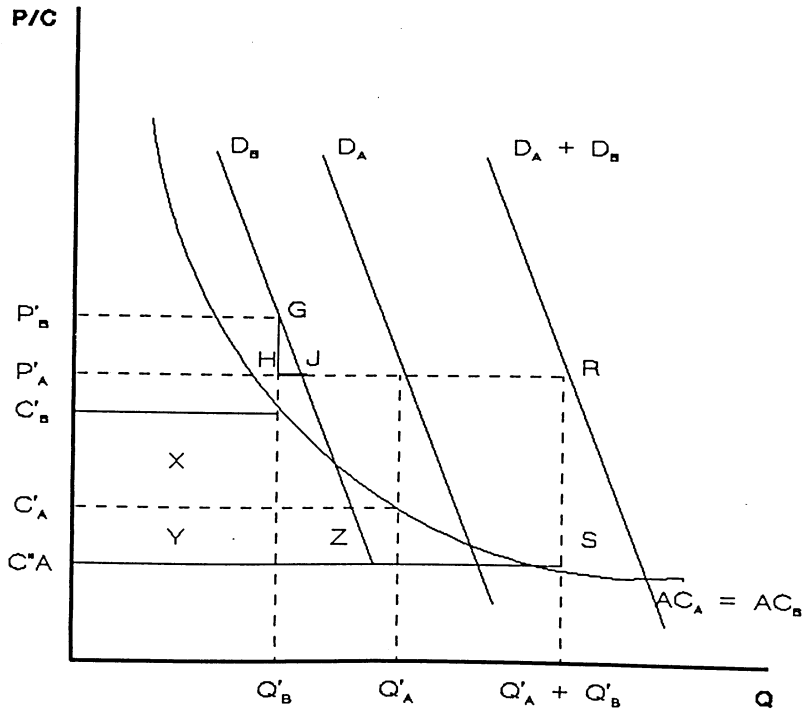


Figure 3
Effects of market integration



In equilibrium, if market structure is fixed, then positive profits will be observed. However, with free entry/exit, profits will be driven down to zero, that is, the monopolistic competition outcome. Once EC integration is allowed for, price discrimination is ruled out, as firms must set a single price and sell into an integrated market. Focusing on a hypothetical industry where Cournot behavior and a fixed number of brands are assumed, describing what happens in the model is useful.

The nontariff barriers are initially removed (the direct effects of EC 1992), such that for a given number of firms, intra-EC trade increases, raising competition in each market as the level of seller concentration falls. As a result, prices decline, raising consumer surplus and reducing firms' profits, but as sales expand, average costs fall. If free exit is allowed, profits return to their pre-integration equilibrium, seller concentration rises, prices increase, and consumer gains fall slightly. The welfare gains are positively correlated with the extent of scale economies, and their effects increase when there is free exit.

The nature of strategic interaction between firms will also affect the welfare outcome. If Bertrand behavior is assumed, then increased intra-EC trade has less of an effect on prices, hence demand and output change by less than in the Cournot case. For a fixed number of firms, there is less reduction in average costs; while for free exit, the smaller price reduction induces less exit and less realization of economies of scale. In addition, if firms introduce new brands after removal of trade barriers, firms shorten their production runs on existing brands. Thus, there is a tradeoff between reduced economies of scale and increased economies of scope. Also, smaller reductions in average cost are traded off against the gains from increased product variety.

Under market integration, price differences between segmented markets are assumed to disappear. Prior to integration, firms price discriminate between their home and foreign markets to exploit their market power; that is, their domestic price-cost margins exceed those in foreign markets and Herfindahl indices are high. After integration, price-cost margins, inclusive of transport costs, must be equalized, and concentration at the EC level will fall; that is, firms can no longer extract monopoly rents from their home markets. As prices fall, domestic consumers switch to home output, and intra-EC trade declines. The decline in market power and prices results in a fall in profits, which, with free exit, induces firms to leave the market. The remaining firms reap economies of scale, due to both the increase in demand and the exit of firms.

Evaluating the effects of EC 1992 in the presence of imperfect competition is clearly problematic, and the preceding analysis suggests that results will likely be sensitive to assumptions about technology and competition. Smith and Venables used their computable, partial equilibrium model to simulate the effects of EC 1992 on a sample of 10 industries, none of which relate to the food sector. However, their results do indicate that welfare gains from integration are greater than those from the removal of trade barriers, and that the gains are greater where markets are more concentrated and firms act noncompetitively.

The EC Commission has attempted to estimate the gains from integration for the food industry. The effects of economies of scale were calculated from models developed by Schwalbach (1988) and Ranci and Helg (1987), which focused on the gap between existing plant sizes and minimum efficient scale estimates, with the latter based on estimates made by Pratten (1988). Pratten's estimates were largely based on data from the 1960's, and relate to either the UK, the United States, or Germany. The results for the food industry suggest that at a scale 50-percent below minimum-efficient scale, costs rise in the range of 3.5-21 percent depending on the product, while for drink and tobacco, the range is 1-6 percent.

Given these estimates, market integration may have a more pronounced effect where potential economies are large, seller concentration is high, and nontariff barriers protect inefficient firms. Taking the estimated direct gains from EC 1992 as a base, the EC Commission calculated scaling coefficients for the market integration effects, with the coefficients increasing in concentration and scale economies, and assuming free exit by firms after EC 1992.11/ These coefficients were derived from an extrapolation of Smith and Venables' results, consequently they must be treated with a good deal of caution, as none of their sample industries are closely related to food manufacturing.

Table 2 contains the estimated welfare effects of market integration for the EC food industry, separating out the gains from economies of scale and increased competition. On average, the gains from integration are valued at 2.2 billion ECU, compared with an average gain across manufacturing of 3.8 billion ECU. However, the gains for the food industry are greater, as expected, than those from the simple removal of nontariff barriers.

11/ See Commission of the European Communities (1988) for summary of coefficients.

Table 2--Estimated welfare effects of market integration on EC food industry

Product	Economies of scale	Increased competition	Total
		Billion ECU	
Meats, preserves	0.9	0.2	1.1
Dairy products	1.1	.8	1.9
Other food	3.1	1.8	4.8
Beverages	1.0	.5	1.5
Tobacco products	.5	.9	1.5
Food industry average	1.3	.9	2.2
Manufacturing average	2.2	2.1	3.8

Source: EC Commission.

One can level a number of criticisms at the EC Commission's estimates (Peck, 1989). First, the Commission assumed that economies of scale will be realized, free exit will occur, and markets will move to equilibrium. However, it is difficult to see how disequilibrium can satisfactorily be handled in a simulation model. Second, the EC Commission reports only those estimates based on Cournot behavior, variable firm numbers, and complete integration. Although the choice of Cournot behavior can be defended on technical grounds, 12/ the sensitivity of the results to changes in assumptions about oligopolistic behavior, freedom of exit, and so on, is symptomatic of the new literature on trade and imperfect competition.13/ Therefore, the Commission's estimates probably need to be treated as upper bounds of the welfare gains from integration in the EC food industry.

If there are potential gains to be made from EC integration, to what extent will they be realized? If one accepts an efficient-markets view of mergers, then the recent spate of cross-border mergers involving food firms suggest that the market believes there are benefits from the process of integration.14/ However, the EC Commission has expressed some concern about conglomerate activity in the food industry, on the grounds that it may result in either less competition if firms participate in standoff agreements, or unfair competition if firms indulge in predatory pricing behavior (Commission of the European Communities, 1990).

12/ Kreps and Scheinkman (1983) have shown that in a two-stage game, Bertrand pricing can be consistent with Cournot outcomes.
13/ See Krugman (1986) for an accessible survey.
14/ There were 79 cross-border mergers in the food industry in 1989 (Kellaway, 1990).

The Growing Demand for Food Quality and Market Failure

The prime concern of mankind, historically, has been to assure the sufficient supply of food. Quality considerations have played only a secondary role. However, by the early 1980's, the fear of persistent food scarcity had dissipated and was replaced by concerns over food surpluses in the developed world. A growing emphasis on food quality has paralleled this switch in the perception of food scarcity. A growing demand for food safety and health standards tends to express the growing demand for food quality.

There appears to be a general consensus that many quality components can be left to market forces. Free contracting between private agents, both domestically and internationally, will eventually meet the growing demand for quality. However, there is also a consensus that certain quality components require regulation, as a result of both the irreversible health consequences of consuming food with negative quality components and asymmetric information on those quality components (Kinsey, 1990; Kramer, 1990).

In examining the nature of market failure in the provision of food standards, outlining a model of contractual performance originally suggested by Klein and Leffler (1981) is useful. Consider a situation where, in each period, consumers purchase food product x, which embodies a level of quality q. Prior to consumption, individuals are uncertain about the actual quality of the good, but are able to ascertain, by prepurchase inspection, that it meets a minimum standard, such as fruit that is unblemished. Over the consumption period, as the good is experienced, consumers can costlessly communicate information to

each other about the good's actual quality. If the quality is lower than claimed, the seller is punished by non-repeat purchases.

Many potential firms can supply the market with the identical technology:

$$C = c(x, q) + F(q)$$

where c and F are variable and fixed costs, respectively. Higher quality and quantity generate higher production costs, and marginal costs increase with quality.

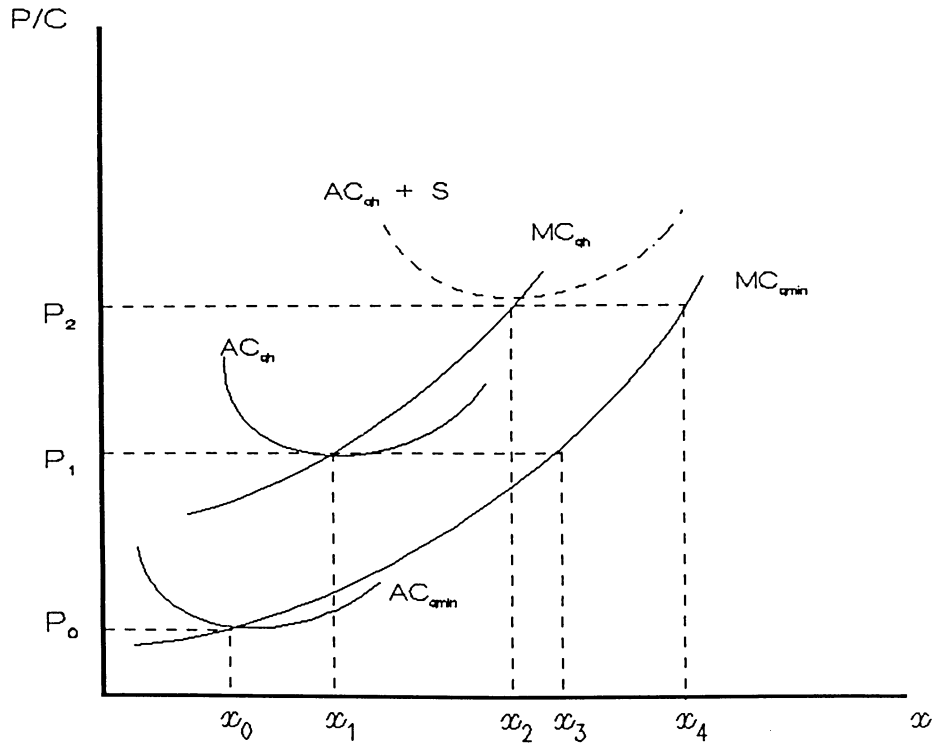
In figure 4, MC_{qmin} and AC_{qmin} refer to the costs for a good of minimum quality, while MC_{qh} and AC_{qh} refer to costs for a high-quality good; P_o and P_1 are the relevant competitive prices. Given that consumers can only observe that a good is of minimum quality prepurchase, sellers will always have an incentive to cheat by selling x_3 of the low-quality good at the high-quality price, as the one-period quasi-rents from cheating outweigh the zero quasi-rents of being honest. Rational consumers will realize this and, because of the moral hazard, will only be willing to pay P_o. Therefore, only low-quality goods will be produced.

However, a price above the competitive price P_1, may be motivating firms to supply high-quality goods, that is, P_2 generates a price premium such that the perpetual quasi-rents from supplying high-quality goods outweigh the one-period rents from cheating.15/ In a competitive equilibrium, firms cannot earn positive profits, hence entry would force the market price below the quality-assuring level. To generate an equilibrium, Klein and Leffler argue that firms will compete such profits away by investing in firm-specific assets, such as brand names, logos, and advertising, that incur nonsalvageable costs. This shifts up the cost curve for high-quality goods to $AC_{qh}+s$. Firms will not cheat by selling low-quality goods at the high price P_2, as they will lose future sales and incur a capital loss. Also, investment in specific assets acts as a signalling device to consumers where they are uncertain about firms' cost structures.16/

Given this analysis, how robust is it when the quality index for a product is a vector of characteristics? As Kinsey (1990) notes, food quality is a continuum of characteristics, ranging from the very negative, such as unsafe food, to positive, in terms of taste and convenience. The combination of the price premium and the repeat-purchase mechanism would probably

15/ See Klein and Leffler (1981) for the precise technical condition.
16/ Allen (1984) argues that the Klein and Leffler (1981) proposition does not hold if consumers can observe the price and output of firms and can have information on costs.

Figure 4
Pricing and quality levels



generate a Pareto optimum for positive quality characteristics, such as taste. And food processing firms certainly invest in nonsalvageable, firm-specific assets, such as brand names. However, that contractual assurance can be assured in the case of negative characteristics seems less likely.

The repeat-purchase mechanism is based on the idea that consumers can evaluate quality immediately after consumption. When consumption of a good bears a health risk, markets fail to achieve a Pareto optimum. Honest firms may invest in firm-specific assets concerning food safety, but because the repeat-purchase mechanism is undermined by consumer uncertainty, dishonest firms have an incentive to free-ride and cheat.17/ Hence, the moral hazard problem remains in the case of negative-quality characteristics, and a competitive market will not provide the necessary quality information that has some of the characteristics of a public good (Stiglitz, 1985).

Even if the repeat-purchase mechanism works, it will tend to be both erratic in nature and possibly suboptimal in terms of known risks. For example, salmonella poisoning from eggs was not widely known to UK consumers until a government minister publicly claimed that salmonella affected all eggs sold in the UK, generating an almost immediate boycott by consumers. All eggs were then assumed to be of low quality.

The demand for food quality as well as food safety and health standards is a function of a number of variables. Food quality and its standards represent luxury goods (Falconi and Roe, 1990). Growing incomes, together with improved knowledge about health risks, have significantly increased demand for food quality in the last decade. Of course, the demand for food quality and food quality standards is also a function of both other environmental hazards to which consumers are exposed and nationally divergent preferences.

Moreover, the growing opportunity cost of human time drives the demand for food safety and health standards. Food components are frequently not easy to recognize. The cost of information on food quality components tends to rise with the opportunity cost of time. In addition, rising opportunity costs of time stimulate increased demand for food away from home (Senauer, 1979) and, thus, lead to a growing intake of food for which there is uncertainty about the quality components (Falconi and Roe, 1990).

17/ See Falconi and Roe (1990) for analysis of incentives to firms to distort safety information.

As the variables determining the demand for food quality and food safety and health standards are different from one country to another, there will be differences in each country's optimum quality standards (positive and normative) in the absence of international policy coordination. Such nationally divergent standards obviously represent barriers to trade. Hence, each country involved has an incentive to pursue political strategies that could lead to harmonization of food safety and health standards. These incentives for policy coordination represent one of the driving forces of the EC 1992 market integration initiative.

Despite these incentives, uniform food safety and health standards may be difficult to achieve for political and economic reasons. For example, in the case of the United States, despite being a nation for more than 200 years, numerous interstate trade barriers remain, many of which are based on differences in food safety and health standards. In the case of the EC, the growing demand for standards has helped to form domestic coalitions between consumers who desire food safety and health standards and agricultural producers who demand protection from competition. Therefore, EC member states have had difficulty agreeing on a set of uniform food safety and health standards. As a result, such uniformity is no longer considered a realistic objective of the EC 1992 process.

The EC apparently has adopted the principle of mutual recognition in its approach to food standards harmonization (Swinbank, 1990b; Gray, 1990). Products manufactured and sold within a particular EC country, and those imported from a non-EC country, are subject to that country's set of quality standards; while products imported from other member states have to meet only the standards set by their own governments. Therefore, the EC Commission appears to be following a policy of minimum standards.

The previous analysis of contractual enforcement has a number of implications for welfare evaluation. First, if individual EC member states set differing food safety and health standards, which translate into sunk costs for firms, there will be a range of qualities of goods that can be freely traded in the EC. This may be beneficial if there is a nonuniform distribution among consumers of the willingness to pay for quality, although making interpersonal utility comparisons is difficult. In figure 1, a family of export supply and demand curves reflects different quality levels, which means that price differences for a particular food product will be observed after EC 1992 for reasons other than transport costs. However, a range of differing product standards for the same type of product may interfere with the

signaling mechanism of a particular country's set of standards, and may increase consumer uncertainty. Second, because the process of harmonization would appear to focus on a minimum set of standards, those firms from member states with higher standards may have an incentive to demand that domestic standards be lowered to allow them to compete with imports that embody a lower set of standards.

The incentives for the formation of coalitions between consumers and agricultural producers, with respect to food quality standards, may also affect the external trading position of the EC. In particular, such lobbying activity characterizes the concern of many EC trading partners who fear that the EC 1992 process could lead to a 'Fortress Europe.' With the disappearance of many intra-EC trade barriers, agricultural producers and food manufacturers seeking protection from third-country competition may find suitable coalition partners in consumers who demand food quality standards. The rest-of-the-world supply curve, ER´, in figure 1 will shift up through the imposition of standards that create a nontariff barrier to trade. For example, the disputes between the United States and the EC over hormone-fed beef shipments, and the EC third-country directive regarding meat processing plants abroad, may be only the tip of the iceberg, and such disputes may be expected to develop significantly in the future.

Conclusions

Attempts to harmonize food health and safety standards have been an important part of the process of completing the EC internal market. However, the outcome and effects of this process will apparently be more complex than the simple removal of trade barriers. Several issues remain unsolved:

- If a Pareto optimum for each country requires nationally divergent standards, then free trade must be abandoned as the reference situation for trade and policy analysis. But, what replaces it?

- If harmonization of standards is desirable for at least some countries, how should and how will countries cooperate in this regard?

- As the units of analysis are not individual economic agents, the political economic process must be understood both at the domestic and international level.

The growing demand for food safety and health standards raise new methodological problems for which, as yet, there are no agreed answers.

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Implications of a Single EC Market for the U.S. Food Manufacturing Sector

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Dennis R. Henderson

Abstract

This paper compares the structure of food manufacturing in the United States with that industry in the European Community (EC) member countries, aggregated to an EC-wide basis. We detail interlinkages between the United States and the EC in terms of product trade, direct foreign investment, and product licensing and identify dominant firms in both markets. U.S. firms hold a significant number of leading positions in both markets. EC policy developments that may affect the organization of EC food manufacturing firms are discussed in terms of potential effects on the structure and conduct of U.S. food manufacturing firms.

Introduction

The food manufacturing sectors in the United States and the European Community (EC) bear many organizational and operational resemblances and are inexorably interlinked in a number of ways. Linkages include direct investment and operations by U.S. firms in EC markets and vice versa, bilateral trade in finished goods and intermediate products, direct competition on third-country markets, product and brand-name licensing, and other joint ventures and operating agreements.

Integrating EC industries into a single market is changing the structure and behavior of the EC food manufacturing sector. In turn, such changes affect the nature of both competitive and cooperative relationships between the EC and food processors elsewhere, including those in the United States. This paper examines how the evolution of an EC-wide food sector may affect U.S. food manufacturing industries. We start with a general description and comparison of the food manufacturing industries in both the United States and the EC, then delve into the commercial ties between the two. Then, we briefly review changes occurring in the EC that are expected to have significant effects on these interrelationships, and conclude with some implications for the U.S. sector.

Sheldon and von Witzke have demonstrated the relatively small expected welfare gains from trade creation in the EC food manufacturing sector as a result of the single market initiative. However, building on the work by Smith and Venables, Sheldon and von Witzke have shown that the potential to achieve gains from industrial restructuring is at least 50 percent greater than the trade creation gains. Sources of industrial reconstruction gains include lower consumer prices through greater competitive discipline in an expanded market, and economies of scale and greater consumer choice through a wider variety of product offerings and economies of scope. Therefore, we have focused primarily on the structure of the EC and U.S. food manufacturing sectors and on expected structural changes.

Most food processing industries in both the United States and the EC can be characterized by a structural model with a dominant core of large firms and a fringe of small firms. The dominant firms typically have transnational interests and a highly diversified product range, and hold leading positions in a large number of different geographic and product markets. These firms tend to be strongly consumer-oriented, and to exercise a good deal of vertical coordination among suppliers and

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raw material producers. That is, they run well-orchestrated systems for acquiring inputs and creating value-added products that consumers desire, mass merchandise those products, and get food retailers and eating places to accept the products as prominent offerings.

Dominant firms control food manufacturing. For example, the 50 largest U.S. food manufacturers account for more than 50 percent of all U.S. food output; the 50 largest food manufacturers in the EC account for nearly 40 percent of ali EC food production. Also, European and U.S. firms lead the dominant firm group, accounting for 38 of the world's 50 largest food manufacturers. Japan accounts for most of the remainder.

By contrast, fringe firms are more locally oriented, operating primarily within a specific product and/or geographic market. While some of these firms make international sales, they usually do so as an adjunct to local operations. In some cases, these firms hold a leading brand position in their specific market, but often become acquisition targets for dominant firms when they persistently do so. These firms frequently concentrate on specialty markets, but sometimes regional markets, for highly perishable products, such as milk and baked goods. Other fringe firms are production-oriented, typically manufacturing private-label products for retailers and other distributors on a local or regional basis. As such, they are often complementary, rather than competitive, with firms in the dominant core.

Our industry definitions are the 4-digit Standard Industrial Classification of the United States (SIC), which classifies food manufacturing into nearly 50 different industries, or the 3-digit General Industrial Classification of Economic Activities within the European Communities (NACE), which classifies 17 food and beverage manufacturing industries. Our definition of dominant firms is based on size; from data collected on a panel of the world's 150 leading food processing firms, we focus on the largest of those with operations in the United States and in the EC. Our attention on industries at the SIC/NACE level of definition turns on the availability of census of manufactures-type data. Our emphasis on dominant firms is based on the perception that these firms are increasingly playing out the competition among food processors. That is, we believe that the behavior of dominant firms is the primary indicator of how the food manufacturing sectors in both the United States and the EC will adjust to EC market consolidation.

A Comparison of the U.S. and EC Food Manufacturing Sectors

To ease comparisons between the U.S. and EC food manufacturing industries, we combined the 49 U.S. SIC-defined industries into the 17 comparable NACE categories, and converted all values to U.S. dollar equivalents. The basic sources of data are the 1987 U.S. Census of Manufactures and Eurostat's Structure and Activity of Industry, 1986 Annual Inquiry. These are the latest available from each source. However, the Eurostat data are probably somewhat less complete than are the U.S. Census data, reflecting complexities in compiling EC data from the different forms of national accounts of member countries.

The U.S. food manufacturing sector has slightly larger total sales than its EC counterpart (table 1). The U.S. sector had $315 billion in sales in 1987, compared with EC sales of $290 billion in 1986. The U.S. sector accounts for a smaller share of total gross domestic product (GDP), at 7 percent, compared with 8.4 percent for the EC. Farm sector sales were $179 billion in the EC, compared with $142 billion in the United States. Food manufacturing sales were 2.2 times larger than farm sales in the United States, but only 1.6 times larger than farm sales in the EC. Thus, compared with that in the United States, the food manufacturing sector in the EC is somewhat less important than the farm sector as component parts of the broadly defined farm and food system.

Employment is a major difference between the two sectors. The U.S. food manufacturing sector has 1.4 million employees versus 2.1 million in the EC sector. The more labor-intensive EC sector accounts for 1.6 percent of the total EC employed workforce. In contrast, U.S. food manufacturers account for only 1.3 percent of the U.S. economy's employed workforce. This difference in labor intensity is clearly reflected in measures of output per employee.

Sales per employee across all food manufacturing industries averaged $218,000 in the United States, compared with $136,000 in the EC. Differences in value added per employee are more than twice as high in the United States, at $84,000, compared with $35,000 in the EC. The potential for labor displacement in food manufacturing is clearly much greater in the EC than in the United States. Indeed, the number of food manufacturing employees in the United States has stayed nearly constant during the past several years.

Table 1--U.S. and EC food manufacturing sectors

Item	Units	U.S.	EC
Value of sales	Million dollars	315,269	289,718
Sales as share of GDP 1/	Percent	7.0	8.4
Employment	Number	1,446,900	2,135,000
Share of employed workforce	Percent	1.3	1.6
Units (plants)	Number	20,436	25,916
Sales per unit	Million dollars	15.4	11.2
Employees per unit	Number	70.8	82.4
Sales per employee	1,000 dollars	217.9	135.7
Value added per employee	do.	84.1	35.1
Aggregate concentration: 2/			
Top 20 firms' share of sales	Percent	37	27
Top 50 firms' share of sales	do.	52	38

1/ GDP denotes gross domestic product.
2/ Estimated from appendix tables 2 and 3.

There were at least 6,000 more food processing plants in the EC than in the United States. The Eurostat data appear to be somewhat inconsistent between countries, particularly in counts of small plants. As a result, both the sales and the employees per establishment for the EC may be somewhat overstated.

Aggregate market concentration among dominant firms is moderately higher in the United States than in the EC. The top 20 firms' share of sales is 37 percent and 27 percent in the United States and the EC, respectively, while the top 50 firms' share is 52 percent in the United States and 38 percent in the EC.

Table 2 ranks the 17 food manufacturing industries by value of sales. For both the United States and the EC, meat, dairy, and other food products are the top three industries. Meat and hide processing is somewhat more important in the United States, accounting for 24 percent of sector sales, compared with 19 percent in the EC. However, dairy processing is slightly more important in the EC, accounting for 19 percent of sector sales versus 14 percent in the United States. The soft drink industry is much larger in the United States than in the EC, while the brewing, distilled liquor, and wine industries are all far larger in the EC than their U.S. counterparts. The sales value in the fruit and vegetable processing industry is nearly twice as large in the United States as in the EC, probably reflecting a greater European penchant for fresh consumption.

Industry rankings by number of establishments and employees are very similar in the United States and the EC (table 3). Again, a major difference is in brewing, which accounts for 140,000 employees in the EC, but only 33,000 in the United States.

Industries ranked by average plant size, as measured by sales and employees per plant, are shown in table 4. Wet corn milling and sugar plants are somewhat large in both the United States and EC, while the average size of plants in the bread and flour, seafood, and wine industries rank near the bottom in both sectors. The average plant size in the brewing, grain milling, and meat packing industries are much larger in the United States than in the EC. Alternatively, average plant size is appreciably larger in the EC for the pasta, cocoa and chocolate confectionery, and animal feeds industries.

Labor productivity is consistently higher in the United States than in the EC for the various industries (table 5). Wet corn milling and oils and fats ranked first and second in sales per employee in the United States. In the EC, animal feeds ranked first, while oils and fats also ranked second. Distilled liquor ranked high in both the United States and the EC. In fact, the top three EC industries in value added per employee are distilled liquor, brewing, and wine. In the United States, the top value added per employee industries are wet corn milling, liquor, brewing, and grain milling. Interestingly, industries typically classified as bulk

Table 2--U.S. and EC industry size, by sales

NACE No. 1/	Industry	United States, 1987			European Community, 1986		
		Rank	Value of sales	Share of total	Rank	Value of sales	Share of total
			Million dollars	*Percent*		*Million dollars*	*Percent*
412	Meat	1	76,526	24.3	1	54,218	18.7
413	Dairy	2	44,730	14.2	2	53,908	18.6
423	Other	3	28,321	9.0	3	22,970	7.9
419	Bread and flour	4	23,677	7.5	6	16,465	5.7
428	Soft drinks	5	22,006	7.0	11	10,324	3.6
414	Processed fruit and vegetables	6	20,324	6.4	9	11,800	4.1
422	Animal feeds	7	16,538	5.2	4	22,753	7.8
411	Oils and feeds	8	15,891	5.0	10	10,894	3.8
416	Grain milling	9	15,410	4.9	13	9,073	3.1
427	Brewing	10	14,149	4.5	5	19,155	6.6
421	Cocoa, chocolate, and nuts	11	13,208	4.2	7	16,404	5.7
415	Seafood	12	6,519	2.1	15	5,809	2.0
420	Sugar	13	5,477	1.7	8	12,005	4.1
418	Wet corn milling	14	4,790	1.5	17	3,164	1.1
424	Liquor	15	3,441	1.1	12	10,053	3.5
425-6	Wine	16	3,179	1.0	14	7,128	2.5
417	Pasta	17	1,084	.3	16	3,597	1.2
	Total	N.A.	315,269	100.0	N.A.	289,718	100.0

N.A. = Not applicable.
1/ NACE is the three-digit General Industrial Classification of Economic Activities within the European Community.

product or producer goods industries, such as wet corn milling, animal feeds, and grain milling, generate considerably higher value added per employee than does processed fruit and vegetables, which is typically classified as a consumer-oriented, high value-added industry.

Overall, the most striking finding of this comparison is the strong similarity between the U.S. and EC food manufacturing sectors. The major distinction is the appearance of greater labor productivity in the United States. This could be a source of competitive advantage for U.S. firms, a reflection of differences in labor market characteristics, or a statistical abnormality brought about by inconsistencies between the U.S. and EC accounts.

Dominant Firms

Who are the world's largest food manufacturing firms? To what extent are they based in either the United States or the EC? What is the relative importance of their food processing sales to their total sales? First, we will examine the 50 largest food processing firms worldwide, then focus on the top 50 firms in the United States and the top 50 firms in the EC.

Table 3--U.S. and EC industry size ranked by number of plants and employees

NACE No. 1/	Industry	United States, 1987				European Community, 1986			
		Plants	Rank	Employees	Rank	Plants	Rank	Employees	Rank
		Number		*Number*		*Number*		*Number*	
423	Other	3,777	1	198,800	3	697	9	150,000	5
412	Meat	3,231	2	340,000	1	6,973	1	380,000	1
419	Bread and flour	2,851	3	216,900	2	5,494	2	364,000	2
413	Dairy	2,328	4	141,500	4	2,041	4	255,000	3
422	Animal feeds	1,924	5	47,900	8	960	7	81,000	9
428	Soft drinks	1,190	6	95,600	6	732	8	88,000	8
414	Processed fruit and vegetables	1,036	7	125,500	5	1,014	6	124,000	7
421	Cocoa, chocolate, and nuts	950	8	69,900	7	579	10	160,000	4
415	Seafood	819	9	44,400	10	558	11	77,000	11
416	Grain milling	623	10	45,900	9	3,606	3	40,000	15
411	Oils and fats	586	11	30,100	12	293	14	48,000	13
425-6	Wine	508	12	13,500	14	539	12	45,000	14
417	Pasta	218	13	6,600	17	197	16	24,000	16
427	Brewing	161	14	33,300	11	1,553	5	140,000	6
420	Sugar	103	15	19,600	13	239	15	78,000	10
424	Liquor	71	16	8,800	15	409	13	53,000	12
418	Wet corn milling	60	17	8,600	16	32	17	20,000	17
	Total	20,436	N.A.	1,446,900	N.A.	25,916	N.A.	2,135,000	N.A.

N.A. = Not applicable.
1/ NACE is the three-digit General Industrial Classification of Economic Activities within the European Community.

Top 50 in the World

Appendix table 1 lists the world's largest food manufacturing firms ranked by their food manufacturing sales. Nestle', headquartered in Switzerland, is the world's largest food manufacturing firm, followed by Philip Morris (U.S.), and Unilever, jointly headquartered in the UK and the Netherlands. Rounding out the top five is ConAgra (U.S.) and Kirin Brewery (Japan). Most of the 50 largest firms are not widely diversified outside of food manufacturing. Notable exceptions are Philip Morris, Unilever, ConAgra, RJR Nabisco, Pepsico, Grand Metropolitan, Cargill, Sara Lee, Gruppo Ferruzzi, Elders, Dalgety, and Tate and Lyle.

U.S. firms dominate the list of the 50 top food manufacturers worldwide. Twelve of the top 20, and 21 of the top 50 firms are in the United States. The UK has 11 of the top 50, while Japan has 9. Only 13 of the top 50 are not headquartered in either the United States or the EC, and only 3 of the top 50 are headquartered outside the United States, Europe, or Japan. Of these three, two are in Canada and one is in Australia.

Top 50 in the United States

In the U.S. food manufacturing sector, the dominance of U.S. firms is apparent (app. table 2). The only foreign-owned food manufacturer in the top 10, Nestle',

Table 4--Average size of U.S. and EC food manufacturing plants, by sales and number of employees

NACE No. 1/	Industry	United States, 1987				European Community, 1986			
		Sales per plant	Rank	Employees per plant	Rank	Sales per plant	Rank	Employees per plant	Rank
		Million dollars		*Number*		*Million dollars*		*Number*	
427	Brewing	87.9	1	206.8	1	12.3	12	90.1	12
418	Wet corn milling	79.8	2	14.3	3	99.2	1	625.0	1
420	Sugar	53.2	3	190.3	2	50.4	2	6.4	2
424	Liquor	48.5	4	123.9	4	24.6	7	129.6	7
411	Oils and fat	27.1	5	51.4	14	37.1	3	163.8	5
416	Grain milling	24.7	6	73.7	9	2.5	17	11.1	17
412	Meat	23.7	7	105.2	6	7.8	15	48.8	16
414	Processed fruit and vegetables	19.6	8	121.2	5	11.6	13	122.3	9
413	Dairy	19.2	9	60.8	11	26.4	6	124.9	8
428	Soft drinks	18.5	10	80.3	7	14.1	10	120.2	11
421	Cocoa, chocolate, and nuts	13.9	11	73.6	10	28.3	5	276.3	3
422	Animal feeds	8.6	12	24.9	17	23.7	8	84.4	13
419	Bread and flour	8.3	13	76.1	8	3.0	16	66.2	15
415	Seafood	8.0	14	54.2	12	10.4	14	138.2	6
423	Other	7.5	15	52.6	13	33.0	4	215.3	4
425-6	Wine	6.3	16	26.6	16	13.2	11	83.5	14
417	Pasta	5.0	17	30.3	15	18.3	9	121.8	10
	All food and beverages	15.4	N.A.	70.8	N.A.	11.2	N.A.	82.4	N.A.

N.A. = Not applicable.
1/ NACE is the three-digit General Industrial Classification of Economic Activities within the European Community.

is the sixth largest firm, with $7.2 billion of its $31 billion food manufacturing sales from its U.S. operations, including Stouffers Food, Hills Brothers coffee, and Carnation Food. The only other non-U.S. firm among the top 20 is Unilever, with $3.5 billion of its $15.1 billion food manufacturing sales in the United States.

Philip Morris (Kraft General Foods) is the top U.S. firm, with $17.3 billion of its $29.8 billion food manufacturing sales located in the United States. ConAgra is the second-largest, following its 1990 acquisition of Beatrice.

Forty-two of the top 50 firms in the United States, 84 percent, are U.S.-based; 3 are based in the UK; and 2 are based in Canada. Thus, 6 of 8 foreign-owned food manufacturers among the top 50 firms in the United States are European.

Large U.S. food manufacturers are globally oriented. An average of 26 percent of their total food manufacturing sales comes from foreign operations. In contrast, exports of processed food from these firms averages only 2.6 percent of their U.S. sales (Handy and MacDonald, 1989).

Table 5--Labor productivity in U.S. and EC food manufacturing plants

NACE No. 1/	Industry	United States, 1987				European Community, 1986			
		Sales per employee	Rank	Value added per employee	Rank	Sales per employee	Rank	Value added per employee	Rank
		Thousand dollars		*Thousand dollars*		*Thousand dollars*		*Thousand dollars*	
418	Wet corn milling	557.0	1	241.2	1	158.2	7	39.6	8
411	Oils and fats	527.9	2	104.9	7	226.9	2	28.4	12
427	Brewing	424.9	3	223.7	3	129.4	12	89.6	2
424	Liquor	391.0	4	233.5	2	189.7	5	96.5	1
422	Animal feeds	345.2	5	111.9	6	280.9	1	43.2	7
416	Grain milling	335.7	6	174.0	4	226.8	3	36.1	9
413	Dairy	316.1	7	83.7	12	211.4	4	23.2	14
420	Sugar	279.4	8	79.7	13	153.9	8	47.3	4
425-6	Wine	235.5	9	100.1	8	158.4	6	68.0	3
428	Soft drinks	230.2	10	89.7	11	117.3	13	47.3	5
412	Meat	225.1	11	40.6	16	142.7	11	23.8	13
421	Cocoa, chocolate, and nuts	189.0	12	98.7	9	102.5	14	32.7	10
417	Pasta	164.3	13	93.0	10	149.9	10	31.1	11
414	Processed fruit and vegetables	161.9	14	74.6	14	95.2	15	22.8	15
415	Seafood	146.8	15	40.8	17	73.4	16	18.9	16
423	Other	142.5	16	113.2	5	153.1	9	43.5	6
419	Bread and flour	109.2	17	70.2	15	45.2	17	18.4	17
	Total	217.9	N.A.	84.1	N.A.	135.7	N.A.	35.1	N.A.

N.A. = Not applicable.
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Top 50 in the European Community

In the EC, Unilever and Nestle' are the largest food manufacturers, with sales of about $11 billion each (app. table 3). Philip Morris is the third largest firm, with $7.7 billion in processed food sales in the EC. Philip Morris more than doubled its European sales when it acquired the Swiss firm Jacobs Suchard in mid-1990 for about $3.8 billion. Suchard's has European sales exceeding $4 billion, and has leading candy and coffee brands in Germany, France, Belgium, and Austria. Philip Morris is the only U.S. firm among the top 20 food manufacturing firms in the EC.

UK firms clearly dominate the EC food manufacturing sector. In addition to Unilever, 12 of the top 20 EC food processors and 18 of the top 50 firms are headquartered in the UK.

Although only 1 U.S. firm is among the top 20 EC food manufacturers, 10 of the next 30-largest firms in the EC are U.S.-owned. Thus, 11 of the top 50 EC firms are U.S.-based, second only to the UK's 18 firms in the top 50 EC food manufacturers. Aside from the U.S. firms, Canada's Seagram Company is the only non-European firm in the top 50 EC food manufacturing firms.

Seventeen food manufacturing firms appear on both U.S. and EC top 50 lists. That is, 17 of the 50 largest firms in terms of processed food sales in the United States are also among the 50 largest in the EC. Thus, substantial integration exists between the two markets, when viewed in terms of the operations of leading firms.

Commercial Linkages Between U.S. and EC Food Manufacturing Industries

Food manufacturers use a variety of strategies in international markets. These strategies include trade, direct foreign investment in wholly or partially owned subsidiaries, and licensing agreements.

International Trade

Both the United States and the EC are major importers and exporters of manufactured foods. In 1989, the United States exported $17.1 billion in processed food products, while imports reached $19.7 billion, resulting in a trade deficit of $2.6 billion (table 6). Since 1987, U.S. processed food exports have grown rapidly--increasing 18 percent in 1988 and another 9 percent in 1989.

The EC is an important market for U.S. exports of processed food, as well as a major supplier of U.S. imports. The United States exported $2.8 billion to the EC in 1989. The EC receives 17 percent of all U.S. processed food exports. The top four EC markets are the Netherlands, the UK, Germany, and France. U.S. exports to the Netherlands are more than twice as large as to any other EC country, because a substantial portion is reexported to other European countries--a practice that will probably increase as internal EC trade barriers decline.

The EC is the second-largest U.S. export market for processed food. Japan is by far the largest, accounting for $5.4 billion or 32 percent of U.S. processed food exports in 1989. Canada and Mexico are the third- and fourth-largest U.S. markets. The United States imported $4.6 billion in processed food from the EC, which accounted for 23 percent of all U.S. processed food imports. The top four EC suppliers to the United States are France, the UK, Italy, and the Netherlands.

Table 7 shows U.S.-EC trade in 1989 for each of the 17 NACE food manufacturing industries. The EC's share of U.S. exports varies widely, ranging from less than 1 percent for soft drinks to 71 percent for wet corn milling. U.S. exports to the EC tend to be bulk ingredients or products for further processing. In addition to wet corn milling, at $710 million, major exports to the EC are processed fruit and vegetables; animal feeds; vegetable and animal oils and fats; cocoa, chocolate confectioneries, and nuts (mostly nuts); seafood; meat and hides; and milled grain products.

Most U.S. exports to the EC in the meat packing industry consist of hides and skins ($129 million) and horsemeat ($112 million). U.S. exports of variety meats and offals to the EC fell from $106 million in 1988 to $23 million in 1989, following the EC's ban on hormones. U.S. exports of pork products to the EC, which were temporarily banned in 1990, reached only $2-$3 million in 1989.

Of the $4.6 billion in food and kindred products that the U.S. imports from the EC, $2.2 billion, or 48 percent, consists of alcoholic beverages. This includes $1,067 million in wine and wine-based beverages, $665 million

Table 6--U.S. trade in food and kindred products, by country, 1989

Country or region	U.S. exports	U.S. imports
	Million dollars	
EC-12	2,904	4,586
Belgium	187	77
Denmark	42	396
France	333	978
Germany	337	459
Greece	34	58
Ireland	98	261
Italy	273	637
Luxembourg	*	*
Netherlands	812	551
Portugal	138	69
Spain	221	439
United Kingdom	350	662
Japan	5,417	347
Canada	1,537	3,262
Mexico	1,238	1,068
World	17,078	19,680

* = Less than $500,000.

Table 7--U.S.-EC trade in food and kindred products, by NACE industry, 1989

NACE No. 1/	Industry	U.S. exports to the EC	Share of U.S. total exports	U.S. imports from the EC	Share of U.S. total imports
		Million dollars	*Percent*	*Million dollars*	*Percent*
411	Oils and fats	282	10.7	186	22.8
412	Meat and hides	275	4.4	317	11.4
413	Dairy	29	3.5	403	54.4
414	Processed fruit and vegetables	345	26.1	420	14.1
415	Seafood	224	9.8	212	3.9
416	Grain milling	185	12.8	17	9.9
417	Pasta	*	11.3	53	51.6
418	Wet corn milling	710	71.2	45	23.9
419	Bread and flour	6	5.0	133	38.6
420	Sugar	35	13.3	8	1.2
421	Cocoa, chocolate, and nuts	282	34.3	280	24.6
422	Animal feeds	340	42.3	28	17.6
423	Other	31	7.7	171	20.2
424	Liquor	56	23.3	665	57.1
425-6	Wine	29	28.3	1,067	94.4
427	Brewing	76	33.8	476	54.4
428	Soft drinks and mineral water	1	.8	105	60.0
41/42	Food and kindred products	2,904	16.5	4,586	23.3

* = Less than $500,000.
1/ NACE is the three-digit General Industrial Classification of Economic Activities within the European Community.

in distilled liquor, and $476 million in beer. Wine and wine-based beverages account for 66 percent of all U.S. processed food imports from France and 41 percent from Italy. Distilled spirits account for 70 percent of U.S. processed food imports from the UK.

The EC is also a major supplier of U.S. processed fruit and vegetable, dairy product, meat, and cocoa and chocolate product imports. Many of these products are imported in bulk rather than in consumer-sized packages. In fact, up to 70 percent of some processed fruit and vegetable products, such as tomato paste, are imported in institutional-sized containers for the food service industry or for use as ingredients by food manufacturers.

Thus, while the United States and the EC have significant trade in processed food products, much of this trade is in bulk processed products (soybean oil, animal feeds, wet corn milling), products where geographic origin is important (wine and distilled liquor), and specialty products often exported by small or medium-sized firms.

Large brand- and consumer package-oriented firms generally do not focus on export strategies, not even to countries where their brands have major market shares. Kellogg, H. J. Heinz, and Campbell Soup all export less than 1 percent of their U.S. production. Rather, these and other large multiproduct, brand-oriented firms rely on direct foreign investment and licensing strategies to build their presence in foreign markets.

Direct Foreign Investment

In 1988, U.S. firms owned 661 foreign affiliates classified as food processors. Sales from U.S.-owned food manufacturing affiliates worldwide reached $60.3 billion in 1988, a 54-percent increase above 1982 sales (table 8). U.S. food manufacturing affiliates in the EC had sales of $33.2 billion in 1988. Thus, U.S. affiliates in the EC accounted for 10 percent of all EC food manufacturing shipments. This share will likely increase to about 12 percent in 1990 following several U.S. acquisitions.

The EC accounted for 55 percent of all U.S. affiliates' sales in 1988. Other countries that have been major recipients of U.S. foreign investment are Canada, Japan, and Australia. The growth rate of U.S. foreign investment in Canada and Australia has been below the average for all countries, but is well above average for the EC and Japan.

Table 9 shows the number and location of European food processing plants that 18 leading U.S. food manufacturing firms owned in 1989. This table shows that U.S. multinational food firms have had well-vested positions in the EC. The top 10 U.S. firms had 213 food processing plants located throughout the EC, and another 11 plants in other European countries.

Foreign firms also have major investments in U.S. food manufacturing facilities (table 10). Sales by U.S. affiliates of foreign firms increased 102 percent between 1982 and 1988, from $14.8 billion to $30.1 billion. However, sales from foreign-owned affiliates in the United States were only half as large as sales from U.S.-owned affiliates abroad. European firms accounted for 74 percent of foreign investment in U.S. food manufacturing, and EC firms (including Swiss-based Nestle') accounted for 49 percent of this investment. Canada's U.S. affiliates accounted for $4 billion in sales, or 13 percent of total foreign investment. Sales from Australian and Japanese affiliates reached $1.5 billion and $1 billion, respectively. As shown in appendix table 2, eight foreign firms each had sales from their U.S. affiliates of more than $1 billion.

Food manufacturers generally maintain relatively weak trade links with their foreign affiliates (table 11). In 1988, U.S. firms exported $2.3 billion in processed food products to their affiliates, while importing only $800 million from their affiliates. European affiliates accounted for more than 60 percent of the U.S. exports and about half of the U.S. imports.

U.S. affiliates of foreign firms exported about $1 billion to all countries and about 60 percent of that to European firms (table 12). Imports to U.S. affiliates of foreign firms were much larger, at $1.6 billion. However, this accounts for only 8 percent of total U.S. imports of processed food.

The increase in direct foreign investment, both in the United States and abroad, indicates that major multinational food manufacturers are in more frequent head-to-head competition in a growing number of markets and across broad product lines.

For example, Nestle' moved to become a leader in the pasta industry by acquiring Buitoni SpA, the leading Italian pasta firm, in 1988. Borden, the leading U.S. pasta manufacturer, bought two regional Italian pasta firms in 1989 and 1990. Borden intends to consolidate pasta production in Europe into large hyperplants that serve broad regions and stretch across country borders. Borden has already consolidated pasta production into hyperplants in the United States. Nestle', at the same time, bought a small U.S. pasta firm specifically to acquire its innovative technology for preserving and packaging fresh pasta. Nestle' then bought out a national fresh pasta line under the Contadina Fresh label. Using the innovative technology it recently acquired, Nestle' plans to manufacture similar products in Europe.

Large food manufacturers are looking for one-stop shopping in their ingredient suppliers, or firms that combine a variety of high-tech ingredients, have R & D labs, and can assist food processors with developing new product-ingredient formulations. Ingredient suppliers worldwide are consolidating to meet this need. For instance, McCormick and Company (U.S.) and Rudolf Wild Company (Germany) formed a joint venture to internationally manufacture and market natural flavors and essences. Genencor International merged three businesses to become an international supplier of enzyme products from plants in New York, California, and Finland.

Some firms are becoming so globally oriented that national sovereignty is becoming almost irrelevant. Nestle', Unilever, Coca-Cola, CPC International, Grand Metropolitan, and Seagram all derive more than 50 percent of their food sales from their foreign operations.

Product Licensing

International trade and direct foreign investment are not the only means of forging significant commercial linkages between similar industries in different

Table 8--U.S. food manufacturing investment abroad: Value of shipments by U.S.-owned affiliates

Country or region	1982	1987	1988	Change, 1982-88
	------ Million dollars ------			Percent
Total, all countries	39,023	50,049	60,264	54.4
Europe	18,974	29,070	34,534	82.0
EC-12	18,327	27,868	33,164	81.0
Canada	5,258	5,407	7,518	43.0
Japan	2,363	4,442	4,933	108.0
Australia	1,447	1,880	2,092	44.6

Table 9--Number and location of European food manufacturing plants owned by U.S. firms, 1989

Company	European Community							Other Europe 2/
	Total EC	France	Germany	Italy	Spain and Portugal	UK and Ireland	Other EC 1/	
	Number of plants							
Campbell Soup	31	4	3	4	1	9	9	0
H.J. Heinz	30	4	6	7	8	3	2	0
CPC International	24	6	5	2	2	4	4	5
Mars	22	4	0	2	0	4	12	1
Ralston Purina	22	7	0	5	9	0	1	0
ConAgra	21	0	0	0	3	18	0	0
Borden	20	0	3	2	4	4	7	3
Philip Morris	19	3	3	3	2	6	2	2
Quaker Oats	13	4	3	1	1	1	3	0
Pepsico	11	2	1	2	3	2	1	0
RJR Nabisco	9	3	0	2	1	3	0	0
Anheuser-Busch	9	3	0	0	6	0	0	0
Coca-Cola	8	1	1	2	1	2	1	1
Kellogg	6	0	1	0	1	3	1	0
Sara Lee	5	1	0	0	0	2	2	0
General Mills	3	0	0	0	1	2	0	0
Archer Daniels Midland	3	0	1	0	0	2	0	0
Wm. Wrigley	2	1	0	0	0	1	0	1

1/ Belgium, Denmark, Greece, Luxembourg, and the Netherlands.
2/ Austria, Finland, Norway, Swedan, Switzerland, and Turkey.
Source: Company annual reports and 10-K reports.

Table 10--Foreign investments in U.S. food manufacturing: Value of shipments by U.S. affiliates of foreign firms

Country or region	1982	1987	1988	Change, 1982-88
	---------- Million dollars ----------			Percent
Total, all countries	14,847	22,862	30,053	102.4
Europe	10,527	17,967	22,318	112.0
EC-12	n.a.	10,418	14,841	n.a.
Canada	2,218	3,174	4,017	81.1
Japan	564	612	1,003	77.8
Australia	n.a.	220	1,478	n.a.

n.a. = Not available.

Table 11--Trade with foreign affiliates of U.S. food manufacturers, by country or affiliate, 1988

Country or region	U.S. exports shipped to affiliates	U.S. imports shipped by affiliates
	Million dollars	
Total, all countries	2,256	802
Europe	1,438	420
EC-12	1,429	(D)
Canada	471	(D)
Japan	22	(D)
Australia	33	4

(D) = Withheld to avoid disclosure.

Table 12--Merchandise trade between foreign food manufacturing firms and their U.S. affiliates, 1988

Country or region	Exports by U.S. affiliates of foreign firms	Imports to U.S. affiliates of foreign firms
	Million dollars	
Total, all countries	978	1,592
Europe	598	915
EC-12	n.a.	n.a.
Canada	(D)	491
Japan	193	35
Australia	(D)	6

n.a. = Not available.
(D) = Withheld to avoid disclosure.

countries. Considerable international product licensing has been recently documented, and such licensing between U.S. and EC food manufacturers is readily evident (see table 13 for a partial listing).

With product licensing, a food manufacturing firm with a well-established brand name in one country (licensor) licenses a firm in another country (licensee) to manufacture and sell a product under that brand name in the licensee's and/or third country markets. In addition to exclusive use of the brand name, typically the licensor provides some technical production assistance or quality inspection.

Depending on circumstances, the licensor may also provide the product formula or recipe, some critical ingredient(s), such as a strain of yeast or flavoring syrup, and some financial assistance in market development (sometimes in the form of foregone royalties). The licensee, in turn, has production, merchandising, and distribution rights and obligations for the licensed product in the specified market(s), and repatriates earnings in the form of royalties to the licensor.

While a great deal remains uncertain about international product licensing, exploratory research has demonstrated that it can respond to economic incentives (Sheldon and Henderson). A firm with a well-established domestic brand can increase its profitability by licensing production to a firm in a foreign market that cannot be entered directly due to high trade barriers or high entry costs. Likewise, the licensee can be profit-motivated to accept a product license in circumstances where it is more expensive to develop a new brand and where the licensee has not sunk substantial costs into erecting barriers, such as excess capacity, to discourage direct entry by foreign firms.

The existence of product licenses between U.S. and EC food manufacturing firms is evidence of mutually advantageous commercial linkages of a nontrade, noninvestment nature between the two sectors. Casual observation suggests that such ties are typically long-standing. However, some have speculated that product licensing is a form of cross-national commerce intermediate between trade and direct investment. While the longevity and acceptance of product licensing strategy is uncertain at this point, such arrangements yield a degree of interdependence that helps bring dominant firms in both regions into a common competitive environment.

Effects of Policy Changes in the European Community

Numerous policy developments associated with integrating the European Community into a single market could change the organization and function of EC food manufacturing firms. Existing, modified, and new transnational commercial linkages are expected to affect food manufacturers in the United States and

Table 13--Examples of product licenses between U.S. and EC food manufacturers

Licensor	Product	Licensee
Geo. A. Hormel & Co. (United States)	Spam luncheaon meats	Newforge Foods Ltd. (UK)
Cadbury Schweppes PLC (UK)	Cadbury confectioneries	Hershey Foods Corp. (United States)
Unilever N.V./PLC (Netherlands/UK)	Rolos confectioneries	Hershey Foods Corp. (United States)
Miller Brewing Co. (United States)	Miller Lite beer	Courage Ltd. (UK)
Lowenbrau Munchen AG (Germany)	Lowenbrau Pils beer	Miller Brewing Co. (United States)
Anheuser-Busch, Inc. (United States)	Budweiser beer	United Breweries (Denmark)
Haute Brasserie (France)	Killian's Red beer	Adolph Coors Co. (United States)

elsewhere. We identify five general policy categories that seem likely to have such effects: (1) removal of physical and fiscal barriers to internal EC trade, such as quotas, tariffs, tax differentials, monetary compensatory amounts (MCA's), and the like; (2) harmonization of product and identity standards; (3) policies affecting the mobility and cost of production factors, such as agricultural commodities, labor, and transportation services; (4) harmonization of trade barriers external to the EC; and (5) industrial competition policies, such as those affecting monopoly, mergers and acquisitions, retail price maintenance, and vertical ties.

Much has been said elsewhere about most of these policies, thus little detailed elaboration is needed here. However, when taken as a whole, a general theme emerges that is consistent with the purpose of the policy changes: the creation of EC-wide industries wherein firms in one country compete directly with those of other nationalities.

Regarding internal trade barriers, Gardiner and others have drawn attention to a wide range of public policies, such as national production and trade quotas and subsidies, green rates and MCA's, and different value-added and excise taxing schemes that can increase the costs of cross-border transactions within the EC by at least 50 percent. Such border transaction costs isolate industries in one country from competitive pressures by firms in other countries. Removal of these encumbrances is obviously a first-order condition for the EC single-market initiative.

Likewise, the plethora of national product and identity standards (including food safety provisions) has been at the core of much of the EC's efforts to reduce internal trade restrictions. National differences in such standards have the same market segmentation or separation implications as do other barriers. By adopting policies driven by mutual recognition of national standards, the products of firms in any EC country become legally marketable without modification throughout the EC. This greatly increases the potential for competitive interface within the EC among food manufacturers of different nationalities.

There are several areas in which policy changes affect factor mobility and costs within the EC. These include possible changes to the CAP, such as elimination of national agricultural quotas, green rates, and the agrimonetary system. Such changes will facilitate cross-border movement of agricultural commodities and will rationalize commodity acquisition costs for food manufacturers throughout member countries. Enhanced mobility in the work force will have similar implications for labor costs. Likewise, eliminating border controls and prohibitions on cabotage or back-hauling should reduce intra-EC transportation costs, further rationalizing commodity acquisition costs while extending the geographic market reach of food manufacturers on the output side. All told, the net effect is to reduce the significance of nationality and regionality as competitive discriminations among EC food manufacturers.

Perhaps less intuitive is the potential effect of EC adoption of uniform external trade standards and policies. Kelch has reported that the general opinion among non-EC countries is that harmonization of extra-EC product standards will be trade-creating and, thus, a good thing if the same rules apply to imports as to intra-EC commerce. An implication is that EC food manufacturers will be exposed to more competitive pressure from firms outside the EC. To the extent that this view is valid, an exodus of those generally smaller, less-efficient firms that have relied on some degree of national protection for survival will be accelerated. That is, competition from foreign firms will augment the competitive discipline on food manufacturers from other firms within the EC.

Consistent with other measures to facilitate the development of a single internal market, the EC is also harmonizing corporate merger, acquisition, and other industrial structure and competition policies. Principally, a single EC agency has been created to regulate both cross-border mergers and acquisitions that exceed specified size thresholds, and the adoption of simple, transparent, and rapid regulatory procedures. While the outcome of these policies is yet to be determined, they may differentially benefit food manufacturers in the dominant firm category. Large mergers and acquisitions come under EC jurisdiction; small ones are left to national authorities, where national industrial and/or competition policies can block domestic market entry by outside firms. This suggests that national policies are less likely to encumber intra-EC expansions by large firms than expansions by small firms that fall below the EC thresholds. Further, the large firms, because of meeting EC thresholds, are assured of expeditious regulatory action, thus potentially gaining an advantage over small firms that could become ensnared in prolonged national decisionmaking.

The vision of the EC food manufacturing sector that emerges from these five general categories of policy initiatives is one of an expanding relative importance of dominant firms operating on an EC-wide basis, with a parallel decline in the number and market share of fringe firms. That is, dominant firms will become more dominant in the EC, and new firms may emerge in this category, as the more aggressive and

competitively astute of the moderate-sized fringe firms expand horizontally through mergers, acquisitions, and product-line extensions. Merger and acquisition activity within the EC food- manufacturing sector during the past 2 years suggests that this process is well under way.

This same industry evolution is firmly established in the United States. Connor and others (1985) for example, have shown that the share of all food manufacturing assets held by the largest 100 firms in the United States increased from about 50 percent in the early 1960's to more than 75 percent by the early 1980's (p. 120). As we have shown earlier, many of these large U.S. firms have sizable EC operations. For example, 4 of the 10 largest, and 11 of the 20 largest food manufacturing firms in the United States are among the 50 leading EC firms when measured by value of sales.

Likewise, a number of EC-based firms hold significant positions in the United States. Indeed, 7 of the 10 largest food manufacturers in the EC are numbered among the 50 leading firms in the United States. Thus, the competitive interface between U.S. and EC food firms is well established. We are more realistic to refer to these dominant food manufacturers not as U.S. or EC firms, but as global firms. Of the 75 leading firms based in either the United States or the EC, only 16 do not have operations in third countries. Currently, 42 of these are U.S. based; the remainder are based in the EC. As progress toward a single EC market continues, an increasing number of EC firms will probably join the ranks of these leading global firms.

Conclusions and Implications

The structure and organization of food manufacturing industries in the United States and the EC bear striking resemblances. In terms of total value of production, they are surprisingly similar in size. Both are dominated by a small number of large, multiproduct firms that operate in a wide range of geographic markets. These dominant firms are no strangers to one another. They compete among themselves in the United States, in the EC, and in third-country markets, and are interlinked by product licenses, joint ventures, and other operating agreements and arrangements. Dominant firms own and operate plants in each other's home region, and ship products into each other's markets. They often compete to acquire desirable fringe firms, and sometimes gobble up each other through acquisitions or mergers. In the parlance of microeconomic thought, dominant firms develop conjectures about how the others behave, and they explicitly consider the expected reactions of others in forming their own commercial or business strategies. This is to say, these firms are rivals, regardless of nationality.

Yet, there are some apparent differences between the EC and U.S. sectors. When compared with those in the United States, EC food manufacturers are somewhat smaller, employ more workers, are somewhat less productive, export more highly processed consumer-oriented products and fewer intermediate processed products, and have leading firms that are somewhat less dominant.

However, over time, the process of moving toward a single EC market is expected to have a profound effect on EC food manufacturing. Intra-EC competition will, by design, increase. This situation should work to the advantage of the dominant firms; those with the size, scale, and scope of operations to take advantage of an expanded internal market, and with the business acumen to serve evolving consumer-oriented markets at low cost. Accepting as valid Michael Porter's findings that those things that make firms competitive in domestic markets also make them competitive internationally, we can reasonably assume that these same attributes will serve these firms well internationally and in the EC. Thus, the number of EC firms that can effectively compete in the global processed-food marketplace should be enhanced as a result of the EC 1992 initiative.

U.S. food manufacturers, particularly those in the dominant firm category, can therefore look forward to intensified competition from the EC. This competition will be felt in the United States, in the EC, and in third-country markets. Greater competition will occur not only in product markets, but also in markets for capital, skilled employees, process technology, innovative ideas, and other factors of production.

Concurrently, firms that have been successful in the United States should find that many of the competitive skills that they have honed here will serve them well in a common EC market. Among such skills is the ability to formulate and market ethnically diverse foods that, while often not truly traditional, appeal to a large segment of consumers. Connor has labeled this technique "indigenation" and suggests that it may be an important competitive advantage for food firms in the more ethnically fragmented EC. Likewise, to the extent that U.S. food consumption trends are precursors to consumer preferences in the EC, firms with successful experience in the United States may have a differential advantage there as well.

These food industry changes appear likely to further the trend toward increasing dominance by the leading firms in the United States, in the EC, and throughout the world marketplace. These changes will probably result in a larger number of firms in the dominant firm category, and in a larger share of dominant firms that view their theater of operations in a global rather than national or regional context. As food manufacturing firms, be their origins in the United States, Europe, or elsewhere, become increasingly global in orientation, firm sovereignty will increasingly replace national sovereignty in matters of commerce.

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Appendix table 1--World's largest food manufacturing firms, 1989-90

Company	Headquarters location	Processed food sales	Total sales	Major products
	Country	*- - Billion dollars - -*		*Item*
1. Nestle' S.A.	Switzerland	31.0	32.0	Diversified foods, restaurants
2. Philip Morris/Kraft General Foods 1/	United States	29.8	47.0	Foodstuffs, tobacco, beer
3. Unilever	UK/Netherlands	17.2	34.4	Diversified foods, soap
4. ConAgra (includes Beatrice) 2/	United States	15.3	19.8	Foodstuffs, meat, poultry
5. Kirin Brewery	Japan	11.2	11.4	Beer, soft drinks
6. RJR Nabisco	United States	9.9	16.9	Foodstuffs, tobacco
7. IBP	United States	9.5	9.5	Meat
8. Anheuser-Busch	United States	9.3	9.7	Beer, snacks
9. Pepsico	United States	9.0	15.2	Soft drinks, snacks, restaurants
10. Grand Metropolitan	UK	8.8	14.5	Diversified foods, restaurants
11. Coca-Cola	United States	8.5	8.9	Soft drinks, fruit juices
12. Taiyo Fishery	Japan	8.1	9.0	Seafood products
13. Cargill	United States	7.9	43.0	Meat, grains
14. Allied-Lyons	UK	7.6	7.6	Beverages, restaurants
15. BSN	France	7.5	8.0	Snacks, bakery, beverages
16. Archer Daniels Midlands	United States	7.3	7.9	Food products, grains
17. Sara Lee	United States	7.1	11.7	Frozen food, meals
18. Mars	United States	7.0	8.0	Confectionary, pet food
19. Snow Brand Milk Products	Japan	6.6	6.6	Dairy products
20. Borden	United States	6.5	7.6	Dairy, pasta, adhesive
21. Hillsdown Holdings	UK	6.5	7.0	Poultry, flour, seafood
22. Gruppo Ferruzzi	Italy	6.4	29.3	Sugar, vegetable oils
23. Ralston Purina	United States	6.1	6.7	Pet food, cereal, food products
24. Bass	UK	6.1	6.1	Beverages
25. H.J. Heinz	United States	5.9	6.0	Diversified food products
26. Campbell Soup	United States	5.8	6.0	Soups, prepared food
27. Elders	Australia	5.8	8.4	Beer, food products, meat
28. Asahi Breweries	Japan	5.7	5.7	Beer
29. Quaker Oats	United States	5.6	5.7	Cereal, food products
30. CPC International	United States	5.1	5.1	Fats and oils, corn milling

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Appendix table 1--World's largest food manufacturing Firms, 1989-90--Continued

Company	Headquarters location	Processed food sales	Total sales	Major products
	Country	*- - Billion dollars - -*		*Item*
31. Guiness	UK	5.1	5.2	Beer
32. Cadbury Schweppes	UK	4.8	4.8	Confectionery, beverages
33. Kellogg	United States	4.7	4.7	Cereal, prepared foods
34. Dalgety	UK	4.6	8.0	Meat products
35. Seagram	Canada	4.6	4.6	Beverages
36. General Mills	United States	4.5	6.1	Foodstuffs, flour, restaurants
37. United Biscuits	UK	4.4	4.6	Cookies, snacks
38. Nippon Meat Packers	Japan	4.3	4.3	Meat
39. John Labatt	Canada	4.2	4.2	Beer, dairy products, fruit juices
40. Tate & Lyle	UK	4.1	5.7	Sugar
41. Associated British Foods	UK	4.0	4.2	Bread, flour, foodstuffs
42. Coca-Cola Enterprises	United States	3.9	3.9	Soft drinks, fruit juices
43. Sapporo Breweries	Japan	3.8	4.0	Beer
44. Chiquita Brands	United States	3.8	3.8	Chiquita brands
45. Unigate	UK	3.7	3.9	Dairy products, fresh food
46. St. Louis	France	3.7	3.7	Sugar
47. Heineken	Netherlands	3.6	3.7	Beer
48. Nippon Suisan	Japan	3.5	3.8	Seafood
49. Ajinomoto	Japan	3.2	3.5	Soups, sauces, coffee
50. Itoham Foods	Japan	3.2	3.2	Meat products

1/ Includes Jacob Suchard, acquired in 1990.
2/ ConAgra announced its acquisition of Beatrice in 1990.

Appendix table 2--Largest food manufacturing firms in the United States, 1989-90 1/

Company	Headquarters location	Processed food sales in the United States	Total processed food sales
	Country	*- - - Billion dollars - - -*	
1. Philip Morris/Kraft General Foods	United States	17.3	29.8
2. ConAgra 2/	United States	14.7	15.3
3. IBP	United States	9.5	9.5
4. Anheuser-Busch	United States	8.7	9.3
5. Cargill	United States	7.9	7.9
6. Nestle' S.A.	Switzerland	7.2	31.0
7. RJR Nabisco	United States	6.9	9.9
8. Pepsico	United States	6.8	9.0
9. Archer Daniels Midland	United States	5.9	7.3
10. Sara Lee	United States	5.5	7.1
11. Mars	United States	4.5	7.0
12. Campbell Soup	United States	4.1	5.7
13. General Mills	United States	4.1	4.5
14. Borden	United States	3.9	6.5
15. Coca-Cola	United States	3.9	8.5
16. Coca-Cola Enterprises	United States	3.9	3.9
17. H.J. Heinz	United States	3.7	6.0
18. Ralston Purina	United States	3.5	6.1
19. Unilever	UK/Netherlands	3.5	15.1
20. Quaker Oats	United States	3.4	5.6
21. Grand Metropolitan	UK	3.0	14.5
22. Procter and Gamble	United States	2.9	3.0
23. Kellogg	United States	2.7	4.7
24. Seagram Company Ltd.	Canada	2.7	4.6
25. Tyson Foods	United States	2.5	2.5
26. Associated Milk Producers	United States	2.4	2.5
27. CPC International	United States	2.3	5.1
28. Chiquita Banana	United States	2.3	3.8
29. Hershey Foods	United States	2.2	2.4
30. Land O' Lakes	United States	2.2	2.2

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Appendix table 2--Largest food manufacturing firms in the United States, 1989-90--Continued

Company	Headquarters location	Processed food sales in the United States	Total processed food sales
	Country	*- - - Billion dollars - - -*	
31. Whitman	United States	1.8	1.8
32. Mid-America Dairyman	United States	1.8	1.8
33. Dean Foods	United States	1.7	1.7
34. United Biscuits	UK	1.6	4.4
35. John Labatt	Canada	1.6	4.2
36. Allied-Lyons	UK	1.5	7.6
37. Beef America	United States	1.5	1.5
38. Gruppo Ferruzzi	Italy	1.4	6.4
39. International Multifoods	United States	1.4	2.0
40. Agway Inc.	United States	1.4	1.4
41. Stroh Brewery Co.	United States	1.4	1.4
42. Kroger	United States	1.3	1.3
43. Adolph Coors	United States	1.3	1.3
44. Castle & Cooke	United States	1.3	2.7
45. Purdue	United States	1.3	1.3
46. Gold Kist	United States	1.2	1.2
47. Savannah Foods & Industries	United States	1.1	1.1
48. Brown-Forman	United States	1.0	1.1
49. Dairyman Inc.	United States	1.0	1.0
50. Abbott Labs	United States	1.0	1.0

1/ Sales from U.S. food processing plants only.
2/ Includes sales from Beatrice, acquired in 1990.

Appendix table 3--Largest food manufacturers in the European Community, 1989-90

Company	Headquarters location	Processed food sales in the EC	Total processed food sales
	Country	*- - - Million dollars - - -*	
1. Unilever	UK/Netherlands	10,866	17,128
2. Nestle' S.A.	Switzerland	10,791	31,000
3. Philip Morris/Kraft General Foods 1/	United States	7,700	29,800
4. BSN Groupe	France	6,175	7,500
5. Allied-Lyons	UK	5,834	7,600
6. Gruppo Ferruzzi	Italy	4,868	6,438
7. Grand Metropolitan	UK	4,748	14,500
8. Bass PLC	UK	4,489	6,100
9. Hillsdown Holdings PLC	UK	3,468	6,500
10. Booker PLC	UK	3,188	3,500
11. Cadbury Schweppes PLC	UK	3,089	4,789
12. Guiness PLC	UK	3,042	5,064
13. United Biscuit	UK	3,000	4,400
14. Associated British Foods PLC	UK	2,914	3,706
15. Pernod Richard Groupe	France	2,595	2,595
16. Heineken N.V.	Netherlands	2,550	3,558
17. Unigate PLC	UK	2,518	3,700
18. Ranks Hovis McDougall PLC	UK	2,442	2,942
19. Coop Melkproductenbedr Noord	Netherlands	2,300	2,300
20. Sudflesiah	Germany	2,000	2,000
21. Seagram Company Ltd.	Canada	1,844	4,436
22. Coca-Cola Co.	United States	1,843	8,500
23. Mars	United States	1,836	7,000
24. Northern Foods PLC	UK	1,834	2,000
25. CPC International	United States	1,622	5,100
26. Sara Lee Corp.	United States	1,600	7,100
27. Source Perrier	France	1,600	2,000
28. Union Laitiere Normande	France	1,600	1,600
29. Tate & Lyle PLC	UK	1,561	4,083
30. H.J. Heinz Company	United States	1,539	5,900

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Appendix table 3--Largest food manufacturers in the European Community, 1989-90--Continued

Company	Headquarters location	Processed food sales in the EC	Total processed food sales
	Country	*--- Million dollars ---*	
31. Scottish & Newcastle Brewers	UK	1,521	1,542
32. Whitbread & Co. PLC	UK	1,466	1,697
33. Dalgety PLC	UK	1,412	4,609
34. Besnier	France	1,400	1,500
35. United Breweries	Denmark	1,300	1,300
36. MD Foods amba	Denmark	1,157	1,614
37. British Sugar PLC	UK	1,115	1,126
38. Sudzucker AB	Germany	1,012	1,112
39. Borden, Inc.	United States	1,110	5,386
40. Melitta Gruppe	Germany	1,000	1,100
41. Tchibo	Germany	1,000	1,100
42. Kellogg	United States	999	4,439
43. Campbell Soup Co.	United States	984	5,672
44. Quaker Oats & Co.	United States	968	4,508
45. Saint Louis Groupe	France	901	1,407
46. Moet-Hennessey	France	900	900
47. Mums	France	900	900
48. Landwirtshaftliche Fleischzentrale GmbH	Germany	888	888
49. Pepsico Inc.	United States	812	8,152
50. Wessanen N.V. Koninklijke	Netherlands	782	1,900

1/ Includes Jacob Suchard (Switzerland), acquired in 1990.

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European Agriculture after 1992--Farm Policy

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Environmental Considerations of the Single European Act

James A. Tobey*
David E. Ervin

Abstract

Environmental considerations have become an increasingly important component of European Community (EC) agricultural policy discussions, as the Single European Act pledged coordinated action on the environment. Concerns about food safety, water quality, nature conservation, and landscape amenities are driving the examination of EC environmental policy. The most straightforward environmental effect of the EC 1992 program involves the harmonization of food safety and plant and animal health regulations to reduce trade impediments. However, the Act may also reduce nations' abilities to set their own environmental quality standards. Less obvious are the potential effects of EC 1992 on the level of agricultural support, output prices, and market structure. These effects will help determine the scale and intensity, enterprise mix, location, and technology of agricultural production--all forces that may positively or negatively affect the environment, depending on the pattern of changed inputs and outputs on environomental resources.

Introduction

Several events have raised concern in the European Community (EC) over agriculture's environmental effects. Agricultural production has grown dramatically over the past few decades, with the aid of chemical-intensive production technologies and land use changes, both of which can induce environmental stress. European public demand for environmental quality in general, and rural environmental amenities in particular, have simultaneously risen with national income and population growth. Improved monitoring technology and mass media publicity have provided greater knowledge and awareness about the potential environmentally damaging effects of modern agricultural production.

Subsequently, environmental issues related to agriculture are emerging in increasing importance to EC policy development. The winning of more than 30 seats by Green candidates, who support environmental issues, in 1990's European parliamentary election is highly indicative of the extent to which the environment has moved to the top of the political agenda. Environmental considerations entered prominently in the 1987 Single European Act (SEA), which confirmed the objective of achieving a single European market. The SEA adds a new title to the 1957 Treaty of Rome that promotes policies regarding the environment. The SEA suggests that the following objectives are important:

- To preserve, protect, and improve the quality of the environment;
- To contribute to the protection of human health; and
- To ensure a prudent and rational use of natural resources.

The SEA also paved the way for the removal of existing physical, technical, and fiscal barriers impeding the free flow of goods, services, capital, and labor among EC member states, and of placing greater regulatory control at the Community, rather than the

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domestic, level. This paper attempts to uncover the extent to which these goals are consistent with the goals of protecting the natural environment and human health.

EC Agriculture and the Environment

Since the early 1950's, EC agriculture has significantly increased productivity through: (1) the adoption of new seed varieties designed to maximize yields; (2) increased mechanization; and (3) more intensive application of fertilizers and pesticides. At the same time, there have been changes in holding structure and size and an increasing total output of crops and animal products.

Over the last 40 years, agricultural output has more than doubled, fertilizer use has increased by 400 percent in the EC-10, and in most EC member countries, pesticide use since 1975 has increased by between 30 percent and 50 percent (Gardner, 1990). To suggest the trend toward increased farm size, we note that the proportion of total farmed area held by farms larger than 125 acres is 50 percent; in the 1950's the proportion was less than 20 percent (Gardner, 1990).

Environmental Concerns

The relevant environmental issues that have entered the policy debate in the EC may be divided into three broad categories: human health, nature conservation and landscape amenity, and natural resource quality (OECD, 1989).

Human Health

Food safety and water quality are the principal issues. Levels of pesticide, antibiotic, and growth hormone residues in food are under increasing scrutiny in many EC countries. The intensity and nature of chemical use in agricultural production practices play the key roles in determining food safety and water-quality conditions.

Water-quality health problems are centered on pesticide and nitrate levels in drinking water supplies. Runoff and leaching of nitrates, phosphates, and heavy metals from intensive animal husbandry is a severe problem in several European countries. The livestock-effluent disposal rates on the most densely populated areas of the EC are between three and four times the 50 mg/l maximum acceptable concentration (MAC) of nitrogen levels in surface and groundwater (Commission of the European Communities, 1989a).

Throughout the EC, the levels of nitrate contamination are rising and are more difficult to control. Livestock wastes and fertilizer applications to arable land are the primary sources. In West Germany, for example, 126 water authorities were tapping sources of water that contained more than the MAC in 1979; only 4 years later, 807 water authorities had water sources that surpassed the MAC (Von Meyer, 1987).

Nature Conservation and Landscape Amenity

EC member countries are concerned with the loss in European species diversity. Reasons for the rapid disappearance of animal and plant species are related to agricultural land use--especially changes in the use of land area and soil ecosystems (Von Meyer, 1987). Land area changes include drainage of wetlands, removal of hedges, ditches, and embankments, and reductions in crop rotation. Between 1954 and 1971, West Germany lost 36 percent of its hedgerows, and 50 percent of the remainder were lost between 1971 and 1979 (OECD, 1989). Since 1945, in England and Wales, 98 percent of old pasture, 70 percent of original peat lands, 58 percent of ancient forest, and 40 percent of heathland have disappeared (Gardner, 1990). Some suspect that growth in farm size has caused the removal of hedgerows and woodlands and the drainage of wetlands. Soil ecosystem changes include soil erosion, soil compaction, and the intensive use of agricultural chemicals.

Landscape amenity is also important, particularly where population density forces more rural/urban interactions. As incomes rise, the demand for environmental quality grows, including agriculturally related environmental attributes. The desired rural landscape attributes vary considerably across the EC. Many EC countries attempt to retain traditional family farming systems. The average farm size in the EC is 16.5 acres, compared with about 430 acres in the United States (Commission of the European Communities, 1990; Newman, Fulton, and Glaser, 1989).

Much of the EC views the rural landscape attributes that go along with maintaining traditional production systems on smaller farms as an important source of environmental benefits (Fry and Huse, 1989). EC-wide recognition of the environmental benefits of agriculture goes back at least as far as the 1973 Hill Farming Directive of the European Community. This Directive allows payments to farmers in less-favored areas of the EC. Part of the motivation for the legislation was to preserve the landscape and environment by maintaining agricultural activity in the hilly and remote areas.

Natural Resource Quality

Agriculture integrally depends on the quality of soil and water resources used in production. Soil conservation and sediment/chemical runoff reductions are important initiatives in some countries. Erosion threatens at least 10 percent of the EC's soil area (European Parliament, 1986). The problem is worse in southern Mediterranean areas of the EC: In Portugal, erosion threatens more than 20 percent of the current crop area, which should be taken out of agricultural production (Gardner, 1990). Recently voiced concerns about soil health and chemical residues in soil and water have increased interest in sustainable agricultural systems with more heterogenous crop and livestock enterprises. Denmark and France offer subsidies to farm operators for converting to organic farming.

The European Approach to Environmental Issues

In response to these environmental concerns, public policies for environmental protection have been introduced in both the EC and domestically. Our review of programs suggests that responses and action at the EC level have been very modest; individual countries have implemented somewhat more aggessive programs.

EC Environmental Directives

At least five environmentally oriented EC directives have been implemented since 1985. These programs are all relatively new and have thus far had little effect on agriculture and the environment.

Environmentally Sensitive Area (ESA) Management Agreements

In areas designated environmentally sensitive, voluntary management agreements specify permissible input and output practices. Farmers receive compensation for lost agricultural income. Practices that may be supported include, for example, improving wildlife habitats and landscapes, reducing the use of pesticides, and refraining from wetlands drainage. Introduced in 1985, ESA management agreements have been most widely adopted in the UK, West Germany, France, and the Netherlands (OECD, 1989).

Extensification

Originally approved in 1987, the Extensification Program is designed to reduce output by 20 percent over a given land area. The program is motivated by the idea that lower output levels lead to reduced fertilizer, pesticide, and machinery inputs and less-intense animal husbandry. Both crop and livestock enterprises are covered in the program. Pilot extensification projects were begun in 1989, but the full program is still not implemented. Participating farmers will receive compensation determined by member states.

Set-Aside

Although designed as a supply control tool, the EC set-aside program, introduced in 1988, may provide some environmental benefits. Participants must agree to take 20 percent of their crop-producing land out of production for 5 years in return for annual payments. The size of the payment varies nationally. The UK has added a premium payment for conservation purposes for enrolled set-aside lands. Highest rates of participation are by Germany (2.4 percent), Italy (1.8 percent), and the UK (0.9 percent) (MacSherry, 1989).

Nitrates Directive

A new EC draft directive on nitrates may be the most significant EC environmental legislation directed toward agriculture to date. This program, expected to be approved in 1991, will require member countries to introduce environmental management plans to reduce nitrate levels in vulnerable areas. The UK has already implemented a program to alter land use in designated nitrate-sensitive areas. Both livestock and crop enterprises will be affected. The legislation is expected to force farmers in main, intensive livestock-producing areas to install and operate animal-manure storage and handling systems. This directive may also place yield-reducing limits on the use of fertilizers on arable land.

EC Environmental Agency

Finally, an EC Environmental Agency has been approved to collect and disseminate reliable data on the quality of air, water, flora, fauna, and land use. The environmental agency should help countries monitor the state of the environment and design management plans to improve it.

Member Country Legislation

Environmental legislation in individual EC member countries has a longer history and, in some cases, has more ambitious environmental programs and goals. The following three environmental actions are being implemented in EC member countries.

Fertilizer and Livestock Waste Management

Both the Dutch and the Danes have introduced comprehensive programs to reduce agricultural chemical runoff. The Netherland's National Environmental Policy Plan specifies that no more phosphate and nitrate may enter water and soil than can be absorbed by natural processes. The plan calls for a 90-percent reduction in nitrate and phosphate effluent levels; a 70-percent reduction in ammonia emission; a 50-percent cut in the use of pesticides; the attainment of manageable systems of environmental administration; the construction of manure processing and disposal plants; and intensification of research into sustainable agricultural methods.

To implement the plan, participating member countries have imposed quotas on the number of pigs and other livestock that may be kept, and there are requirements on the maximum amount of animal manure that may be applied to an area of land. Member countries have also introduced a modest levy on manufactured feed, and a levy on surplus manure for farms that produce more than 125 kilograms of phosphate per hectare.

Denmark's 1987 Aquatic Environment Program requires farmers to establish adequate storage capacity for animal manure. It also requires compulsory preparation of fertilizer management plans for all farms with more than 10 hectares. A 65-percent green cover must be planted in autumn to reduce nitrate leaching from bare fallow lands. The program seeks to eliminate pollution from storage of animal manure and silage and to reduce nitrogen leaching by 50 percent. If nitrogen consumption has not fallen on schedule, a Parliamentary resolution requires that a sufficient nitrogen fertilizer tax be imposed. The tax proceeds are to be returned to agriculture.

Throughout most of Northern Europe, the spreading of manure and sludge on frozen ground is also prohibited, and several countries have requirements on the maximum amount of animal manure that may be applied to an area of land. In Denmark and some parts of Germany, liquid manure must be ploughed into the soil within 24 hours, unless it is applied to a crop or pasture.

Landscape and Habitat Conservation

The UK has implemented a capital grant scheme for environmental improvements, such as hedge planting and building traditional stone walls. Also, the recently introduced Countryside Commission Program gives premiums to farmers for introducing environmentally preferred management practices on set-aside land (Countryside Commission, 1990). To protect native animal and plant species, most German townships also offer payments to farmers who leave crop edges unsprayed and some meadows uncropped, and who avoid the application of certain fertilizers and pesticides on grassland (OECD, 1989).

Pesticide Controls

In all EC countries, the sale of agricultural pesticides and herbicides is subject to legislation that requires extensive testing and evaluation of any new products before the government agrees to license their sale. In addition, several countries have introduced more stringent pesticide use policies. For example, some countries have begun to reevaluate pesticides that were registered during a period when different registration criteria applied. In Denmark, one quarter of currently available pesticides now considered highly toxic will probably be removed from the market before the end of 1993 (Dubgaard, 1990). Under the West German Plant Protection Act introduced in 1987, pesticide users are legally obligated to acquire the necessary expert application skills. Belgium has introduced restrictions on pesticide application practices to protect wildlife.

The Dutch Government has just released a plan to control the use of pesticides. The *London Financial Times* (September 25, 1990) states that the new pesticide proposals are regarded as the strictest in the world. The plan will force farmers to reduce use of pesticides by 35 percent by 1995, with a further reduction to at least 50 percent by the year 2000. It will require the use of natural predators to combat harmful insects, and the greater use of machinery, rather than chemical spraying, for weeding. If put into effect, it will also mean that farmers will need a license to spray their crops, and charges will be levied on the use of pesticides.

One can draw two observations from our analysis of the range and stringency of environmental programs across EC member countries. First, perceptions of what constitutes environmental issues vary widely across specific nations and regions (Baldock, 1988). Northern Europeans seem particularly concerned about ecosystem pollution and wildlife habitat. Southern European countries stress the need for maintaining small marginal farms to prevent land abandonment and the deterioration of rural social infrastructure. Even in countries with roughly similar demands for environmental quality, there is a large spectrum of public policies, probably reflecting unique regional physical characteristics, pollution control costs, and different cultural orientations.

Second, the stringency of EC member countries' environmental protection policies varies. The EC countries with the strongest environmental preferences appear to be the Netherlands, West Germany, and Denmark. These countries have their own well-developed national policies, and they regard the EC as a threat to their own environmental standards. In contrast, Greece, Portugal, Spain, Ireland, and, to some extent, Italy are in the earlier stages of developing environmental policies. In the middle are the UK, France, and Belgium, where environmental policy has existed for years, but where the EC has perhaps forced its pace.

Ramifications of EC 1992 for the Environment

Environmental concerns in the EC, and the contrast of more developed or mature country-specific environmental initiatives with the more recent, less mature EC legislation, have important implications for our analysis of the potential environmental effects of the EC 1992 program. We have identified common agricultural standards, including environmental quality standards; reform of agricultural price policy; and changes in farm size and location as the three main effects of the EC 1992 program that have ramifications for the environment and the development of environmental policy.

Common Environmental Quality Standards

Eliminating barriers to commerce between EC member countries to create a more integrated and uniform market is the thrust of the SEA. By removing the impediments to the free flow of goods, services, capital, and labor among EC member states, the EC 1992 program is expected to make EC agriculture more competitive. With greater capital and labor mobility within the EC, locations in countries with stringent environmental standards may become less appealing. We can only speculate about the effects EC 1992 will have on the design of environmental policy in the EC. However, a movement toward more harmonized environmental regulations through greater EC regulatory control would seem to be consistent with removal of impediments to production and trade. The draft nitrates directive may be a step in this direction.

Greater harmonization of EC environmental standards would also seem to be consistent with the elimination of unique national product standards, a primary goal of the EC 1992 program. However, the SEA has not overruled or amended article 36 of the Treaty of Rome, which permits trade restrictions for the protection of human health, on the condition that the restrictions do not create open or disguised barriers to intra-EC trade. In the Commission of the European Community's (EC Commission's) view, laws that pursue a legitimate health policy objective include those that prohibit or limit the presence of pesticide residues or other contaminants in foodstuffs, and that regulate the use of certain food production or treatment processes (Commission of the European Communities, 1989b). Although the EC Commission seeks to remove trade barriers, the Commission apparently is reluctant to prohibit one country from implementing tougher environmental rules on products than the rest of the EC member countries.

A 1988 ruling provided a test of the EC legal system's commitment to article 36. The EC Commission sued Denmark over a law introduced in 1981 that required that beer and soft drinks be sold only in returnable bottles with a compulsory deposit. Brewers from other countries argued that the cost of recycling bottles made these brewers uncompetitive in Denmark's market. However, in 1988, the court invoked the environmental provisions of the SEA and backed Denmark. The decision was a major victory for the EC Commission's environmental directorate over the internal market directorate.

The European Court of Justice will probably continue to play an important role in sorting out trade disputes centered on alternative domestic environmental regulations. In practice, determining disguised trade barriers and what are legitimate environmental standards is difficult. In assessing the risks that a food product presents to public health, member countries are required to consider the findings of international scientific research. However, due to imperfect knowledge, it is often not possible to establish standards that are based purely on empirical data and principles of sound science. Member countries that require products to meet their own special environmental standards will probably risk being accused of creating disguised trade barriers to intra-EC trade.

Neither greater EC environmental leadership nor harmonization of environmental product standards are consistent with the regional supply and demand for environmental quality in the EC. Thus, a challenge of the EC 1992 process in the coming years will be the design of EC environmental legislation that allows member countries a high degree of flexibility in program implementation. We suspect that while the EC 1992 program may bring with it a larger role for EC environmental leadership, a sort of de facto environmental federalism will still exist, as member countries could enforce the laws differently. At the same time, environmental debates about agriculture may

receive greater public attention as arguments about environmentally related product standards reach the European Court of Justice.

CAP Reform and the Environment

A second linkage between the EC 1992 program and the environment concerns lower commodity prices, which may be driven from at least two sources. First, lower prices may result from more-competitive and efficient product markets following completion of the internal market. Or, lower prices may come from reform of the CAP and the present agrimonetary system. How far the EC 1992 program will go remains unclear, but there is a consensus that reform of the CAP and the agrimonetary system are consistent with the program's goals. Like EC 1992, CAP and agrimonetary reform would increase the role of market forces, and would make EC agriculture as a whole more competitive and less dependent on support. The EC Commission hopes that a more-competitive EC market will create jobs and will help alleviate the EC's farm income problem.

There is insufficient scientific evidence to understand clearly the roles, both negative and positive, that CAP has played in changing rural and natural agricultural environments. However, the public seems to perceive that the current agricultural development path is affecting the environment negatively (Arnold and Villain, 1990).

While appearing very complex in operational provisions, the CAP only embodies two basic elements. First, agricultural producers are insulated from less-stable, and usually lower, world prices for most commodities through a system of price support measures, most prominently minimum intervention prices and variable import levies.1/ The price support policies also generally raise internal consumer prices above world prices. Second, a structure's section facilitates agricultural modernization, or development, in specific regions through grants and subsidies, and can also be used for environmental or conservation purposes.

The two major CAP elements are financed separately--the Guarantee fund for price support and stabilization, and the Guidance fund for structural improvements, including environmental initiatives. This separation is important because the Guarantee (price support) budget depends on uncontrollable world market forces, while the Guidance section is under full budget control (Rosenblatt, and others, 1988). Thus, expenditures on structural initiatives, including environmental programs, are the residual claimant on a fixed budget under fluctuating world prices.

The CAP design of price support and structural elements defines two basic linkages to the environment, including possible causes of problems as well as remedies. Environmental problems can and do exist in the absence of agricultural programs. Both the price support and structures programs can exacerbate these problems. For example, price support may encourage greater fertilizer use and, therefore, more leaching into ground water, but some infiltration would have occurred without price support. Structural grants aiding habitat conversion are subject to the same reasoning. The root causes and cures of environmental problems, which involve property right assignments, are not agricultural programs. Therefore, programs designed to alleviate environmental damages related to agricultural production must ultimately be independent of agricultural programs.

Programs that support agricultural prices can affect production patterns, resource use, and environmental conditions in four ways (Miranowski, 1975; Von Meyer, 1987):

(1) Enterprise Mix - Differential support levels distort relative prices of crops and livestock from world levels and may induce environmental stress. In the EC, Von Meyer (pp. 13-14) argues, for example, that the price support for maize and sugar beets, compared with no support for root crops and dried pulses, has increased land used for maize and sugar beets, with considerably greater ecology risk. In addition, the reduced price variability due to CAP support for certain crops decreases the farmers' enterprise diversification and can increase environmental stress (such as through monoculture).

(2) Scale and Intensity - The subsidization of agriculture generally encourages greater input use, including land and nonland inputs, such as chemicals. In the EC, however, agricultural land area has declined by 10 percent over the last three decades due to competition from housing and transport (Von Meyer, 1987, p. 11). Intensification has been primarily expressed in nonland inputs, such as the four-fold rise in nitrogen fertilizer between 1950 and 1980 (Food and Agriculture Organization, various years). Whether or not the CAP has biased intensification in the EC toward nonland inputs, due to higher European land prices than in the United States, is not fully understood. However, such bias generally leads to greater chemical use and potential environmental damages.

1/ For a detailed treatment of CAP principles and operation, see Rosenblatt, and others, 1988.

(3) Location - Through differential price supports and uneven levies, the CAP has created incentives to concentrate certain types of production with increased environmental stress. For example, Von Meyer cites the shift of dairying from extensive upland areas, and the concentration of pig and poultry production toward port locations where imported feeds (cereal substitutes) are relatively inexpensive. For some EC member countries, such as the Netherlands, manure disposal becomes a serious problem in lowlands and port areas. Greater concentration of intensive crop production, such as cereals, due to differential support and greater price stability can also induce environmental problems.

(4) Technology - An often-overlooked effect of agricultural support programs is the dynamic bias introduced in technological development and adoption (Von Meyer, 1987; Schmitz, 1988). Price support structure creates incentives to devote research and development funds to those crops and livestock receiving the largest relative subsidies. If the favored crops and livestock create more environmental stress than less-supported alternatives, the subsidies exacerbate environmental damages in the long run.

Structural initiatives, on the other hand, such as the environmentally sensitive area and extensification programs, are used to remedy environmental problems. However, some structural expenditures, such as for drainage grants, can also induce environmental problems, such as loss of wetlands. EC structural expenditures account for less than 10 percent of the EC's budget, and environmental programs are only a part of that 10 percent. Thus, there is not a lot of funding to counteract whatever environmental problems result from CAP price support or other forces.

Farm Size and Location

The third effect that the EC 1992 program may have on the environment involves the structure of agricultural production, especially farm size and location. By removing both barriers to commerce between member countries and the impediments to the free flow of factors of production, the EC 1992 program should increase the scale of operation in agriculture, as firms are more able to serve an EC-wide market. Imperfect knowledge of the economic and physical characteristics of the European economy and natural resource base complicate projecting the environmental effects of changes in regional specialization of agricultural production. There is no a priori reason to believe, however, that the introduction of larger agricultural firms will, in itself, be more harmful overall to natural resource quality and human health than the present agricultural structure. In contrast, an increase in the spatial concentration of agricultural activities above the present level could put greater stress on the absorptive capacity of the environment in those concentrated areas.

The introduction of larger firms may also affect rural and countryside amenities--an important environmental attribute in many EC member countries as small farm operators exit the market. In particular, if small farms are consolidated into larger operations, there is the question of how this will affect rural landscapes. Increases in average farm size, together with decreased CAP support and generally lower commodity prices raise the possibility that some marginal land may be taken entirely out of agricultural production and developed for other purposes. Areas with little development potential may be left derelict.

Conclusions

Environmental issues promise to play important roles in EC development in the 1990's, and the EC 1992 program will surely increase the recognition of agriculture's multifaceted roles in the environment. It is difficult to piece together exactly how EC 1992 will alter EC agriculture, and what these changes will mean to the environment and the design of environmental policy. We have identified three areas of potential effects that will have ramifications for EC environmental quality. They include greater EC policy harmonization and EC regulatory control; reductions in EC commodity prices and related CAP reform; and changes in farm size and location. The effects will probably be both positive and negative for the environment. However, we cannot suggest which effects on the environment should be weighted most heavily.

The general goals of the EC 1992 program do not appear to be inconsistent with the environmental goals being voiced by EC member countries, but we believe that care must be given to the precise implementation mechanisms. A better understanding of the environmental linkages of the EC 1992 program will help ensure that the design of these mechanisms maximizes the effectiveness of environmental initiatives and budget expenditures, while working toward the goal of a unified EC market.

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Implications of the Single Market Program for National Production Quotas on Milk and Sugar

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Abstract

To limit budget costs associated with milk and sugar support programs, the European Community (EC) has imposed production quotas on both commodities, rather than reduced prices. The production quotas are allocated to the member states on a national basis, which may conflict with the notion of a borderless EC. Current prospects do not seem strong for significant change in the nationally based quota systems for milk and sugar. The EC 1992 program may be the strongest force for making the quota systems less rigid, because the quotas inhibit competition among producing regions within the EC. Greater productive efficiency would reduce production costs, perhaps lowering consumer costs and reducing export subsidy expenditures.

Introduction

The EC has instituted various supply control programs for commodities that became expensive to support. For some commodities, such as cereals since 1988 and milk since 1977, coresponsibility levies (essentially farmer taxes) have been used to get farmers to help finance disposal of commodity surpluses and market expansion. For two commodities, quotas have been used; they were introduced in 1968 for sugar and in 1984 for milk. These quotas are allocated at the national level, and above-quota production is penalized. The EC has not yet decided whether or how national production quotas for milk and sugar may change in response to the EC 1992 program. The fact that nontradable quotas are inefficient is well-known; they prevent the product from being produced on the least-cost farms. In the case of national quotas in the EC, the lack of tradability across borders compounds the problem.

The Commission of the European Communities (EC Commission) takes the view, as do most national governments, that unfettered trade in milk products and in sugar does not prohibit nationally based allocation of production quotas. National governments have retained prerogatives over national quotas because national agriculture ministers want to preserve their country's share of high-profit EC sugar beet and milk production. In other words, the national agriculture ministers seek to protect or to advance the interests of their own farmers and agribusinesses rather than the EC interests. Most farmers are content with the quotas, because they are guaranteed a high price for the quantity allowed under the quota. The alternative to supply control would be lower prices, a course that most farmers do not want to take.

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Despite the political arguments of national governments, national production quotas are logically inconsistent with a borderless Europe. The EC 1992 program aims to remove barriers to trade within the EC so that production can relocate in the low-cost areas. Quotas prevent such relocation. Therefore, production quotas should at least be tradable throughout the EC.

This article provides background on the milk and sugar policies and markets, considers the pressures for change in the milk and sugar quotas, and describes possible options that the EC may adopt if the national production quotas are found to be incompatible with the EC single market. There are some significant differences between the problems of national quotas for milk and sugar in a unified market. Each has its own history, method of operation, and market characteristics. We therefore examined the cases of milk and sugar separately.

Dairy Market Quotas

The dairy sector has a large role in European agriculture. Milk is the most important commodity in the EC, with farm receipts in 1988 of 32.68 billion European Currency Units (ECU), or $38.64 billion, some 17.6 percent of all farm receipts. Dairy farming also has an important social role in EC agriculture; in areas where there are many small farms, the dairy support program is an important method of bolstering rural incomes. The generous price supports have, however, stimulated production on large, specialized farms to a level well above domestic demand.

High support prices averaging well above world prices encouraged production that far surpassed self-sufficiency. During the 1980's, the EC accumulated large stocks of butter and skim milk powder (table 1), and simultaneously provided large subsidies to dispose of these surpluses through the domestic food, feed, and export markets. The result was a high budget cost for surplus disposal.

When budget costs became unbearable, the EC chose to pay farmers the same high price, but on a reduced quantity, instead of allowing the market price to fall enough to reduce the surpluses (Oskam, and others, 1988). In April 1984, milk quotas were introduced as a temporary expedient (Petit, and others, 1987). The EC Commission allocated milk quotas to the member states based on each country's 1981 milk production plus 1 percent (table 2). The quantity of milk production allowable under the quotas remained well above domestic consumption. In 1986, the Commission decided to reduce these quotas, but not enough to eliminate all surplus production.

Countries could choose whether to allocate quotas to farmers (formula A) or to dairies (formula B). All countries except West Germany, the Netherlands, and Belgium chose to allocate to dairies. In 1989, the Dutch switched from application of milk quotas at the farm level to application at the processor level. A penalty, called the supplementary levy (or superlevy), is placed on over-quota production. The levy was originally set at 100 percent of the milk support price (the target price) in the member states that allocated

Table 1--EC intervention stocks of dairy products and support expenditures on dairy

Year	Intervention stocks		Support expenditures
	Butter	Skim milk powder	Dairy
	---- 1,000 tons ----		*Billion ECU*
1981	14	298	3.34
1982	139	605	3.33
1983	686	957	4.40
1984	973	773	5.44
1985	1,018	514	5.93
1986	1,297	847	5.41
1987	1,058	722	5.01
1988	221	14	5.92
1989	30	5	5.99

Source: Commission of the European Communities, The Agricultural Situation in the Community, Brussels, various years.

quotas to processors and at 75 percent if the quotas were allocated at the farm level. The levy has since been raised to 115 percent of the milk target price for all countries.

The total EC milk quota is composed of four components:

- A guaranteed quantity for milk deliveries to dairies was established for each member state, allowing a level equal to 1981 deliveries plus 1 percent. Guaranteed quantities form more than 95 percent of the total quota. These basic quotas were reduced in 1987/88 by 6 percent and in 1988/89 by another 2.5 percent, though some of these reductions were deemed temporary (suspended).

- An additional quantity, known as the reserve quota, was given to Ireland, Luxembourg, and the United Kingdom (for Northern Ireland). Spain was given a reserve beginning in 1987/88. Additional reserve, known as the Nallet reserve (after the French Minister of Agriculture at the time), was added in 1987, and totaled 1 percent of the basic quota.

- A direct sales quota was allocated for farmers who were selling some milk directly to final consumers rather than to dairies. This quota was based on the direct sales quantity in 1981 plus 1 percent. A provision was also included to allow switching between direct sales and deliveries to dairies, as long as the national total quota was not exceeded.

- In addition to these quota components, the EC Court of Justice decided in 1988 that some additional quotas must be granted to farmers originally denied quotas in 1984. The so-called SLOM quota, named by the Dutch acronym for the court case, expanded the total quota by 500-600 thousand tons. Farmers were eligible for the SLOM quota if they discontinued milk production under an EC milk-reduction scheme in the late 1970's but wanted to produce again under the superlevy system.

The introduction of milk quotas, and in particular their reduction following the December 1986 decision, restrained both total production and expenditures on dairy support. Prices for dairy products remain considerably higher in the EC than on world markets, however, and surpluses still have to be sold abroad with a subsidy. So long as this condition holds, the EC will probably be unable to relax its supply control. The issue for the EC is how to make the system compatible with a free internal market.

Table 2--EC milk quotas by country, 1990/91 marketing year

Country	Guaranteed quantity	Reserves	SLOM 1/	Direct sales	Total
			1,000 metric tons		
Belgium/Luxembourg	3,187	60	7	382	3,636
Denmark	4,467	49	8	1	4,525
West Germany	21,465	234	135	93	21,927
Greece	530	5	0	5	540
France	23,555	256	54	748	24,613
Ireland	4,830	355	99	16	5,300
Italy	8,050	88	0	1,083	9,221
Netherlands	10,961	120	40	92	11,213
United Kingdom	14,028	218	160	384	14,790
Spain	4,455	97	0	527	5,079
Portugal*					
European Community	95,528	1,482	503	3,331	100,844

* Under its terms of accession to the EC, Portugal retains its national milk program until 1991. Portugal produces approximately 1.4 million tons of milk annually, and the quota will likely be set at about 1.3 million tons.

1/ SLOM denotes a quota the EC Court of Justice allocated to farmers originally denied national quotas in 1984. The SLOM quota, named for the Dutch acronym for the court case, expanded the total quota by 500,000-600,000 tons. To be eligible, farmers had to have discontinued milk production under an EC milk-reduction scheme in the late 1970's, but wanted to produce again under the superlevy system.

Sugar Market Quotas

Sugar beets are much less important than milk in EC agriculture, making up only 2.6 percent of the total value of agricultural production in 1988 (Commission of the European Communities, 1989). Sugar beets are grown in all EC countries except Luxembourg. Temporary production quotas (table 3) for sugar beets have been in effect since the 1968/69 crop year. As with dairy, the EC sugar regime supports producer prices far above prices in international markets. Unlike the dairy regime, the sugar program has been largely self-financing.

The national quota is divided into two components: A quotas, which are approximately equal to EC use, and B quotas, which are less than 20 percent of total quotas. The A sugar quota is most profitable, because it receives the high EC support price and is subject to only a basic producer levy of 2 percent. The B quota can be considered a safety margin to ensure that the EC will have sufficient sugar supplies, even in a poor crop year. The B sugar ordinarily must be exported with subsidies, and additional producer levies (beyond the 2-percent basic levy) of up to 37.5 percent may be assessed to pay the export subsidies. Production above the A plus B total limit is termed C sugar, which receives no price support and must be exported without subsidy.

The sugar quota system relies on basic producer levies to pay for the disposal of surplus sugar, which keeps the net budget cost of the sugar program low. Quotas are allocated to the member states, which in turn allocate them to processors. Sugar quotas are transferable within the borders of a member state, as long as a processor's quota is not reduced by more than 10 percent.

The EC also maintains production quotas on high fructose sweeteners, known in Europe as isoglucose. Elimination of the sugar production quotas would remove the rationale for isoglucose production quotas. Without the isoglucose quota, isoglucose would displace sugar in soft drinks and other uses where the substitution is technically and economically feasible. In the United States, where the high fructose corn syrup (HFCS) industry has not been restrained as it has been in Europe, HFCS has become a mature industry, holding 35-40 percent of the caloric sweetener market. Displacing a similar share of EC sugar consumption could have greater effects on the EC domestic sugar industry than it did in the United States because of the differing market situations. The United States had been a large importer of sugar, but was able to reduce those imports as the corn sweetener industry grew. The EC, by contrast, has been a net exporter of sugar since 1977. Thus, any displacement of domestic sugar consumption by high fructose syrups would be much costlier, because EC sugar production would have to fall, or the EC would have to subsidize exports of displaced sugar at great expense.

The quotas have effectively restrained output of an otherwise highly profitable crop, at least at the high internal support prices. The existence of quotas has

Table 3--EC sugar quotas by country, refined-sugar basis, 1990/91 marketing year 1/

Country	A quota	B quota	Total A+B quotas
		1,000 metric tons	
Belgium/Luxembourg	680	146	826
Denmark	328	97	425
West Germany	1,990	612	2,602
Greece	290	29	319
France	2,996	806	3,802
Ireland	182	18	200
Italy	1,320	248	1,568
Netherlands	690	182	872
United Kingdom	1,040	104	1,144
Spain	960	40	1,000
Portugal	64	6	70
European Community	10,540	2,288	12,828

1/ Quotas include an allowance of cane sugar for overseas departments. An additional 291,000 tons quota exists for isoglucose, or high-fructose corn syrup (HFCS).

Source: Agra Europe, Ltd., CAP Monitor, London, 1990.

eliminated the need to reduce these prices, and hence has preserved profits for farmers with quotas. The distorting effect of quotas, in the case of sugar, will probably be greater than that for dairy, in part because the policy has been in effect for a longer period. The sugar-processing industry has a considerable interest in the ultimate rationalization of production. The issue for the EC is whether to take the opportunity of the completion of the internal market to remove the glaring anomaly of a sugar sector protected from change for more than 20 years.

National Quotas and the EC 1992 Program

Production quotas are objectionable when they freeze the location of production, rather than letting the market allocate production according to comparative advantage. The usual consequence of production quotas is that location of production is determined according to prior patterns, rather than shifting according to where comparative advantage is greatest. The average cost of producing the controlled commodities is higher than it would be without the quotas. A further consequence is that the processing location for these commodities is suboptimal, in the sense that the industry has higher overall costs under the production quotas than it would without them. If quotas were removed, consolidation would result in fewer processing facilities. If governments allocate the quotas to processors, then production and processing locations would be further frozen.

The potential costs of production quotas are illustrated in figure 1(a). Two locations, markets H and L, exhibit different marginal cost curves MC_H and MC_L. Assume the initial quotas are Q_H and Q_L, allocated on a historical basis. The same quantity of the commodity in question could be produced more cheaply by reducing the quota in M to QH' and increasing that in L to QL'. Cost savings equivalent to the shaded area in the H market more than offset the extra costs (as shown by the shaded area) in the L market. The gains to the relocation of the quotas are proportional to the cost difference and the amount of quota transferred.

Markets provide a mechanism to effect this quota transfer. Producers in the high-cost area (H) will find it profitable to sell quotas to those whose costs are less. In figure 1(b), the price level is introduced to show the rents attributable to the quota in each area (the difference between the actual price received for the output and the lowest price that would have elicited that output). The rents are given by the shaded areas. Trade in quotas will tend to proceed until (at the margin) quota rents are the same. If prices are the same, then the marginal costs will also be the same. Making quotas tradable may seem to give arbitrary salable assets to farmers, but it removes the main distortion inherent in quotas.

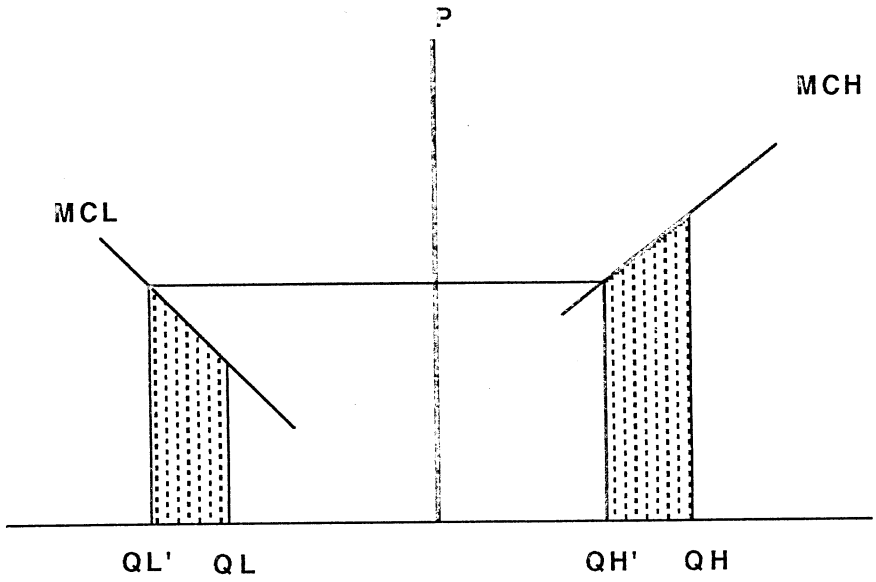
Production quotas do not require trade barriers for their operation, though countries usually impose quantitative restrictions on imports to make domestic production quotas more effective in reducing supply. The EC uses variable levies on dairy and sugar imports to ensure that domestic price levels are not undercut. The EC could open up internal borders without weakening the effects of overall quota restrictions, as overseas producers could not move in to take advantage of the domestic quota.

The conflict between the milk quotas and the EC's 1992 program lies more in the method of allocation and administration than in the concept of production quotas. The quotas are allocated by country and are not freely traded. National allocation leads to limited reallocation to take account of cost changes. Although the periodic readjustment of national quotas could conceptually take place, in practice, countries resist any reduction in their own national quotas. Lack of tradability both within and between countries leads to production distortions that are hostile to a free internal market. Removal of the border posts, and other barriers to the relocation of production, are aimed at improving efficiency. Dairy and sugar quotas are impediments to such efficiency, and could increase tensions in a single EC market.

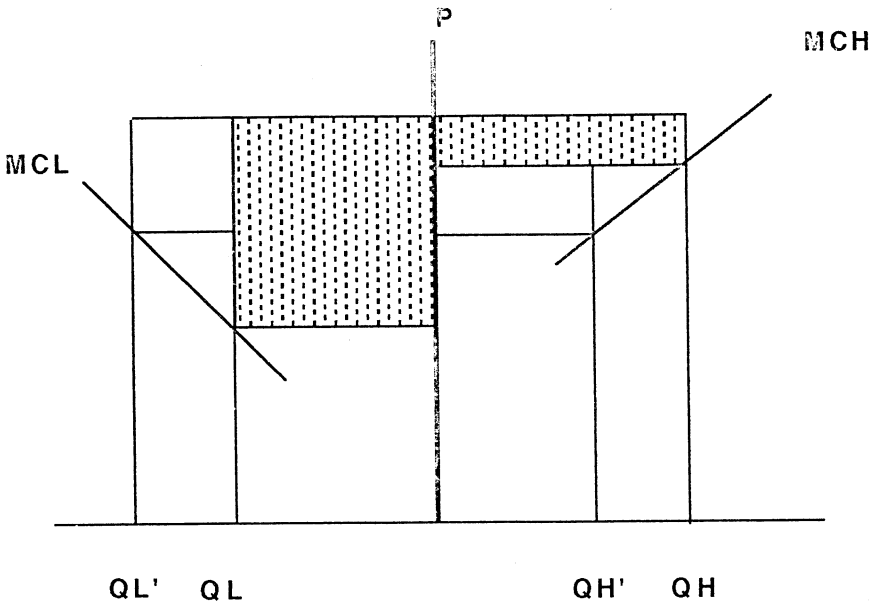
The degree of transferability differs between sugar and dairy, and among countries in the case of dairy quotas. For sugar, only limited cross-border transshipment has been allowed, where a beet factory has been able to fill part of its quota from another member state. Quotas are not generally tradable across countries, and strict limits are imposed on transfers within countries. The milk quotas are not tradable across national borders and are also restricted in their transferability among producers within the individual countries. Although the EC Commission allows member states some flexibility in regulating quota transfers, the quotas, in all cases, are linked to the land. For individual producers, a quota can be transferred only if a farm is sold, leased, or inherited.

In an agricultural sector free of quotas, developments in the agricultural economy--such as technical change, relative price changes for commodities, and relative changes in factor prices across countries-- cause shifts in the profitability of production between countries and among regions within countries. To illustrate, table 4 shows how the shares of milk production have changed

Figure 1
Efficiency costs and rents generated by quotas



A) Efficiency costs of quotas



B) Rents generated by quotas

among the original six EC members from the establishment of the milk regime from 1968 to 1983, the year before the milk quotas were adopted. With the adoption of national quotas, the shares are now effectively fixed, stopping any shifts that might have resulted since 1984, due to changes in comparative advantage. The net result of freezing production patterns has been decreased efficiency and less competitiveness of the EC milk sector.

Despite the economic arguments, there seems to be little political desire at the Community or national level to abandon the milk and sugar quotas. However, the milk system is scheduled to lapse on March 31, 1992. Given the popularity of the milk quotas with most farmers and no looming dairy budget crisis, the consensus is that the milk quotas will be extended in some form. The EC Commission has proposed a 2-year extension of the current sugar quota program, which is due to expire in June 1991. Still, the scheduled expiration dates will prompt thorough reviews of the sugar and dairy programs, and various modifications will be considered, including the introduction of more quota trading.

Possible Changes in the Quota System

Some EC member countries have already suggested changes in the quota programs. For instance, the Dutch dairy board has called for quota trading across national borders (Agra Europe, Ltd., Jan. 26, 1990). If the Dutch dairy board is unsuccessful in negotiating with the Dutch Government and the EC Commission for milk-quota trading rights, the board plans to press for quota trading through the EC Court of Justice. The sugar quotas may also receive a push for revisions, as the UK and Italy both attempted unsuccessfully to get their quotas changed during the review preceding the current period, 1986/87-1990/91.

Assuming that milk and sugar production quotas remain after the EC 1992 program is implemented, there are several ways to rationalize the systems, including the following:

- Limited trading of quotas above national self-sufficiency;
- Purchase of quotas by the EC Commission to be auctioned or retired;
- Free trade in quotas within national boundaries; and
- Free trade in quotas throughout the EC.

One method of achieving some cost savings, while allowing national policy objectives to remain focused on securing supplies for domestic dairies, would be to allow trading of quotas over and above domestic consumption levels. Limited trading throughout the EC of milk and sugar quotas for quantities above national self-sufficiency would at least reduce the cost of producing supplies in excess of consumption needs. This would mean that approximately 10-20 million tons of milk quotas would be eligible for transfer among the member states. A similar system in sugar might allow

Table 4--Milk production in the EC-6 from 1968 to 1983, selected years

Country	1968		1973		1978		1983	
	1,000 metric tons	*Percent of total*	*1,000 metric tons*	*Percent of total*	*1,000 metric tons*	*Percent of total*	*1,000 metric tons*	*Percent of total*
Belgium/ Luxembourg	4,129	5.7	3,850	5.6	4,022	5.4	4,161	5.0
Netherlands	7,710	10.6	9,354	13.7	11,367	15.4	13,231	16.0
West Germany	22,121	30.4	21,265	31.2	23,291	31.5	26,913	32.5
France	30,444	41.8	24,850	36.4	25,850	35.0	27,905	33.7
Italy	8,352	11.5	8,939	13.1	9,360	12.7	10,580	12.8
Total	72,756	100.0	68,258	100.0	73,890	100.0	82,790	100.0

Source: USDA, Foreign Agricultural Service.

the trading of B quotas across borders. Under this option, the processing industries could consolidate somewhat, concentrating their operations more in areas with the lowest production costs.

Another possible approach would be limited trading of quotas purchased by the EC Commission and either held in reserve (to reduce production) or auctioned to the highest bidder in the EC. Limited trading would be another method by which the EC, over time, could rationalize production. The EC Commission could operate a more-or-less permanent buyout scheme, paying the outgoing milk producer for the right to produce milk, and then auctioning most or all of this right to the highest bidder, regardless of the buyer's or seller's country. This program would ensure farmers the highest return on the sale of their assets (the quotas) and would allow countries with the capability to profitably expand production to do so.

Under such a policy, the EC Commission would have the option to reduce quotas by not reselling its purchased quotas. If the EC did not resell quotas, then export subsidies would decline in terms of expense and quantities. If the EC purchased sufficient quotas, then it could entirely eliminate export subsidies. However, this option would not reduce the gap between domestic EC prices and international prices, and would impose significant shortrun budget costs.

Free trade in quotas within national boundaries would relax current rules that tie milk quotas to the land and link sugar quotas to the sugar beet processor. While there is some scope for flexibility in administering the milk quotas on the national level, transfer of milk quotas normally involves selling, willing, or leasing the land, as well as the quota itself. Allowing free trade of quotas within each country would be a step toward greater efficiency and would still protect each nation's share of EC production.

Of the four possibilities listed, free trade in quotas throughout the EC would be most consistent with the single market. This action would allow comparative advantage to determine the location of milk and sugar production within the EC. This plan would, at the same time, allow the EC to maintain production control by keeping the overall EC quota.

Effects of Tradability of Quotas

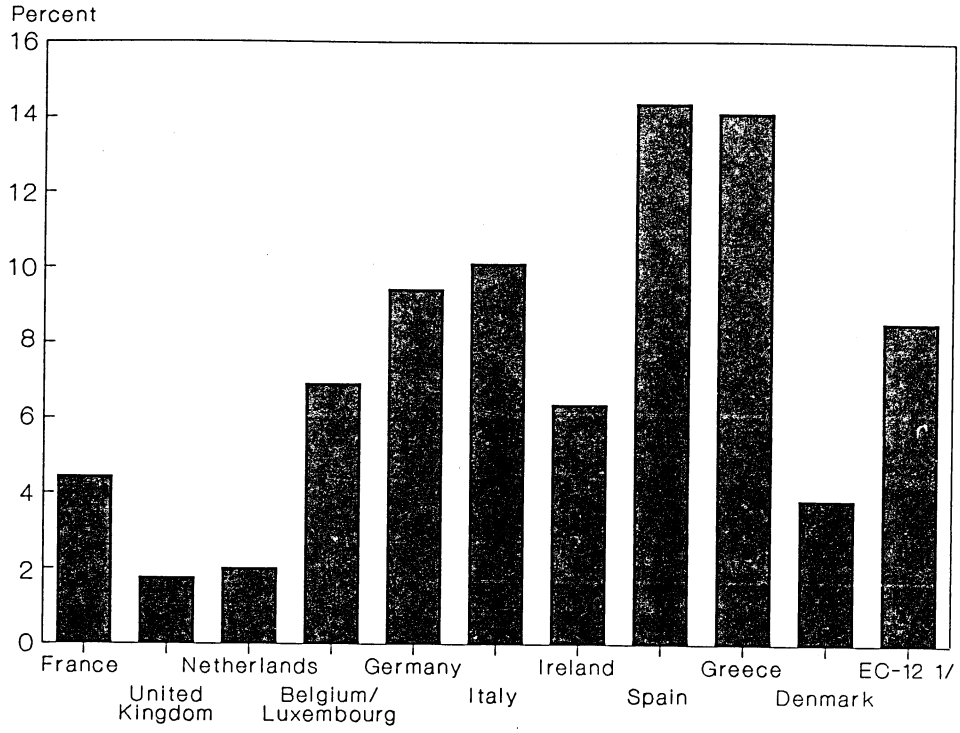
If milk and sugar quotas were made tradable, which areas would acquire them and which areas would lose them? The answer depends on the extent to which farmers and processors could exploit their cost advantages. At least two bits of evidence indicate that considerable incentives exist for a transfer of production among countries. Studies that have examined production costs in the various member states seem to show significant differences. The figures in table 5, taken from Butault, and others (1988) for milk and from Erskine and Pugh (1990) for sugar, indicate relative costs of producing milk and sugar. Countries with the lowest production costs--Ireland, Belgium, and France for milk and France, Belgium, the Netherlands, and Luxembourg for sugar--could be expected to buy quotas from countries with higher production costs--Denmark, the UK, and Germany for milk or Italy and Spain for sugar. However, some producers may have no other reasonable alternatives. Some countries (or companies) may also have lower processing costs, or greater skill or experience in marketing, or may lie closer to ports or consumption centers than other countries (or companies), which would compensate for higher production costs.

The second piece of evidence takes into account at least some of these factors. Production has exceeded the level of quota in many countries. The overage is an indication of the extent to which production would be expanded if quotas were traded. Countries with better alternatives will tend to exceed their quota by less than those countries with a low opportunity cost (that is, a comparative advantage, even at lower prices). Figure 2 shows the percentage of milk production in excess of national milk quotas during 1984-90. The UK and the Netherlands are the only two countries even close to their quota, though in these cases other factors are at play: (1) they were the only EC countries to impose quotas at the farm level when the quota system began, although the UK later switched to application of quotas at the dairy level; and (2) they have the largest average herd size among all EC countries, which is often correlated with better information and management and certainly allows more scope for meeting quota reductions by culling rather than by yield reductions. Those countries with small and predominantly part-time farms, such as Germany, Italy, Spain, and Greece, seem to produce 10-15 percent above quota, perhaps indicating low opportunity costs in those areas. The EC-wide overage is now about 7 percent, down from 10-12 percent in the earlier years of the program, perhaps as a result of the increased rate of superlevy and tighter rules on payment of the levy.

In the case of sugar, the main producers over quota--that is, C sugar producers--are, as one would expect, those that have low costs: France, the Netherlands, Belgium, and Denmark (fig. 3). By contrast, Italy, Ireland, Spain, Greece, and Portugal (which has only recently started to produce sugar beets) are below

Figure 2

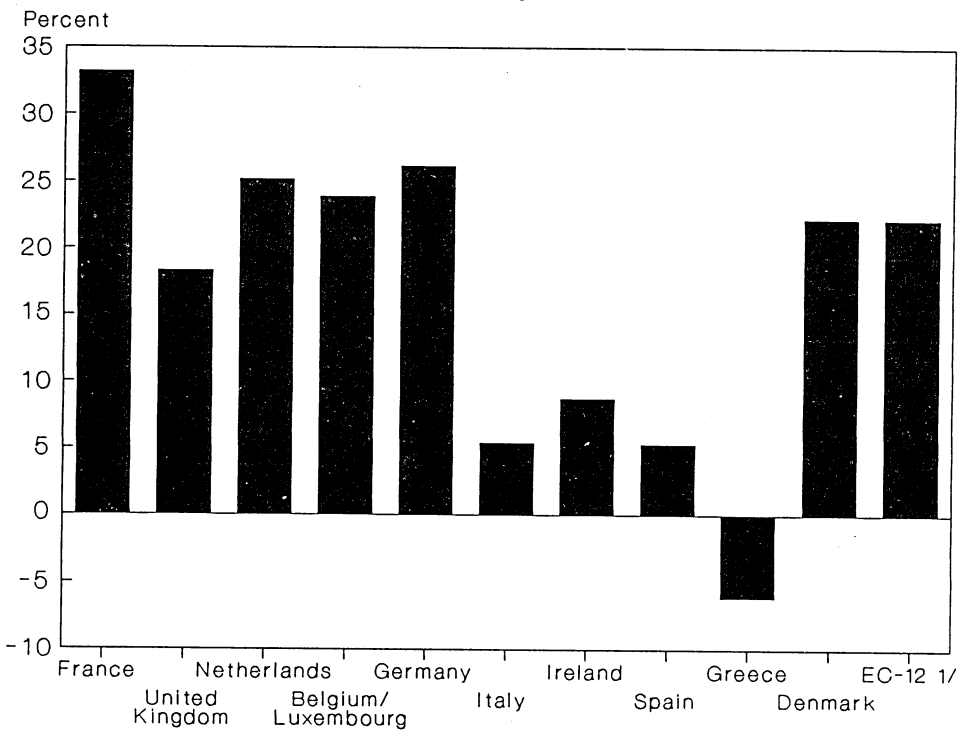
EC milk percentages over quota, by country, 1984-90



1/ Under its terms of accession to the EC, Portugal retains its national milk program until 1991. Portugal produced approximately 1.4 million tons of milk annually, and the quota will probably be set at about 1.3 million tons.

Figure 3

EC sugar percentages over quota, by country, 1982-90



1/ Portugal's sugar quota is 70,000 tons. Portugal had no sugar beet industry prior to EC accession in 1986.

Table 5--Costs of production of milk and sugar beets in EC countries in 1983

Country	Milk	Sugar
	EC/100 Kg	*Dollars/cwt, raw*
Germany	23.9	16
France	18.4	13
Belgium/Luxembourg	15.3	15
Netherlands	22.3	15
Ireland	14.9	19
United Kingdom	23.9	17
Denmark	28.6	16
Spain	n.a.	22
Italy	n.a.	26

n.a. = Not available.

Source: Milk: Butault, and others, L'Agriculture dans la C.E.E.: Tome 3, Couts de Production. Paris, Intitut National de la Statisque et des Études Économiques, Sept. 1988; Sugar: Erskine and Pugh, The European Sugar Industry--The Sleeping Giant Wakens, London, Saloman Brothers, Inc., Mar. 1990.

quota. Dairy appears to be the choice of small farmers, even when the superlevy penalizes them, but the farmers in those areas cannot compete above their quota in sugar. Limitations in processing capacity will probably be a greater factor in the sugar industry than in the dairy industry.

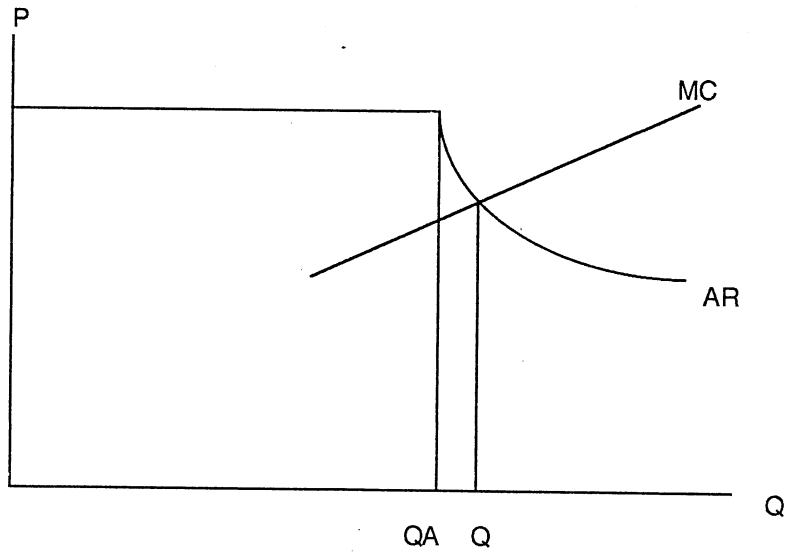
One difficulty in predicting what might happen in the case of tradable quotas is knowing what effects quotas have on farm decisions. Unlike acreage controls, output quotas do not markedly distort firm supply curves. The key issue is the price at which farmers can sell their output. Figure 4 illustrates the two extremes, with pure pooling--a blend price--in panel 4(a) and purely differentiated prices for within-quota supplies and above-quota supplies in panel 4(b). The situation will likely be different between the milk and sugar markets, with pooled pricing occurring more extensively in the milk market and differentiated, or stratified, pricing more likely in the sugar market.

Allocating milk quotas to dairies encourages those dairies to pay a pool price to farmers, thus averaging the penalty over all sales to the dairy. The farmer receives a price much closer to the average revenue than the marginal revenue (fig. 4(a)). Marginal revenue to the dairy may be low, zero, or negative, depending on the size of the superlevy and the method the country uses to administer the penalty. The farmer produces for a price that, although diluted by the penalty, is still not far below support levels. The level of production should be closer to the quota if the quotas were allocated directly to the farmer, although this method of allocation does not seem to prevent West Germany and Belgium from exceeding their quotas.

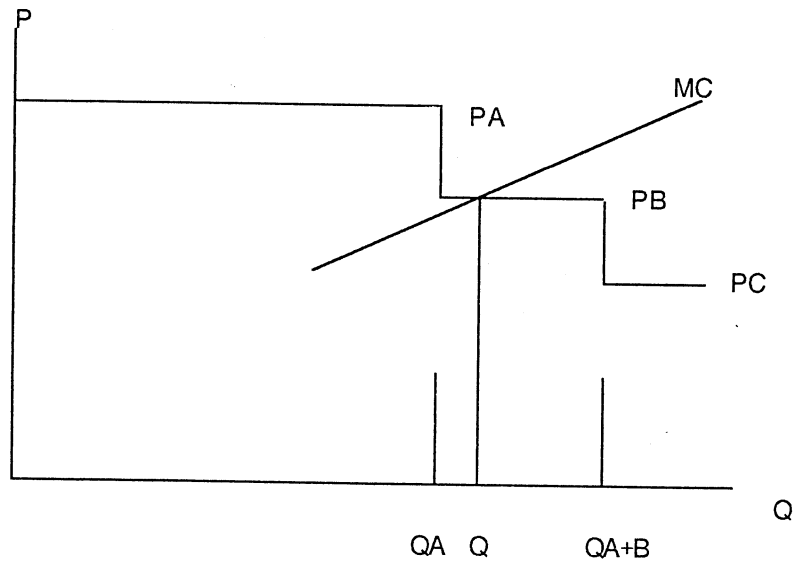
In the case of sugar, the quota system works in a different manner. Processors typically indicate to farmers their share of A and B quotas and pay accordingly. The farmer knows this price and will not produce if it does not cover costs at the margin. In figure 4(b), the farm's output will be at Q, where marginal costs reach the net price for B sugar, that is, the full price less the levies associated with B- sugar production. Production at the B price, and even at the C price (no support), is quite rational. The quota system in effect is simply a differential pricing scheme to preserve income gains (the rents mainly on A sugar) while limiting budget exposure. Some sugar beet firms use blend pricing, with contracts for A-quota deliveries linked to deliveries of B and C sugar. To the extent that blend pricing occurs, sugar beet production decreases would be smaller than the empirical estimates indicate. While sugar beet blend pricing is not considered prevalent, acquiring information on the precise extent of blend pricing for sugar beets is difficult.

This difference between dairy and sugar markets could lead to different effects from quota trading. In the sugar market, allowing tradability of quotas will likely reduce production (fig. 5(a)). Quotas will be sold by region H and purchased by region L. If the low-cost region was producing B sugar, some of the A quota will cover that sugar, giving relief from the B-sugar levy. No change in total production should occur in the L region; the total output of the two regions has been reduced by the amount of the quota shift. Compare this with the situation in the dairy markets (fig. 5(b)). The quota transfer changes the price received by modifying the average revenue curve, moving back in the case of

Figure 4
Different effects of alternative quota systems on production

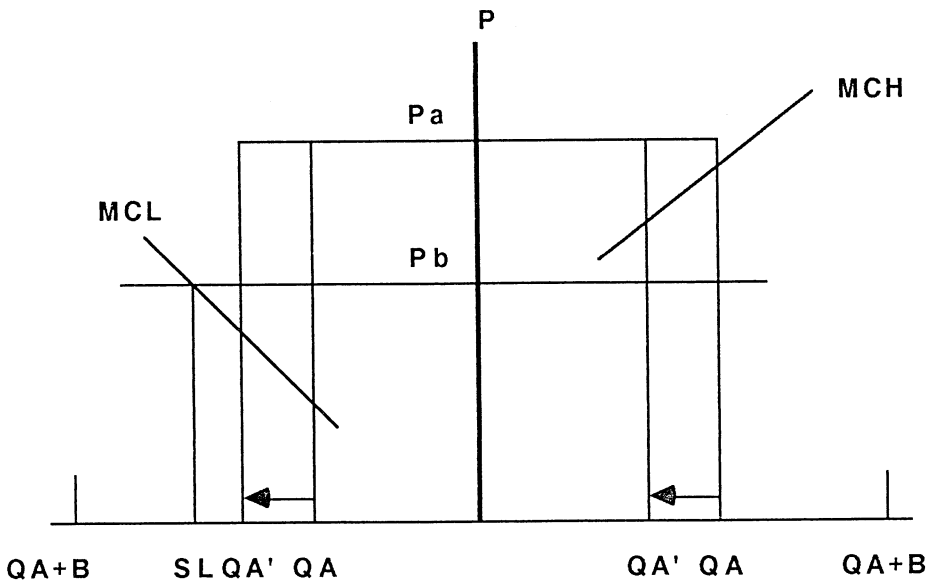


A) Quotas with a pool price

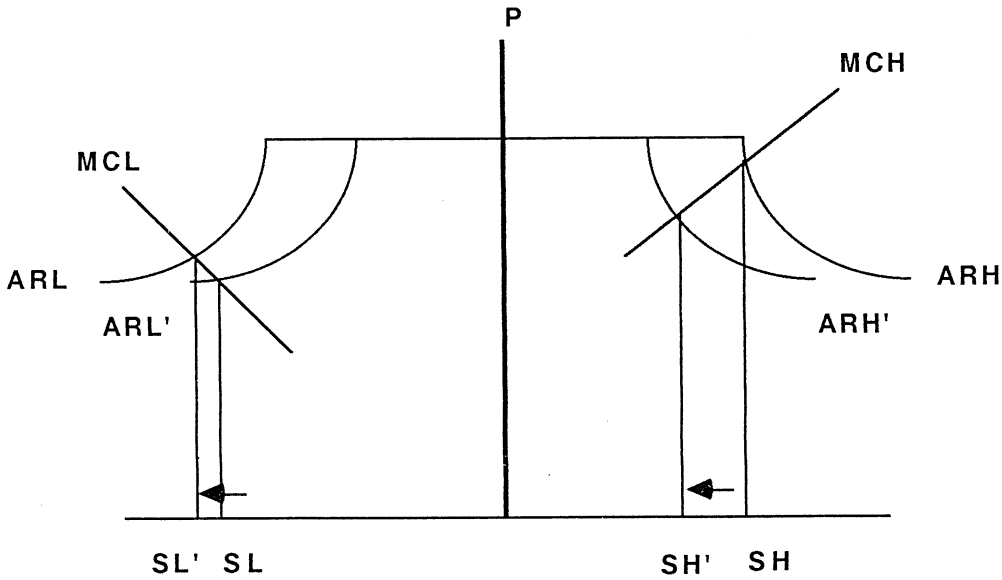


B) Quotas with differential prices

Figure 5
Effects of quota trading on aggregate output in dairy and sugar markets



A) Sugar market



B) Dairy market

the seller of the quota and out in the case of the quota buyer. Whether output expands or contracts is an empirical issue, depending on the slopes of the marginal cost schedules. The low-cost producer could also easily be more price responsive, in which case tradability will increase output.

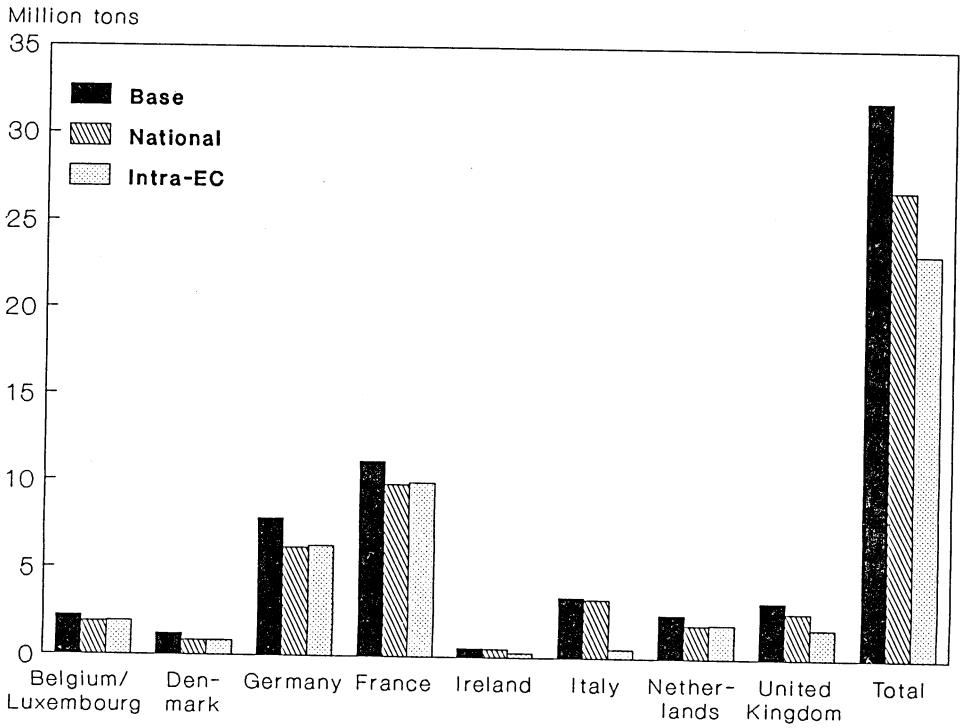
Empirical estimates of the production effects of allowing quotas to be traded, as may follow from the EC 1992 program, require knowledge of cost structures in the member states. One such estimate has been made for sugar (Leuck and Neff, 1991). The model compares the situation where production quotas are traded within a country and among member states (fig. 6). Within-country trading of quotas would seem to have significant effects on production in Germany, France, and the Netherlands, implying a reduction in B and C sugar as the A quota is redistributed among farms. By contrast, allowing international quota tradability among EC countries would allow Italy to sell much of its quota to the more northern countries. The Italian quota replaces B and C sugar in other countries, leading to sharply lower EC sugar surpluses.

Conclusions

Current prospects do not seem strong for significant change in the nationally based quota systems for milk and sugar, because the two normal sources of pressure for policy change, farm income and the EC budget, do not seem to threaten the quota system. Farmers are not clamoring for change, and the EC budgets for the milk and sugar regimes have not been under severe pressure, as strong world prices for these products kept costs of surplus disposal under control. But international prices for dairy products turned lower early in 1990, and stocks and surplus disposal costs once again began mounting. The EC will likely propose further cuts in quotas in the near future.

Another factor weighing against any weakening in the quota system is the current GATT round of trade talks. Limits on support payments, if agreed, would encourage supply control through quotas. If the EC has to reduce its protection by a given percentage, then it can do that by reducing quotas rather than with support prices. The EC seems unlikely to abandon the quota

Figure 6
EC sugar production with quota trading



system during a period of GATT-mandated support reduction. Changes in the method of operation, by contrast, might be possible. The EC might, for instance, introduce tradability and reallocate national quotas without increasing the support level.

Though the usual influences on farm policy would suggest a continuation of present policies, other forces could bring change over time to the national milk and sugar production quotas. The EC 1992 program may be the strongest force for making the quota systems less rigid, because the quotas inhibit competition among producing regions within the EC. The food industry is bound to find national, nontransferable quotas a hindrance in its reorganization on an EC-wide scale. A processor should, under the logic of the free internal market, be able to contract for supplies with producers in any EC region. If EC policy prevents that, then that policy will soon be tested in the European Court of Justice. Farmers could also challenge the regulations as being discriminatory, if arbitrary distributions of quotas (and, hence, quota rents) continue under the policy. As in many other areas, these subtle pressures for change may over time prove to be more pervasive than the more overt determinants of farm support policy.

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Chapter 5:
European Agriculture after 1992--Structure

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Abolishing Green Rates: The Effects on Cereals, Sugar, and Oilseeds in West Germany

Donald F. Larson*
Simon Glance
Brent Borrell
Merlinda Ingco
Jonathan Coleman

Abstract

A necessary condition for a unified agricultural market in the European Community (EC) is the removal of policy tools, such as green rates, monetary compensatory amounts (MCA's), and monetary differential amounts (MDA's), that price otherwise homogeneous goods differently based on country of origin. Because of a proliferation of support methods, including variable levies, quotas, and indirect crushing subsidies, and the distortions that multiple-country and crop-specific green rates generated, implementing a unified EC market will result in both relative and absolute price changes within and among member countries. The authors illustrate the effects of moving to an EC-average level of price protection with the example of West German agriculture.

Introduction

The creation of a borderless market in the European Community (EC) requires, at a minimum, that homogeneous goods be priced the same, regardless of where they are produced. For agricultural goods, this requires, among other things, the elimination of green rates and derivative policy interventions, such as Monetary Compensatory Amounts (MCA's) and Monetary Differential Amounts (MDA's). Because of the multiple ways in which the EC intervenes in agriculture, eliminating green rates would not have a uniform effect on all crops. In this paper, we argue that if green rates were eliminated, relative prices would change only across broad classes of agricultural goods, such as cereals and oilseeds, but not within those categories. Since consumer substitution among the annual crops covered by this paper--cereals, oilseeds, and sugar--is minimal across these aggregate groups, the primary responses to eliminating green rates will come from producers. To the extent that production is joint, government policies that affect one crop directly create secondary effects in other markets. Eliminating green rates will generate corresponding direct and indirect effects as well.

In this paper, a general restricted-profit model and estimation results are presented. Results support the notion that production is joint, and measures of bias resulting from fixed factors and from sugar quotas are quantified. Estimation results indicate that prices are statistically important in the short run, but simulation results demonstrate that the shortrun supply and input-demand effects of eliminating green rates are quantitatively small in West Germany.

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Intervention Instruments and EC 1992

In June 1985, the Commission of the European Communities (EC Commission) issued a White Paper entitled Completing the Internal Market. The paper outlined a reform package of 279 directives, which, if implemented, would create a European market without borders. One hundred of the directives dealt with agriculture. One month later, the EC Commission released a Green Paper entitled Perspectives for the Common Agricultural Policy, which provided a major review of the Common Agricultural Policy (CAP) and the escalating costs of the policy programs. In 1987, all EC member states ratified the Single European Act (SEA), which amended the Treaty of Rome to enable the adoption of the SEA reform package; in February 1988, an agreement was reached at the Brussels Summit to finance the reforms to completion by the end of 1992.

Article 8A of the Single European Act states that:

> The Community shall adopt measures with the aim of progressively establishing the internal market over a period expiring on 31 December 1992....The internal market shall comprise an area without internal frontiers in which the free movement of goods, persons, services and capital is ensured in accordance with the provisions of this Treaty.

Kelch (1989) points out that an EC without borders has four fundamental implications for EC food and agriculture: (1) the harmonization of plant and animal health standards, food labeling, ingredients, and packaging laws; (2) the harmonization of taxes on food and agricultural products and inputs; (3) the elimination of agricultural border taxes and subsidies; and (4) removal of quotas, variable premiums, and national aids that are incompatible with the EC 1992 program. Implementation of these reforms would establish a single price for agricultural goods for consumers and producers throughout the EC and would revise relative and absolute prices among commodities and countries. Some argue that the proposed changes will likely affect more drastically the decisionmaking processes of producers than those of consumers, leading to a greater reallocation of resources in production than in demand. The result stems from the multiple instruments by which agricultural prices are supported under the CAP.

Three major programs exist for the annual crops. Cereal producers and consumers face a legislated price substantially above world levels, which a variable levy system defends. Sugar producers receive quotas that enable them to sell a fixed amount of their production at legislated prices higher than world prices, with the remainder to be exported at world prices. Oilseed producers receive aid in the form of an indirect payment to oilseed crushers, due to a binding trade agreement entered during the Dillon-Round of GATT in 1962.

Cereals and Variable Levies

The variable levy program is conceptually straightforward but, in practice, is complicated by exceptions and modifications. For example, to remove supplies that would otherwise dictate lower consumer and producer prices, cereals are exported with a subsidy roughly equal to the difference between world prices and domestic EC prices. As world prices change, the subsidy, rather than domestic prices, changes. In the case of crops for which the EC is not self-sufficient, importers face a variable import tax equal to the difference between the internal legislated EC price and world prices, preventing consumers from substituting relatively inexpensive imports for expensive domestic products. The result of this intervention was to create a single, higher, and more stable farmgate price (and consumer price) within EC borders. This simple mechanism was greatly complicated in 1969. Obtaining a common level of farm support was a stated objective of the CAP at the inception of the EC, and much progress had been made prior to that date in removing border taxes. However, a devaluation of the French franc and the revaluation of the German mark in 1969 significantly changed the way in which cereal support levels were calculated. Unwilling to let CAP support prices rise by the 12.5 percent that the devaluation implied, French authorities continued to use the exchange rate established prior to the devaluation when calculating commodity support levels. The Germans, unwilling to accept an 8.5-percent cut in support prices, also used older exchange rates, and the practice of using green exchange rates, designed specifically to prevent common agricultural prices, was established.

Since support prices in France were lower than those in other EC countries, and considerably lower than those in Germany in particular, free trade across member borders would have raised prices in France and lowered those in Germany--exactly what France and Germany intended to avoid. To prevent this, an amount equal to the difference (either positive or negative) was levied against trade crossing French or German borders, thus neutralizing the legal trade gains that the use of artificial exchange rates created. These levies became

known as monetary compensatory amounts (MCA's). Since that time, green rates have proliferated; there are currently 40 green rates among the 12 members of the EC (Kelch, 1989). Italy, for example, has one green rate for grains and oilseeds, another for sugar, peas, and beans, a third for pork, and a fourth for beef and milk.

Sugar Quotas

The EC support mechanism for sugar is based on a complicated system of quotas, rules, legislated prices, and import levies. There are three categories of sugar: A, B, and C. Quota limits production of both A and B sugar. Both receive a support price well above world market levels, which has helped transform the EC from a net importer to a substantial net exporter of sugar. The price support for A sugar is above that of B sugar, and A sugar constitutes the bulk of production. C sugar is considered excess production, and cannot be sold in the EC. Producer support prices are set in European currency units (ECU) and then transformed to local currencies using green rates. The green rate used for most countries is the same rate that is used for cereals and oilseeds. However, Italy uses a separate rate for sugar, peas, and beans. The green rate used for sugar support conversion in Spain is the same as that used for cereals, but differs from the oilseed green rate. A series of import taxes prevents sugar imports from all countries except those that enter under the Lomé Agreement.

Oilseeds and the Crushing Subsidy

The support mechanism for oilseeds is perhaps the most convoluted. It has its antecedents in an EC concession made during the 1962 Dillon round of negotiations on the General Agreement on Tariffs and Trade (GATT) to allow unrestricted imports of soybeans and to limit the tariff on vegetable oils and meals. At that time, the EC maintained a large oilseed crushing industry, but oilseed production was negligible.

During the 1970's, as the EC moved toward a policy of obtaining self-sufficiency in oilseeds, the 1962 concession prevented the establishment of a variable-levy system similar to that used in cereals. In response, the EC established a system of production aids, or crushing subsidies, that are paid to crushers of domestic oilseeds. Rules guarantee that a large portion of the payment is remitted to farmers. In addition, the EC stands ready to buy the oilseeds at a minimum intervention price. The program ensures EC oilseed producers of a price substantially above world levels, and has been quite effective in expanding oilseed production.1/ The indirect nature of the program, however, has created an additional set of distortions whereby relative prices of cereals and oilseeds can differ from country to country, even when a single green rate converts both cereal and oilseed prices. This obscure distortion occurs because the support comes indirectly through a crushing subsidy. Oilseed consumers are free to import and face world market prices. To encourage crushers to buy the more expensive EC-produced oilseeds, the EC calculates the difference between the world price and the support price in ECU. Since the world price changes daily, the subsidy fluctuates as well. The difference is converted, using green exchange rates, and paid to the crusher, who passes the bulk of the subsidy back to producers. The producer, in effect, receives the world price, which is converted at the official exchange rate, plus an ECU-denominated bonus, which is converted at the green rate. While the cereal support price is fully converted using the green exchange rates, the farm price for oilseeds is a strange combination of world prices, official exchange rates, subsidies, and green rates. Hence, the price of oilseeds compared with that of cereals will differ from country to country. Appendix A gives a numeric example.

The use of multiple exchange rates introduces artificial incentives for trade in oilseeds as well as cereals. However, since the support price is a weighted sum of international prices converted by one set of exchange rates, and a production aid converted by another, the corresponding mechanism used to calculate taxes or subsidies at the border of each member nation is more complicated than the MCA's. The monetary differential amounts (MDA's) are calculated so that the cost of the oilseeds are identical for crushers located throughout the EC, despite differing levels of producer support. Since the market exchange rate may fluctuate, as may the market rate for oilseeds, the MDA's are also in a constant state of revision and adjustment. Appendix B gives a numeric example.

1/ While the creation of a single European market in 1992 promises potentially large changes in all support programs, the future of the oilseed regime in the EC remains even more clouded. In 1989, the EC accepted a GATT ruling in response to U.S. charges that the crushing subsidies violated the 1962 agreement and had hampered U.S. soybean exports into the EC. In response to the ruling, the EC must either alter the support program, pay damages to the United States, or negotiate an alternative settlement.

Profit, Supply, and Demand Effects of Common Agricultural Prices

The creation of a borderless EC requires, at a minimum, the elimination of separate green rates and their derivative instruments, MCA's and MDA's. Since the current system of multiple exchange rates and production aids creates country differences in both absolute price levels and relative prices, moving to a single set of agricultural prices will have real effects on consumption and production.

Consider first the effects on profits in agriculture, and therefore on resource allocation between agriculture and the rest of the economy. Let λ = a row vector of exchange rate ratios on output prices, and γ = a row vector of exchange rate ratios on input prices, where member $\lambda_i = e_i^g/e$ and e_i^g is the ECU/country exchange rate used for good i, and e is the market exchange rate.

Note that some of the λ_i and most of the γ_j may equal one, and the aggregate profit function can be written as:

$$\pi(\lambda p,\gamma w,q,z) = \lambda p y(\cdot)-\gamma w(\cdot) \qquad (1)$$

where q is a vector of the production quantities for supply-managed crops, such as sugar and olive oil, where output prices (p) and input prices (w) are intervention prices stated in ECU, and z is the vector of fixed inputs.

Under a borderless EC, $\lambda_i=\gamma_j=1$, for all outputs and inputs so that the relative, as well as absolute, prices will change. For example, in West Germany, where the green rates overvalue support prices (fig. 1), setting the ratio of green-to-market exchange rates to one would significantly lower all producer output prices. Green rates generally do not directly affect input prices. A notable exception is in the livestock sector, where production from the annual crop sector is used as inputs to both dairy and meat production. A notable indirect effect is the influence that support programs have on land values.2/

To the extent that the inputs are tradeable, a borderless EC may also realign tax rates on inputs, as farmers will seek the lowest cost inputs. Augmenting γ to include differences in effective tax rates, one can derive the effects on supply and input demand using the regular envelope theorem properties, so that:

$$\partial\pi/\partial\lambda p = y(\lambda p,\gamma w,q,z) \qquad (2)$$

and

$$\partial\pi/\partial w = -x(\lambda p,\gamma w,q,z), \qquad (3)$$

where y(•) is a vector of shortrun supply curves, and x(•) is a vector of shortrun input demand curves.

From (2) and (3), it is clear that a borderless EC with a single real-price structure, where $\lambda_i=\gamma_i=1$ will lead to a change in both supply and input demand, even in the short run, when fixed resources cannot be reallocated. To the extent that most of the γ_i are equal to one, supplies should decrease (increase) in countries where the ratio of green-to-market exchange rates are greater (less) than one, since the supply curves are monotonically increasing in p. Input demand should also decrease (increase). Equation (4) provides the shadow price on the fixed inputs and provides the direction of the longrun adjustment:

$$\frac{\partial\pi}{\partial\lambda z} = r(\lambda p,\gamma w,q,z). \qquad (4)$$

To the extent that the value of the shadow price is reduced below (increased above) the marginal cost of the fixed input when $\lambda_i=\gamma_j=1$, the use of the inputs that are fixed in the short run will be reduced (increased) in the long run as these inputs become variable.

The change in absolute and relative prices will affect final consumer demand as well. However, the magnitude of the changes is expected to be more limited than the supply effects, due to the more limited opportunities for substitution.

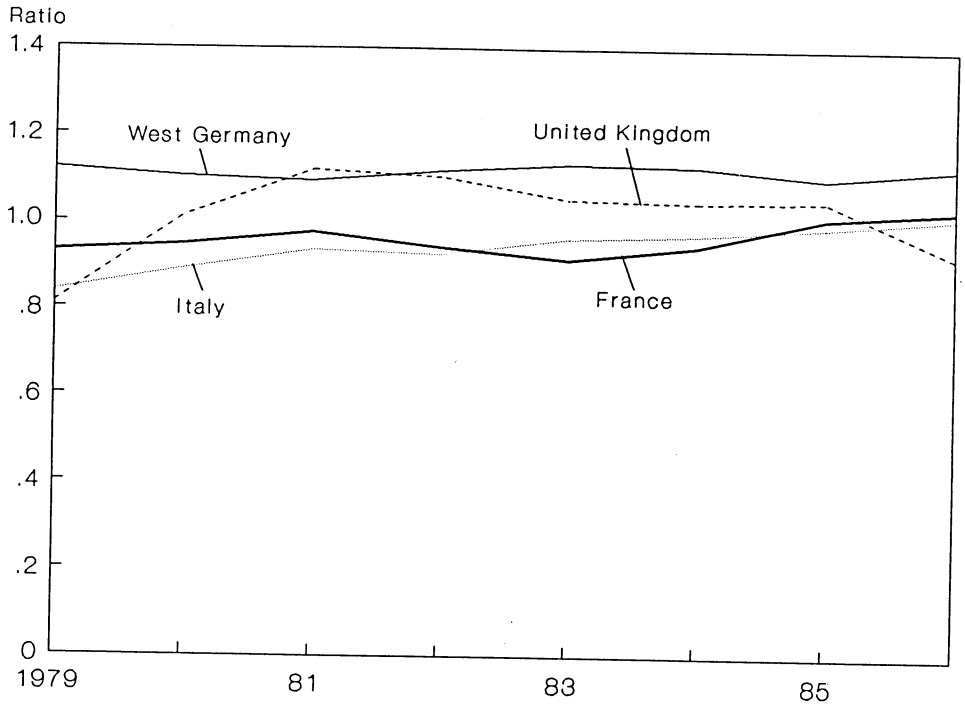
Consider the utility-maximization problem:

$$Max\ U = U(d)\ s.t. \sum_i \lambda_i p_i d_i = B \qquad (5)$$

where d is a vector of consumption levels, and B is the budget constraint.

2/ The model developed in this paper is limited to major West German annual crops only, and cannot address these issues. However, the effects of price changes on the livestock sector and land prices are discussed in a forthcoming extension of the model by Ingco and Larson.

Figure 1
Ratio of green-to-market exchange rates for cereals in selected EC countries



It is clear from (5) that a change in λ will bring about a change in consumption levels through the budget constraint, and, because of relative price changes, will lead to a price effect on demand. However, to the extent that groups of commodities are separable--that is, to the extent that cereal consumption is independent of the price of sugar, or vegetable oils and meals--these effects should be quite limited.

In this paper, total budget expenditures are divided into expenditures for sugar, vegetable oils, cereals, and other goods. While the demand elasticities of substitution among vegetable oils are quite high, under current policies consumers face international price levels that are independent of support prices. Changes in taxes are likely to affect all vegetable oils equally, so relative prices among vegetable oils are not likely to change. The substitution among cereals may be significant, and support prices do effectively determine consumer prices. However, since all cereals face the same green rates within each country, green rate changes will again not affect relative prices. Sugar is a single product and sometimes faces a green rate different from that applied to cereals.

To the extent that relative prices within the three groups do not change, the only price effects of a price change on final demand will come through the substitution among the groups and the income effects. The demand cross-elasticities for sugar, vegetable oils, and cereals will likely be small, if not zero. In wealthy nations where a small portion of income is spent on cereals, vegetable oils, and sugar, the income effects will also likely be small.

The move to a unified market and the abolition of artificial country-specific prices for homogeneous goods should have the following qualitative effects:

- Small changes in final demand with little substitution effects;
- Changes in resource allocations devoted to agriculture among countries, as well as a reallocation of resources within countries among crops; and
- Changes in the value of nontraded inputs, especially land.

The proposed policy changes have potentially large and interesting effects on nontraded assets, such as land and older farmers. However, the effects on resource allocation and the resulting supplies of these goods will potentially have the greatest effects on international markets, particularly in developing countries.

Empirical Model

Applications based on duality results and flexible-form estimates of jointly produced agricultural products have flourished in recent years, and include Ray (1982), Shumway (1983), Lopez (1984), and Lee and Chambers (1986). Moschini (1988) first considered the implications of supply-managed outputs, in addition to fixed inputs, and showed that the restricted profit function given in (1) is nondecreasing in p and in z, nonincreasing in w and in q, positively linearly homogenous in (p,w), convex in (p,w), continuous, and twice differentiable. Because of the constrained output vector q, profits need not be positive.

The SPEL data base that the University of Bonn provided was used to create flexible output- and input-demand groups for cereals (barley, oats, maize, rye, and wheat), oilseeds (rapeseed), nonquota C sugar, fertilizers (nitrogenous, phosphatic, and potassic), energy, and pesticides. The following groups were designated as fixed outputs or inputs: quota sugar (A quota plus B quota), net subsides (subsidies minus taxes), depreciation (on machinery and buildings), and other inputs (based on total input constant-price costs minus explicitly modeled expenditures). The data covered the 1967-87 period. Aggregate quantity and price measures were created using divisia indices.

Following Moschini (1988), the normalized quadratic, first proposed by Lau (1978b) and subsequently applied in profit function estimation by Shumway (1983), was chosen as the postulated functional form. The form allows for negative profits, and has a Hessian of constants so that global convexity can be imposed and tested.

Choosing one of the inputs as a numeraire (we chose energy), let

$$\acute{y} \equiv (y, -x_1, \ldots, -x_{J-1}) \tag{6}$$

represent the netput vector corresponding to the normalized prices

$$\acute{p} \equiv (p, w_1, \ldots, w_{J-1}), \tag{7}$$

obtained by deflating each price by w_j. Defining

$$\acute{z} \equiv (q, z, t), \tag{8}$$

where t is a trend variable representing the state of technology, write the normalized quadratic restricted profit function as:

$$\acute{\pi}(\acute{p},\acute{z}) = \alpha_0 + \sum_i \alpha_i \acute{p}_i + \sum_j \beta_j \acute{z}_j + \tfrac{1}{2}\sum_i \sum_m \; + \tfrac{1}{2}\sum_j \sum_n \beta_{jn} \acute{z}_j \acute{z}_n + \sum_i \sum_j \zeta_{ij} \acute{p}_i \acute{z}_j \tag{9}$$

where i,m = 1,...,M and j,n = 1,...,N; where α_0, α_i, β_j, α_{im}, β_{jn}, ζ_{ij} are fixed parameters. Note that profits are normalized; that is:

$$\acute{\pi}(\acute{p},\acute{z}) = \frac{\pi(p,w,q,z)}{w_J} \tag{10}$$

so that $\Pi(p,w,q,z)$ is linearly homogenous. Symmetry is imposed by setting $\alpha_{im} = \alpha_{mi}$ and $\beta_{jn} = \beta_{nj}$.

The netput functions can be recovered via the envelope theorem:

$$\frac{\partial \acute{\pi}}{\partial \acute{p}_i} = \acute{y}_i = \alpha_i + \sum_m \alpha_{im} \acute{p}_m + \sum_j \zeta_{ij} \acute{z}_j, \tag{11}$$

for each of the M variable netputs.

The M flexible netput equations given in (11) are ideally estimated together with the profit function given in (10). However, including the profit function adds an additional set of parameters corresponding to β_j and β_{jn}, leaving the empirical problem unmanageable. Because of this difficulty, only the M netput equations were estimated. This procedure still allows price and cross-price elasticities to be estimated for all variable outputs and inputs as well as parameters measuring the marginal effects on constrained outputs and inputs on variable netputs.

Lau (1978b) first proposed a nonlinear transformation of the equations in (11), also used by Moschini (1988),

that allows the property of convexity to be directly tested. Letting A represent the M x M matrix of the α_{im} coefficients, the restricted profit function will be convex if A is positive and semidefinite. Since A is symmetric and square, it can be decomposed so that A = LDL', where L is a unit lower triangular matrix and D is a diagonal matrix. The elements of D are called the Cholesky values, which must be nonnegative for A to be positive and semidefinite.

Cholesky factorization renders the equations in (11) nonlinear in their parameters, and stochastic versions of the netput equations as well as their corresponding Cholesky versions were estimated using a maximum likelihood procedure. Justification for this technique is given in Amemiya (1983), Moschini (1988), and Weaver (1983).

Estimation Results

The first two columns of table 1 provide the summary statistics for the model estimated in its base form. The underlying profit function is linearly homogenous in prices, by construction, and symmetry has been imposed. Production is assumed to be joint. Convexity of the underlying profit function has not been imposed at this point. The summary statistics are fairly good, but not greatly revealing. The explanatory power of the equations is uniformly good, and first-order correlation appears to affect only the equation for oilseeds.

Table 2 gives mean-point price and quantity elasticities and the associated asymptotic t-scores calculated from the model.3/ A large number of the elasticities are statistically significant, and many conform to a priori expectations. Contrary to conventional theory, however, the model yields a supply curve for oilseeds that slopes downward in its own price.

Reparameterizing the model using the Cholesky factorization method documented in Lau (1978a) and reestimating the reparameterized model revealed a single significantly negative Cholesky coefficient. The Cholesky coefficients and the associated t-scores are given in the first two columns of table 3. Quasi-convexity of the underlying profit function requires that every Cholesky coefficient be nonnegative. Setting the offending coefficient to zero and reestimating the model a third time produced the second set of elasticities reported in table 4. Once the second Cholesky coefficient has been set to zero, the remaining coefficients are all positive. However, the likelihood ratio statistic resulting from testing the hypothesis that $\delta_{22}=0$ against the maintained hypothesis of an unconstrained value for δ_{22}, is significantly different from zero.4/ Therefore, the data rejected the theoretical assertion of convexity in the profit function.

Setting aside, for the moment, the implications of rejecting convexity in the underlying profit function, the model results are otherwise quite appealing. The statistics of the restricted model are comparable to the earlier results, and the goodness-of-fit as measured by the R^2 remains essentially unchanged (table 1). Most of the mean-point elasticities reported in table 4 are of the correct sign and are significant. As a result of the convexity restriction, all own-price elasticities are of the correct sign, and four of the six are statistically highly significant. Grain, oilseed, and fertilizer use are price-inelastic, while nonquota C sugar exhibits a unitary

3/ Most estimated parameters throughout the paper have been expressed in terms of mean elasticities; the underlying estimates are available on request.

4/ The likelihood ratio statistic is asymptotically distributed as a chi-square variable with degrees of freedom equal to the number of constraints (Gallant and Holly, 1980, or Spanos, 1986). In this case, the number of constraints equals one. Since the LR-statistic = 13.40, while $X^{10.001}$ = 6.635, the constrained model is rejected.

Table 1--Summary statistics for estimated normalized quadratic restricted-profit function, with and without convexity constraint

Dependent variable	Adjusted R^2	Durbin-Watson	Adjusted R^2	Durbin-Watson
	Unconstrained model		*Constrained model*	
Grains	0.84	2.22	0.82	1.94
Oilseeds	.99	3.23	.99	3.04
C-sugar	.83	2.09	.84	2.13
Fertilizer	.95	2.00	.95	1.74
Pesticides	.98	2.20	.97	1.68

Table 2--Supply elasticity estimates at the mean point from estimated normalized, quadratic restricted-profit model

Item	With respect to the price of						With respect to the quantity of					
	Cereals	Oilseeds	C-sugar	Fertilizers	Pesticides	Energy	Quota sugar	Capital	Time	Other inputs	Subsidies	Land
Elasticity of:												
Cereals	0.17 (1.58)	0.07 (3.23)	0.02 (1.74)	-0.25 (-4.43)	-0.04 (-2.59)	0.03 (.27)	0.11 (.77)	0.20 (0.11)	-0.06 (-.22)	0.39 (.35)	0.06 (.49)	0.09 (.02)
Oilseeds	.71 (3.23)	-.79 (-4.90)	-.12 (-9.1)	-.07 (-.27)	-.15 (-1.90)	.42 (3.26)	-.42 (-3.24)	-2.94 (-2.67)	2.27 (14.15)	-.79 (-1.19)	-.30 (-4.42)	3.04 (.83)
C-sugar	1.31 (1.74)	-.62 (-1.91)	.99 (2.24)	-.23 (-.24)	-.31 (-1.38)	-1.13 (-1.81)	-4.44 (-6.57)	15.10 (1.98)	-3.05 (-2.70)	-3.59 (-.78)	.54 (1.13)	-36.41 (-1.47)
Fertilizers	.60 (4.43)	.02 (.27)	.01 (.24)	-.83 (-4.13)	-.14 (-3.34)	.35 (3.72)	.12 (1.69)	-1.44 (-1.86)	.23 (2.04)	.89 (1.92)	.05 (1.00)	4.47 (1.79)
Pesticides	.61 (2.59)	.23 (1.90)	.09 (1.38)	-.93 (-3.34)	-1.01 (-8.47)	1.01 (6.48)	.34 (2.89)	-2.66 (-2.31)	.76 (4.57)	1.20 (1.69)	.06 (.86)	10.67 (2.84)
Energy	-2.93 (-3.97)	-.12 (-.47)	-.20 (-1.03)	3.75 (4.14)	1.12 (5.59)	-1.62 (-2.84)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

n.a. = Not available.
Note: Symmetry and homogeneity are maintained, but convexity is not imposed. T-scores, given in parentheses, are based on asymptotic standard errors.

Table 3--Estimated Cholesky parameters

Parameter	Estimate	t-score	Estimate	t-score
	Constrained		*Unconstrained*	
δ^{11}	0.43	0.80	0.88	1.68
δ^{22}	-.16	-2.09	n.a.	n.a.
δ^{33}	.11	1.57	.09	1.31
δ^{44}	.69	2.43	.40	1.91
δ^{55}	0	-.39	.17	6.38

n.a. = Not available.

Note: LR statistic from the test that $\delta^{22}=0$ against the unconstrained equals 13.40.

price elasticity, and energy and pesticide use are price elastic. Ignoring cross-effects, table 4 suggests that an across-the-board cut in EC support prices in West Germany would not affect production output of the major crops (cereals and oilseeds) in the short run, but would have a larger effect on variable inputs, such as pesticides and energy.

Jointness in Production

Inherent in the model is the assumption of jointness in crop production. The assumption implies that various production activities are not independent operations, but rather production and input decisions concerning one output influence on the production of other outputs. This can rise from joint economies (land rotation, for example) or from shared fixed resources. The assumption is intuitively appealing because, in the aggregate, much of the farmland in West Germany is suitable for a number of crops.

From a policy analysis perspective, jointness in crop production has important implications, since policies specifically targeting one crop will have direct spillover effects for other crops. From a modeling perspective, jointness in production adds a large number of cross-terms, complicating the practice of recovering elasticities, and thereby reducing the degrees of freedom for a fixed sample of data. Econometrically, the implication is for less-efficient estimators, especially in the presence of multicollinearity.

In the context of the present model, jointness in production has two implications. The first is the general notion that unrestricted supplies are independent of output prices and supply-managed outputs of other crops. Nested in this general notion is the specific claim that the supplies of grains, oilseeds, and nonquota sugar are independent of quota-sugar production. The first hypothesis can be tested against the maintained hypotheses of the base model by restricting nine of the cross-elasticities to zero. Testing the second notion requires restricting three of the parameters to zero. The results given in table 5 indicate that both alternative models of nonjointness can be rejected with a high degree of confidence.

The strong indication of jointness in West German agricultural production implies that sugar production quotas not only create the direct inefficiencies associated with sugar production, but also cause distortions in the grain and oilseed markets. These distortions come primarily in the form of less-than-optimal production levels, and secondarily, through misallocation of variable inputs.

Dynamic Production

The static optimization problem gives rise to many of the properties of the restricted profit function and the derived supply- and input-demand schedules. For a given state of available technology and fixed inputs, the farmer is hypothesized to optimize his profits for a single period. While the mathematical translation of proposed economic activity is somewhat stylized, this standard assumption is perhaps most applicable to the West German farmer growing annual crops who knows, with limited uncertainty, the price he will receive for his produce, and who is free to adjust his crop-mix at the beginning of every season.

The implication of static optimization is that decisions this year are independent of last year's decisions, exclusive of net changes in fixed assets, such as capital. Adding a vector of lagged-endogenous variables to the model and testing the significance of the addition can directly test this assumption. Table 6 presents the results of such a test.

The static-independence hypothesis is rejected with a high level of confidence. Unfortunately, while single-period optimization would suggest that lagged-endogenous variables should not be significant, the significance of the lagged variables does not, in itself, imply any specific alternative theory. Epstein (1981), Chambers (1982), and Chambers and Lopez (1984) have derived dynamic alternatives to the static model, but empirical applications have been quite limited. The inclusion of dynamic elements in agricultural production currently remains an ad hoc procedure.

Table 4--Supply elasticity estimates at the mean point from estimated normalized quadratic restricted-profit model under convexity assumption

Item	With respect to the price of						With respect to the quantity of					
	Cereals	Oilseeds	C-Sugar	Fertilizers	Pesticides	Energy	Quota-sugar	Capital	Time	Other Inputs	Subsi-dies	Land
Cereal	0.40 (4.09)	-0.04 (-2.04)	0.01 (.64)	-0.21 (-2.88)	-0.6 (-3.10)	-0.10 (-1.10)	0.04 (0.23)	1.18 (1.36)	-0.13 (-.73)	-0.11 (-.18)	0.04 (.41)	-0.71 (-1.50)
Oilseeds	-.46 (-2.04)	.05 (.98)	-.01 (-0.63)	.24 (1.53)	.06 (1.41)	.12 (1.65)	-.04 (-.33)	-3.62 (-2.61)	2.54 (12.11)	-.56 (-.66)	-.21 (-2.35)	11.83 (2.61)
C-sugar	.58 (.64)	-.06 (-.63)	1.00 (2.37)	.06 (.06)	-.17 (-.68)	-1.41 (-2.31)	-4.25 (-6.74)	15.64 (2.22)	-3.00 (-2.85)	-3.92 (-.91)	.59 (1.29)	-31.70 (-1.42)
Fertilizers	-.50 (-2.88)	.05 (1.53)	.00 (.06)	-.60 (-3.05)	-.13 (-2.69)	1.16 (2.94)	.08 (1.12)	-1.19 (-1.50)	.20 (1.71)	.77 (1.61)	.04 (.78)	3.78 (1.47)
Pesticides	-.90 (-3.10)	.10 (1.41)	-.05 (-.68)	-.83 (-2.69)	-1.04 (-8.65)	2.72 (4.21)	.19 (1.61)	-2.31 (-1.74)	.67 (3.46)	1.06 (1.30)	.02 (.25)	7.61 (1.79)
Energy	.39 (.76)	-.04 (-.59)	-.09 (-1.04)	2.76 (2.98)	1.08 (4.68)	-4.10 (-3.00)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

n.a. = Not available.

Note: Symmetry and homogeneity are maintained, and convexity is imposed. T-scores, given in parentheses, are based on asymptotic standard errors.

The Significance of Pricing Policies

Before proceeding to the effects of pricing and quota policies, we ask a more general question: Do prices matter in the short run? The existence of shortrun price effects are generally taken as an article of faith among economists, however, policymakers do not always share this belief. In the context of the model, constraining the parameters on all variable inputs and outputs to zero can test the significance of shortrun price effects. Table 7 gives the summary statistics resulting from a model that binds the price parameters to zero, along with results from a model used to test the opposing extreme hypothesis that only prices matter. The LR-statistics for tests of the hypotheses against the maintained base-model assumptions are given in a footnote to the table.

Dropping the price variables on all variable inputs and outputs from the model has a negligible effect on the summary statistics. The adjusted R^2's drop slightly, and the DW-statistic improves for the oilseed equation. The same is not true when the fixed supply and input variables are dropped from the equation; the explanatory power drops significantly for all equations and the DW-statistics deteriorate.

However, the original model performs significantly better than either of the alternative models (table 8). Both the hypothesis that prices do not matter and the hypothesis that only prices matter can be rejected with high degrees of confidence.

Measures of Bias in Resource Allocation

In a multiple-output model of agricultural production, direct indicators of resource misallocation can be recovered from the estimated parameters. Following Lau (1978a), Weaver (1983), and Moschini (1988), indirect Hicks' neutrality is defined as the following condition:

$$\frac{\partial(\acute{y}_i/\acute{y}_m)}{\partial \acute{z}_n} = \frac{\acute{y}_i}{\acute{y}_m \acute{z}_n}(\eta_{in}-\eta_{mn}) = 0, \qquad (12)$$

where (i,m) represent any pair of variable netputs, and η_{sn} is the sth variable quantity (s=i,m) with respect to the fixed factor. Note that when indirect Hicks' neutrality holds, fixed inputs or supply quotas do not affect the ratio of unconstrained production or input-demand quantity choices. Also, one can apply the same

Table 5--Likelihood ratio statistics for nonjointness tests

Test	LR Statistics	Critical $X_{0.01}$
Nonjointness	35.95	21.66
Nonjointness for sugar quota	29.39	11.34

Table 6--Test statistics on significance of lagged endogenous variables

Lagged endogenous variable	Parameter estimate	T-score
Grains	-0.24	-0.92
Oilseeds	-.52	-4.43
C-sugar	.47	5.68
Fertilizers	.26	1.22
Pesticides	.47	13.08

Note: The LR-statistic testing the hypothesis that all five parameters equal zero is 110.69; since X = 15.086, the hypothesis is rejected.

Table 7--Summary statistics for estimated normalized quadratic restricted-profit function, assuming that prices do not matter, and the alternative that only prices matter

	Prices do not matter		Only prices matt	
Dependent variable	Adjusted R^2	Durbin-Watson	Adjusted R^2	Durbi Wats n
Grains	0.83	2.22	0.57	0.87
Oilseeds	.98	2.21	.09	.19
C-sugar	.80	1.67	.55	1.47
Fertilizer	.92	1.77	.77	.59
Pesticides	.92	1.12	.67	.37

Note: Both alternative hypotheses, that the coefficients on all price variables equal zero, and alternatively, that the coefficients on all nonprice variables equal zero, were rejected with a high degree of confidence. The LR-statistic based on the test that all price-coefficients equal zero was 67.62, compared with the critical value $X^{15}=30.58$, while the LR-statistic associated with the alternative only-price-matters hypothesis was 199.7, compared with a critical value, $X^{30}=50.892$.

condition to the technology variable to measure biasing effects in technology. Defining the bias measure:

$$B^{n}_{im} \equiv (\eta_{in} - \eta_{mn}). \qquad (13)$$

The constraining level of ź does not bias the mix between two netputs when $B^{n}_{im} = 0$. When $B^{n}_{im} > 0$, the constraint biases the ratio in favor of netput i and against netput m; when $B^{n}_{im} < 0$, the constraint generates a bias against netput i and toward netput m.

Table 8 provides the estimated pairwise measures of bias derived from the indirect Hicks' neutrality condition and the asymptotic t-scores. Perhaps surprisingly, a large number are highly significant.

Changes in the sugar quota levels would substantially alter the production mix away from C sugar and in favor of oilseeds and cereals. The ratios of C-sugar production compared with pesticide and fertilizer demand would also decline. These results seem logical, as an increase in the quota would primarily shift C-sugar production into quota-sugar production, rather than generally increase both types of sugar production. Changes in the quota allocation would have little effect on the mix between oilseeds and cereals. A decline in existing capital would decrease C-sugar production compared with that of cereals and oilseeds, and cereals production compared with that of oilseeds. Changes in technology at the mean point generate a bias in favor of oilseeds over cereals, and a greater use of fertilizers and pesticides compared with cereal output. A general increase in land availability would appear to primarily favor oilseeds. The biases that net subsidies (subsidies minus taxes) generate are not large, but create a significant bias in favor of sugar production compared with cereal and oilseed production, and also create a small bias in favor of cereals over oilseeds.

The Effects of Abolishing Green Rates

Six years (crop years 1980/81-1985/86) of EC crop production were simulated under two scenarios to quantify the effects of eliminating the policy-determined difference between market and agricultural green rates. Under the baseline scenario, prices were kept at historic levels. Under the second scenario, policy prices were reproportioned to reflect market exchange rates. This assumption is extreme, and either offsetting direct payments to farmers or generally revising policy prices upward will more likely accompany a policy that eliminates green rates. However, simulations of the extreme case reinforce the general conclusion that shortrun production effects resulting from the policy will be quantitatively small.

Table 9 provides the policy exchange rates for rapeseed and cereals, the market exchange rates, and the changes in policy prices that setting green rates equal to market rates implied for the period under consideration. Under the second scenario, the effects of the changes in policy prices on farm prices were assumed to translate as follows: Since C sugar must be exported at international prices, eliminating green rates would have no direct effect on prices farmers received; since green rates are applied directly to intervention prices for cereals, eliminating green rates would reduce cereal prices by the full 9-10 percent given in table 10; since green rates are applied only to the crushing-subsidy portion of the rapeseed price, roughly 50 percent of the policy price change would be passed on to farmers.

The results of the earlier sections create a dilemma when choosing the appropriate model to simulate the policy changes. The data support the hypotheses that prices matter in the short run, and that West German agriculture exhibits jointness in production, and all estimated models reported earlier explain a large portion of the deviation in the data. At the same time, the data did not support the hypothesis of quasi-convexity in the underlying restricted profit function, nor did it support the insignificance of lagged dependent variables implicit in a static-optimization problem.

Under the working assumption that it is generally best to impose theory on the data, table 10 reports the results of the quasi-convex restricted profit-function model. Hedging all bets, we also report simulation results from the model without convexity restriction, and the dynamic version of the model.

Two general conclusions emerge across all three simulations. The first is that substantial reductions in support prices through a reduction of green rates will have a quantitatively negligible effect on crop output. Recall that the models fit very well, explaining 80-90 percent of the deviations in the underlying data, so the simulated differences in supplies and input demand remain within a reasonable range of model error, ranging from 0 to 7 percent. The result stems from the low price elasticity for cereals and from the uneven way in which green rates affect the three crops modeled. The price changes that eliminating green rates caused are only partially passed on to oilseed prices (via the crushing subsidy); nonquota C-sugar prices are unaffected; and while cereal producer prices receive the full effects of the policy revision, cereal supplies are inelastic in the short run.

Table 8--Estimated pair-wise measures of bias for constraining variables at the mean point

Netput pair	Sugar quota		Capital		Technology		Other inputs		Land		Net subsidies	
	Estimate	t-score	Estimate	t-score	Estimate	t-score	Estimate	t-score	Estimate	t-score	Estimate	t-score
Cereals/oilseeds	.078	0.410	4.800	3.018	-2.671	-10.106	0.450	.443	-12.538	-2.783	.256	1.956
Cereals/C-sugar	4.289	7.237	-14.457	-2.076	2.861	2.796	3.806	.906	30.984	1.386	-.542	-1.255
Cereals/fertilizers	-.041	-.229	2.374	1.986	-.334	-1.527	-.880	-1.101	-4.493	-1.707	.006	.053
Cereals/pesticides	-.152	-.779	3.491	2.206	-.807	-3.063	-1.168	-1.141	-8.323	-1.929	.024	.180
Oilseeds/cereals	-.078	-.410	-4.800	-3.018	2.671	10.106	-.450	-.443	12.538	2.783	-.256	-1.956
Oilseeds/C-sugar	4.211	6.575	-19.257	-2.666	5.532	5.153	3.357	.776	43.522	1.896	-.799	-1.721
Oilseeds/fertilizers	-.118	-.829	-2.426	-1.526	2.337	9.849	-1.330	-1.372	8.044	1.566	-.250	-2.471
Oilseeds/pesticides	-.230	-1.141	-1.308	-.580	1.864	5.552	-1.617	-1.170	4.215	.578	-.232	-1.628
C-sugar/cereal	-4.289	-7.237	14.457	2.076	-2.861	-2.796	-3.806	-.906	-30.984	-1.386	.542	1.255
C-sugar/oilseeds	-4.211	-6.575	19.257	2.666	-5.532	-5.153	-3.357	-.766	-43.522	-1.896	.799	1.721
C-sugar/fertilizers	-4.330	-6.888	16.831	2.388	-3.195	-3.047	-4.686	-1.097	-35.478	-1.593	.549	1.208
C-sugar/pesticides	-4.441	-7.293	17.948	2.634	-3.668	-3.614	-4.974	-1.204	-39.307	-1.827	.566	1.290
Fertilizers/cereals	.041	.229	-2.374	-1.986	.334	1.527	.880	1.101	4.493	1.707	-.006	-.053
Fertilizers/oilseeds	.118	.829	2.426	1.526	-2.337	-9.849	1.330	1.372	-8.044	-1.566	.250	2.471
Fertilizers/C-sugar	4.330	6.888	-16.831	-2.388	3.195	3.047	4.686	1.097	35.478	1.593	-.549	-1.208
Fertilizers/pesticides	-.112	-1.395	1.117	1.233	-.472	-3.604	-.288	-.502	-3.829	-1.341	.017	.315
Pesticides/cereals	.152	.779	-3.491	-2.206	.807	3.063	1.168	1.141	8.323	1.929	-.024	-.180
Pesticides/oilseeds	.230	1.141	1.308	.580	-1.864	-5.552	1.617	1.170	-4.215	-.578	.232	1.628
Pesticides/C-sugar	4.441	7.293	-17.948	-2.634	3.668	3.614	4.974	1.204	39.307	1.827	-.566	-1.290
Pesticides/fertilizers	.112	1.395	-1.117	-1.233	.472	3.604	.288	.502	3.829	1.341	-.017	-.315

Note: t-scores are based on asymptotic standard errors.

Table 9--Effect of abolishing green rates on West German policy prices

Crop year	Green rate: Rapeseed	Green rate: Cereals	Market rate	Change in effective policy prices 1/: Rapeseed	Change in effective policy prices 1/: Cereals
	----------DM/ECU----------			------Percent------	
1980/81	2.752	2.752	2.518	-9.3	-9.3
1981/82	2.657	2.657	2.434	-9.2	-9.2
1982/83	2.575	2.575	2.315	-11.3	-11.3
1983/84	2.515	2.528	2.252	-11.7	-12.3
1984/85	2.450	2.453	2.231	-9.8	-9.9
1985/86	2.385	2.398	2.169	-10.0	-10.5

1/ No change for C-sugar.
Source: Herlihy and others, Agricultural Statistics of the European Community, 1960-85, USDA, ERS, Statistical Bulletin No. 770, 1989.

Table 10--Simulated annual percentage changes in selected variables under a no-green-rate scenario

Variable	Mean change	Standard deviation of change	Minimum change	Maximum change
		Percent		
		Convexity imposed		
Supplies of:				
Cereals	-1.70	0.25	-2.04	-1.39
Oilseeds	1.80	.58	1.01	2.59
C-sugar	-3.13	1.24	-5.51	-2.08
Input demand for:				
Fertilizer	-2.20	.33	-2.69	-1.81
Pesticides	-3.30	.59	-4.25	-2.58
		Convexity not imposed		
Supplies of:				
Cereals	-.88	.13	-1.07	-.71
Oilseeds	-1.59	.53	-2.38	-.88
C-sugar	-5.60	2.31	-10.10	-3.77
Input demand for:				
Fertilizers	-2.89	.44	-3.56	-2.38
Pesticides	-2.81	.53	-3.66	-2.20
		Dynamic model		
Supplies of:				
Cereals	-.56	.09	-.70	-.46
Oilseeds	-.25	.11	-.44	-.13
C-sugar	7.79	4.49	4.71	16.22
Input demand for:				
Fertilizers	-3.23	.59	-4.12	-2.46
Pesticides	-4.31	1.26	-5.92	-2.44

The second result consistently reported across all three scenarios is that eliminating green rates, with the consequential reduction in cereal and oilseed producer prices, will reduce fertilizer and pesticide applications as well as application rates. To the extent that fertilizer runoff and pesticide use generate negative externalities, eliminating West German green rates will result in positive environmental gains, producing effects beyond the normal consumer and producer welfare changes.

The three simulations offer conflicting results as to the relative changes among the crops. Under the convex-static model simulation, cereal production declines, while substitution effects dominate in oilseeds, leading to a small increase in production.

In the unrestricted version of the static model, production of all three crops declines. In the dynamic version of the unrestricted model, price cuts in oilseeds and cereals reduce the production of those crops and the substitution of productive resources into C-sugar.

Conclusions

The empirical work presented in this paper indicates that the shortrun production effects of eliminating green rates on supply and input demand for cereals, oilseeds, and sugar in West Germany would be relatively small. Despite some savings from reduced input applications, the net effect will therefore be a reduction in farm income. The price effects and the resulting income effects will be disproportionately distributed among producers, conversly reflecting the disproportioned benefits of the current system.

Producers of cereals have the most to lose by the change. At the same time, the analysis convincingly supports the notion that crop production in the EC is joint, and that policies aimed at one sector of agriculture have created secondary results in other markets. The quota for sugar perhaps best exemplifies how a policy aimed at one crop in agriculture spills over into production decisions for other crops. In addition, other policy interventions, such as tax-code provisions and direct subsidies, are also shown to create distortions.

Policy interventions that have remained in place for a number of years distort the accumulation of fixed resources, which have lasting effects. The empirical results indicate that distortions, generated by the inappropriate accumulation of capital, also generate biases.

The results generally show that the immediate efficiency gains resulting from supply changes are quite limited compared with the immediate costs, in terms of price and income reductions, that West German farmers face, despite substantive indications of resource misallocations. Therefore, the prospects of long-term efficiency gains must motivate policymakers to undergo a difficult period of adjustment in the short run.

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APPENDIX A: The Effects of a Currency Realignment on Relative Prices

Consider two crops, rapeseed and wheat, in the UK facing a currency devaluation of 20 percent, where:

Pre-devaluation:

Wheat target price	357.7 ECU
Rapeseed target price	464.1 ECU
Representative world price	183.5 ECU
Rapeseed production aid	280.6 ECU

Converting prices to the national currency:

Green rate	0.61865
Market rate	0.66899

Rapeseed world price (183.5 * 0.66899)	122.73
Rapeseed production aid (280.6 * 0.61865)	173.59
Rapeseed target price in national currency	296.32

Wheat target price in national currency (357.7 * 0.61865)	221.29

Post-devaluation:

Rapeseed world price (183.5 * 0.80279)	147.32
Rapeseed production aid (280.6 * 0.61865)	127.23
Rapeseed target price in national currency	274.55

Wheat target price in national currency (357.7 * 0.61865)	221.29

Conversion of world prices for rapeseed at market exchange rates allows the full effects of the devaluation to be translated into the national currency. Rapeseed production has become more attractive, due to higher output prices (expressed in the national currency), compared with wheat.

Source: CAP Monitor

APPENDIX B: Calculation of Monetary Differential Amounts (MDA's)

1. Rapeseed target prices and published rates of aid (ECU/100kg) on 02/15/85:

Target price	Aid	World price
50.38	11.04	39.340

2. Exchange Rates for UK and West Germany:

The UK green pound is worth more than the market rate of the pound, and the German green mark is worth less than the market rate, against the ECU.

UK green rate	1 ECU = £0.618655 or £1 = 1.61641 ECU
UK agricultural market rate	£1 = 1.58691 ECU ÷ 1.033651 (CRCF-coefficient)1/
Therefore	£1 = 1.53525 ECU

West German green rate	1 ECU = DM 2.38516 or DM 1 = 0.41926 ECU
West German agricultural market rate	DM 1 = 0.446062 ECU ÷ 1.033651 (CRCF-coefficient)
Therefore	DM 1 = 0.43154 ECU

3. Calculation of rapeseed subsidy in national currency without MDA adjustment:

	UK	West Germany
Target price (50.38*green rate)	£31.17	DM 120.16
Aid (11.04*green rate)	£6.83	DM 26.33
Net cost in national currency	£24.34	DM 93.83
Net cost in ECU	37.39 ECU	40.49 ECU
World price	39.34 ECU	

Without MDA adjustment, UK rapeseed is cheaper to UK crushers than is West German rapeseed to West German crushers. The net cost in the UK is below the world price, so the subsidy is too high, and vice versa for West Germany.

4. Calculation of the basic MDA percentages:

MDA percentages equal the percentage divergence of green rates from agricultural market rates:

1/ The coefficient represents a central rate-correcting factor. Starting in the marketing year 1984/85, for each product, a coefficient (central rate-correcting factor) is applied in agrimonetary calculations, including MCA/MDA's. This is equivalent to revaluing the ECU for agricultural purposes, and cuts positive MCA's at the expense of increasing negative MCA's. The central rate-correcting factor is adjusted following EMS realignments.

UK MDA percent = 1 - (1.61640 ÷ 1.53525)
* 100 percent = -5.286 percent
German MDA percent = 1 - (0.41926 ÷ 0.43154)
* 100 percent = 2.846 percent

If the MDA differs by less than 1 percentage point from the existing MDA, the existing MDA continues to apply.

5. Application of MDA's to current (spot) rates of aid:

The basic MDA percentage is applied to both the target price (first element) and to the unadjusted rate of aid (second element). If the MDA is positive, it is positive on the target price and negative on the aid; if the MDA is negative, then the reverse occurs.

	UK	West Germany
Target price	£31.17	DM 120.16
Aid	6.83	26.33
MDA first element	- 1.65	3.42
MDA second element	0.36	- 0.75
MDA adjusted aid	5.54	29.00
Net cost in national currency	25.63	91.16
Net cost in ECU converted at agricultural market rates	39.34 ECU	39.34 ECU

Where the seed is crushed in a member state other than the one in which it was harvested, the rate of aid is converted using the rates published in the Official Journal.

If UK rapeseed was crushed in Germany, then the aid in DM would be:

UK adjusted aid is:	£5.54
÷ bilateral £/ECU rate:	0.618334
* bilateral DM/ECU rate:	2.22732 = DM 19.95

Note that this is less than the aid in DM for West German-produced rapeseed, because the green rate support system currently means that UK rapeseed prices are lower than those in West Germany.

Source: CAP Monitor

The Effects of the Integration of East Germany on the CAP: First Calculations and Indications

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Abstract

The five East German Lander bring to the newly unified Germany some of the largest farms in Europe. Much of that agricultural sector, however, lacks current technology and is populated by too many individuals who do not have the skills, financial means, or inclination to be self-employed entrepreneurs. The future composition of the East German farm sector will probably include not only family farms but also various types of corporations and cooperatives that will be among the largest farms in the western world. The starting points for restructuring that sector will include reducing the labor force by retraining and early retirement programs, modernizing technology by offering investment subsidies, improving product quality to become competitive in domestic and foreign food markets, and retiring marginal agricultural land through set-aside programs.

Introduction

German unification and the integration of the five states of the former German Democratic Republic (GDR) into the European Community (EC) is an issue of fundamental political and economic importance. The effect of German unification on agricultural markets and the Common Agricultural Policy (CAP) is only a partial aspect of its fundamental importance, and its effects on agricultural policy and markets might be larger than expected on first glance.

German unification will influence the CAP and international agricultural trade and agricultural policy in the following ways: There will be direct effects on production, demand, and net trade; the emergence of large-scale farming in parts of Germany might influence EC agricultural policy formation; and the experience gained from the political and economic reforms in East Germany will affect the reform process in East European countries.

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To analyze and discuss these issues, a look at the position of East German agriculture and the institutional and structural changes that confront it is useful.

The Organization of Agriculture in the Former German Democratic Republic

The former GDR is divided into farms and the State Planning System. A review of each sector depicts the state of GDR agriculture prior to German unification.

Farm Structure

The farm structure in the former GDR results from a conscious policy of the collectivization and industrialization of agricultural production that has been pursued with increasing intensity for nearly four decades. An enforced collectivization of individual farms during the 1950's created the agricultural producer cooperatives. These cooperatives became the dominant farm type in East Germany, covering 86.4 percent of GDR agricultural land by 1989. Further, the

government seized large agricultural holdings (more than 100 hectares) during the 1945-49 period of land reform that were later turned into public property (so-called public-owned farms), which constitute 7.3 percent of GDR agricultural land. Individual farming and household production have only minor importance in GDR agriculture.

In pursuing the ideological goals of industrializing agricultural production and creating a socialistic type of production and way of life, mergers increased the size of the cooperatives, and to some extent, the state farms. In the final stage, plant and animal production were divided and concentrated in separate types of agricultural holdings. As a result, extremely large and highly specialized agricultural holdings have been created in the former GDR. By 1989, 3,855 producer cooperatives and 465 state farms had been established, and had specialized in either plant or animal production (table 1).

The average labor force per holding in crop production is about 350 people, compared with 120 people for animal production. However, only about 60 percent of this labor force is directly employed in agricultural production; the rest are engaged in activities around agriculture, such as building and construction, repair services, and social services that rural communities usually supply.

The State Planning System

Basic allocational and distributional decisions in the state trading system were made within a centralized planning process. The agricultural holdings depended on the allotted production and investment goods, which had to meet stringent delivery norms. Fixed output and input prices only had the character of accounting prices, whereby producer prices were based on production cost calculations. Wages of the members of the cooperatives and other farmworkers were mainly oriented to labor norms for different qualifications, and depended very little on the profitability of the holding. Members of cooperatives also received some remuneration for the land and capital they had brought in, but these payments became increasingly less important.

Farm holdings making high profits under the prevailing price and wage conditions had to pay correspondingly high levies, while those making losses got compensation payments. Holdings under favorable production conditions thus had little incentive to exhaust their potential, while inefficient holdings could stay in production, even under very marginal conditions.

Fundamental Changes: Integration in the West German Market Economy and Adjustment to the CAP

Political needs dictated the speed of unification, which had dramatic implications for German markets. The integration of an inefficient socialist agriculture into the CAP also complicated the adjustment process.

The Dynamics of the Political Process Toward Unification

Many political and personal factors had to fit together to enable German unification. For most observers, the accelerating rapidity of change was the most astonishing feature of the unification process. In contrast to usual political processes, most steps were taken much faster than envisaged and scheduled. This rapidity soon pushed the political process to a point of no return, but at the same time, caused huge economic and social problems. An economist might ask (also looking to other East European countries) whether this rapidity of change was unavoidable, or whether the steering of a slower path might have been possible.

In the German case, there was no choice after the Berlin Wall fell, and any consideration on limiting personal mobility between both parts of Germany had to be excluded for political reasons. The large-scale outmigration from the GDR necessitated immediate political action to improve the economic prospectives for the people in East Germany. The first decisive step was the creation of the Economic and Monetary Union on July 1, 1990, when the market system, including the West German mark, was introduced. This was accomplished during a period of drastic daily changes in the East German economic situation.

The resulting economic and social dislocations for most of the population called for large income transfers and structural adjustment measures, far beyond the financial and political capacities of the GDR Government. The inevitable consequence was a headlong drive toward political unification, realized on October 3, 1990.

Under the unification treaty, the former GDR (Neue Bundesländer, or Lander) became part of the Federal Republic of Germany (FRG). The entire FRG legal and institutional framework, including the approved monetary system, came immediately into operation. This unification has a number of unique advantages not available to other reforming countries; East Germany does not have to deal with balance of payment

Table 1--Number and average size of agricultural holdings, 1989

Type	Holdings	Average size		
		Holdings	Livestock 1/	Employees 2/
	Number	*Hectares*	- - - - - *Number* - - - - -	
Cooperatives:				
Plant production	1,159	4,568	N.A.	350
Animal production	2,696	30	1,500	120
State farms:				
Plant production	79	5,020	N.A.	N.A.
Animal production	311	165	2,000	n.a.

N.A. = Not applicable.
n.a. = Not available.
1/ 500 kg. liveweight.
2/ Full-time work equivalent.

problems, the entire unified society must bear budget deficits, and, of greatest significance, the well-established FRG social security net cushions the burdens of the structural adjustment process. Unification implies large transfer payments from the FRG to the former GDR until economic growth fills the public coffers. These factors enable the new German States to embark on a rapid path of structural adjustment.

Global Sectoral Evaluation Reveals High Inefficiency

The integration of the East German States into the FRG means not only the transition to a market economy, but also an abrupt change of the agricultural price structure. Compared with EC prices, GDR agricultural producer prices were much higher (table 2), while the food prices were much lower. These results are based on an exchange rate of 1:1 between West German Deutsche marks (DM) and East German marks (M), which later became the official exchange rate at the start of the currency union. Table 2 shows the differences of price levels and ratios for FRG and GDR agricultural commodities in 1988, the last undistorted year before unification (Henrichsmeyer, 1990).

The magnitude of the inefficiency and structural adjustment problems of GDR agriculture becomes obvious if one evaluates the input and output quantities of GDR agriculture in FRG market prices. Computations based on a differentiated simulation and monitoring system for GDR agriculture show that the sectoral gross value added shrinks (without allocational adjustments) to a fraction of its former value (table 3). This amount would be sufficient to pay only about a third of the wages of presently engaged farmworkers, not considering interest payments, depreciation, taxes, and other expenses.

For analytical and comparison purposes, wages in DM are assumed to maintain the same nominal level as in East German marks. While the purchasing power of most industrial goods in the east is much greater after unification, higher prices for food, housing, medical service, and social security, particularly for low-income households, more or less offset the increase in purchasing power. Therefore, the previous nominal wages can be viewed as a form of minimum wage, and were, in fact, established as minimum wages in 1990.

This low value added indicates that East German agriculture, in its present institutional setting and organization, is highly inefficient. The manifold sources of inefficiency include deficiencies of the state planning system, meager economic incentives, and unavailability of modern production technology. The results are low yields, high production costs, and overstaffing on the labor side, especially in administration.

Overstaffing is often assumed to be the only reason for the low productivity of large-scale agriculture in East Germany. But a comparison of the value added and the total wages shows that even cutting the labor force by half would not produce a reasonable productivity level and per capita income. Thus, other factors must also be important.

Table 2--Producer prices for agricultural commodities in 1988

Commodity	Federal Republic of Germany (FRG)	German Democratic Republic (GDR)
	DM per 100 kg 1/	*M per 100 kg* 2/
Wheat	3,860	6,754
Barley	3,570	6,307
Oilseeds	7,780	15,980
Potatoes	1,660	5,104
Milk	6,620	16,969
Eggs	1,444	3,682
Pork	20,400	78,673

1/ DM denotes West German Deutsch marks.
2/ M denotes East German marks.
Source: Statistical yearbooks of FRG and GDR.

Table 3--Gross value added of German Democratic Republic (GDR) agriculture at both GDR and Federal Republic of Germany (FRG) prices

Item	GDR prices, 1986-89[1]	FRG prices, 1990
	Million marks	*Million Deutsche marks*
Value of production	78,174	32,160
Intermediate input	49,428	29,164
Gross value added	28,746	2,996
Subsidies/indirect taxes	210	210
Depreciation	3,123	3,123
Interest payments	1,356	1,356
Wages	8,617	8,617
Net income[2]	15,540	-10,310

[1]Output and input quantities. Prices are averages for the 1986-89 period.
[2]Net income includes payments to funds of different types (for example, social and reserve funds) and taxes.

Principles of Agricultural Adjustment Policy

The main aim of structural adjustment policy is to increase productivity in the farming sector. A more efficient farm sector will improve the income and liquidity situation of the farm holdings, which high transfer payments from the German budget presently stabilize.

Institutional Reforms

The key to higher efficiency in East German agriculture lies in institutional reform. The prevailing farm types are highly specialized, with large production cooperatives and state farms. According to worldwide experience, production cooperatives and state farms have many deficiencies, including (1) insufficient economic incentives to individual members; (2) difficulties adjusting the labor force to changing conditions; (3) low propensities for savings and investment; and (4) an unnecessarily complicated and expensive hierarchical decision structure.

In East Germany, the ideologically based differentiation of plant and animal production and oversized production units have contributed to low productivity and have created serious environmental problems. For these and other reasons, the East German producer cooperatives and state farms are highly inefficient. Therefore, institutional changes are generally acknowledged to be unavoidable. However, the question remains as to what new structures will replace the old ones.

In the unification treaty, two principal points have been decided: individual ownership rights shall be reestablished; and the different forms of agricultural holdings (family farms, new types of cooperation, and other legal forms of corporations) should have a fair chance in competition. In this context, the existing tax rules and criteria for agricultural support measures are of great importance.

In the present debate, improved cooperatives and family farms are in the foreground of political discussion, and are of particular concern to members of the production cooperatives. The argument for family farming is that this type of farm has been the most competitive type in Western market economies. On the other hand, the transaction costs to transform the present production cooperatives and state farms into family farms would be high, and many farm workers in East Germany do not have the skills, financial means, or inclination to become self-employed enterpreneurs.

A functionally differentiated farming structure has been proposed, in which family farms, different types of

legal corporations, and cooperatives all have their places (Henrichsmeyer, Bose, and Welschof, 1990). Functions of the cooperatives would be reduced to those areas where they have proven successful, such as supplying the means of production, marketing, storage, processing, and so forth. Family farms and personal partnership companies would prevail in agricultural production. Separate private enterprises (repair service, building, and others) could take over the other activities that producer cooperatives have fulfilled thus far, while most of the sociocultural activities and duties in the infrastructure field would be transferred to the newly reestablished rural communities.

Structural Adjustment Measures

Because of the depressed farm income situation and the urgent problems of liquidity, proposals centered around general types of direct income transfer measures during the first phase of integration. However, direct income transfers slow structural adjustments and conserve the existing inefficient farm structure. The policy debate is concentrating on designing a mix of reforms that would encourage the needed structural adjustments, while assuring socially acceptable minimum standards of living for the people in rural areas. The major directions of the proposed (already partially implemented) structural adjustment policies include:

- **Reduction of the farm labor force by retraining, early retirement, and unemployment programs.** These measures point allocationally in the right direction, contribute immediately to an alleviation of the income and liquidity situation, and can be implemented quickly. This has been the most important category of policy measures in the first phase, except for direct liquidity payments, and has reduced the agricultural labor force by about 25 percent in 1990.

- **Conversion of marginal agricultural land.** In the drive for a high degree of food self-sufficiency, the former GDR Government extended agricultural land use to extremely marginal areas, and distorted land use in other locations. The changed agricultural price structure provides incentives for the conversion and idling of agricultural land through set-aside and conversion (afforestation) programs. These measures can be implemented rapidly, and have the positive side-effect of transferring income to marginal rural areas. The area of cultivated land was reduced by about 8 percent in 1990, and is estimated to reach 25 percent in the medium to long term.

- **Modernization of farm equipment and buildings.** Unconditioned investment subsidies would conserve the existing structures, while more selective measures require a clear view of the future types of farming, which have not yet been politically determined. Given the extreme divergence of structures in East and West Germany, the policy discussion on this issue is ongoing. The final result must also correspond with EC directives. Nevertheless, it is generally acknowledged that some type of investment support is necessary to accelerate the process of productivity growth in East German agriculture.

- **Improvement of product quality and efficiency of food processing and marketing.** East Germany is not currently competitive in foreign, or even domestic, food markets. In the second half of 1990, the East German share of most domestic food markets shrunk drastically, to even less than 25 percent in some markets. Improvement in quality and technology will be a difficult task, requiring not only capital investments but also transfers of know-how. Most short-term progress will come from joint ventures.

- **As a precondition to the above, institutional reforms in some of the following key areas:** (1) definitive clarification of ownership rights; (2) development of an efficient credit system; (3) creation of a suitable land-rent system; and (4) development of a powerful information and extension system.

Legal adjustments and infrastructure development are integral aspects of the overall program, on which the speed and success of the agricultural adjustment processes depends.

Effects on Agricultural Production, Food Demand, and Trade

East Germany has a large agricultural production potential compared with its population and domestic demand. East Germany has about half of the acreage, but only about 25 percent of the population, of West Germany. As part of the EC-12, the relative weight of East Germany must not be overestimated, because it has a share of only 5 percent with respect to EC agricultural land and population.

Effects on the Production Side

Starting from a relatively low level of efficiency and yields, rapid improvement in productivity can be expected soon. The speed of this improvement will depend decisively on the rapidity of institutional and structural change, and on the flow of modern technology into East German agriculture. The potential for biological technical progress will soon be exploited, because better varieties, pesticides, fertilizer, and feed concentrates are immediately available on the international markets at lower prices. This means that yields will soon approach West German standards. However, improvements in the efficiency of farm structure and organization will be much slower, and bridging the gaps between labor productivity and income between eastern and western Germany will thus take a much longer time.

The following rough estimates of expected yield increases and changes in the production structure indicate the type and magnitude of the production effects of German unification. More detailed and exact forecasts will have to be based on research with a location-specific approach, which is in progress.

On the plant production side, the following developments are expected:

- Yields in the five East German states in the 1986-89 reference period were 15-30 percent lower than in equivalent locations in the FRG. For all crop products, the average difference has been around 20 percent. The expectation is that the yield differences will be approximately halved within 3 years, and that yields will reach West German levels after another 5 years. This would mean an additional yearly yield increase of about 3 percent for 3 years, and 2 percent for 5 years. The average yield increase for East Germany will be even larger, because of adjustments in production patterns, especially the idling of marginal land.

- The adjustment of land use patterns will be fast and far-reaching. It has already been mentioned that an expected 20-25 percent of agricultural land might be set aside in the medium term, the exact time depending on the incentives that adjustment measures provide. A drastic reduction of the acreage allotted to potatos, vegetables, and most importantly, fodder production is already underway. The released land will be used mainly for grain and oilseed production. The net additional production increase, when yield increases and reductions of agricultural acreage are taken together, is expected to be about 10 percent greater than normal EC or FRG trends.

Production expectations about animals and animal products, except for milk, are much more uncertain. Because of allotted quota restrictions, milk production in East Germany must be reduced by about 20 percent. The availability of more and better concentrated feedstuffs will lead immediately to milk yield increases, and the introduction of new breeds will also enhance milk yields. Yield increases per cow of 25 percent in the medium term can be expected, and would require cutting the dairy herd almost in half. These drastic adjustments in milk production have important further consequences: (1) a shift in feed composition from roughage to feed concentrates, (2) additional meat supplies during the adjustment period, and (3) less demand for construction services.

Further development of beef, pork, and poultry production depends on the ability of agricultural enterpreneurs in the emerging new farming system to increase efficiency. Some enterpreneurs already have access to better feeds (imported proteins and grain substitutes), but introducing new breeds, improving qualities, and acquiring the necessary management skills will take longer. The overall judgement leads to the conclusion that the longer term potential for those branches of production is large, but deficiencies in the general infrastructure (for example, in transportation and communication) in the processing and marketing system, and shortcomings in know-how, will limit production development for many years.

Effects on the Demand Side

Food consumption per capita was high in East Germany, where the demand for most basic foods, such as butter, meat, eggs, and bread, was sometimes considerably higher than in West Germany and other western countries. This partly resulted from extremely distorted prices and nonfood uses, such as feeding bread to animals. Limited alternative consumption possibilities because of scarcities in many other sectors also distorted consumption. The food supply also showed little quality differentiation, and tropical and subtropical fruit and vegetables were unavailable.

In the longer term, a gradual approximation of consumption patterns in West Germany is expected for corresponding income levels. Significant changes in food consumption will take place. Consumption of basic food items, such as bread, potatoes, butter, and meat, will be reduced, in some cases drastically, while the demand for more sophisticated products, such as

cheese, yogurt, and tropical and subtropical fruit and vegetables, will increase. As a result of all of these adjustments, the overall demand for northern agricultural products is expected to decline significantly.

The immediate reaction of East German consumers in 1990 was to dramatically shift food consumption in favor of products from the West. The share of domestically produced food fell to 20-30 percent, and the overall degree of self-sufficiency seems to be less than 50 percent. The reasons are manifold including preferences for western-styled products, quality differences, and in some cases, health risks. The share of domestic production will therefore recover only slowly, with the change to modern processing and marketing techniques occuring mostly as the result of joint ventures with western firms.

Effects on EC trade

As a result of the previously discussed changes on the supply and demand sides, effects on EC markets and on the net trade position of the EC have already been observed, and more can be expected in the medium and long term. For the short term, effects on the markets for processed food products and agricultural commodities must be distinguished. For many western food manufacturers, the additional demand from East Germany was an unforeseen opportunity, and had a stimulating influence on market development. However, the huge amounts of unsellable products on East German farms severely depressed agricultural commodity markets and spread to some EC countries, leading finally to large-scale EC intervention for grain and meat. This, in turn, led to sizable export agreements with the Soviet Union and other socialist countries.

In the medium and long term, East Germany will become a net export region for agricultural commodities, perhaps also for some processed food products. This will increase the EC's net export position, particularly for grains. This increase should not be overestimated, considering the moderate size of East Germany within the EC-12.

Possible Indirect Political Effects

The unification of Germany will also have indirect effects on the policy side. One effect might result from the changed situation of German agriculture and its influence on the process of policy formation.

Possible Influence on Policy Formation

The integration of East and West Germany considerably changes the picture of German agriculture. Large farm holdings, far beyond the sizes reached in other EC countries and in North America, now characterize a third of East German agriculture. This will be true even when the present producer cooperatives are disentangled and new farm structures and organizations emerge.

The different institutional forms and farm sizes in East Germany will inevitably influence the internal agricultural policy discussion and the policymaking process in Germany. The positions that the German Minister of Agriculture and the Farmers Union (Petit and others, 1987) have taken must cover the interests of small-scale West German and large-scale East German farms.

The most pressing policy issue, in this context, concerns the goals and criteria for structural policies. Most existing policies are designed to generate revenue for efficient, small family farms. These measures do not fit the basic East German farm holdings, where disentanglement and modernization of extremely specialized and oversized producer cooperatives and state farms are at stake. For now, the application of interim special measures resolves this dilemma. However, the measures must be made compatible with those existing in the EC and in the FRG by 1992.

Modifications of structural policies in the FRG and the EC may also have to be implemented. The outcome is difficult to predict, since it depends to some extent on the political weight of the new states on policymaking in Bonn and Brussels. In the long term, the enlarged agricultural production potential of a unified Germany could influence the policy outlook, which might come closer to the French position.

Lessons for Other East European Countries?

The integration of East Germany into the FRG and the EC is a unique example and a test case for a complete and abrupt transition from a socialist central-planning system to a market economy based on private ownership and individual decisionmaking. Fundamental institutional changes have been realized in less than a year, and drastic price shocks took place from one day to the next. This unification provides a unique opportunity for policymakers and researchers to observe and analyze the reaction of the economic system, especially of the agricultural adjustment process, to such abrupt policy reforms and price shocks.

Even if the German reform proves to be successful, and the chances are not bad that it will, this strategy cannot be a model for other East European countries that are moving toward political independence, greater civic rights, and transition to a market economy. The conditions for structural adjustment policies are significantly different in a process of unification for the following reasons:

- East Germany, as part of a unified Germany, does not need to deal with balance of payment problems, which usually severely limit the scope of structural adjustment policies.

- The same logic holds for budget restrictions on the national level, since receipts and expenditures in East Germany are part of the government budget. The whole society must bear unavoidable expenditures.

- The well-established social security net of the FRG cushions the structural adjustment process. This implies large transfer payments from West to East Germany until economic growth takes off in the eastern part.

- The preconditions for investments in eastern Germany will be more favorable than in comparable foreign countries, since after a transition period the institutional, legal, and economic conditions will be more transparent and less risky.

For all of these reasons, the unification of Germany can be only an informative specific example, but not a prototype, for the reform and adjustment processes desired in East European countries.

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Cross-Country Comparisons of Cost-Efficiency in EC Agriculture

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Agapi Somwaru

Abstract

Not all countries are identical in their productivity performance; their relative productivity efficiency differs. Productivity growth of the most efficient, or best practice, countries requires technical innovations. Those countries not performing at full efficiency, however, can potentially improve productivity by increasing efficiency with existing technology. The emerging EC 1992 will probably increase flows of resources and technologies among member countries. Thus, the new economic environment will help countries improve efficiency levels. Evaluating a country's relative performance provides information on the potential efficiency gain of that country. Identifying the best practice technology, however, provides information on how to reallocate resources to capture those efficiency gains.

Introduction

The goal of the EC 1992 initiative is to remove economic and fiscal barriers between the European Community (EC) member countries to achieve a true common market in the EC. Such a restructuring toward a single market is expected to increase both the flows of resources and technologies and the competition in agriculture among member countries. As competition broadens beyond the country level, what was traditionally an efficient practice in a country may no longer be efficient in a now- broadened multinational competition. In this changing economic environment, a country's performance in the marketplace crucially depends on that country's relative economic efficiency. This paper examines the relative efficiency of EC agriculture, by country, within a framework consistent with the EC as a single market. Recent interest in production frontiers since Farrell's seminal paper has provided various efficiency measures within primal and dual frameworks. This paper uses the frontier cost-function approach and parametric programming techniques to identify the cost frontier. We apply our method to a panel data set consisting of EC-12 countries for the 1967-88 period. In this study, the cost-minimization framework is particularly useful as a practical alternative. Because of wide use of production quotas and administered output prices in EC agriculture, output levels may not be endogenously determined, which in turn makes a profit-maximization model unsuitable.

Because we allow the possibility that a country may operate above the frontier cost curve (that is, cost inefficiently), once the frontier cost function is derived, the relative cost-efficiency of a country can be evaluated. This relative efficiency provides information about how far the country deviates from the potentially most-efficient practice. Such evaluation is important because it not only offers efficiency comparison among the member countries, but it also indicates the possibility of efficiency gains that may entail from a country's effort to move toward the frontier. Furthermore, the frontier cost function framework enables us to decompose cost-inefficiency into two components, technical and allocative. Technical inefficiency arises from a firm's inability to produce the potential maximum output at given inputs, and

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allocative inefficiency arises from the failure to choose the least-cost input combination at given input prices. This decomposition can provide useful information for designing a policy with the objective of improving the country's position closer to the frontier. Technical change in this study is interpreted in terms of the cost-frontier reduction.

From the perspective of our study, which views EC agriculture as a single market, the frontier cost function can be considered as an analog of the industry cost function (Aigner and Chu, 1968). An industry cost function envelops the individual firms' cost functions, thereby constructing the cost contour of the most cost-efficient firms in the industry. Technical change characterized in a frontier framework is consistent with what Salter envisaged. He claims that adopting the best practice technology determines the path of technical change in the industry.1/ Thus, according to Salter, it is vitally important to examine the frontier (lead) technology rather than the average technology.

The Frontier Cost Function

Suppose I number of firms or independent economic decisionmakers exist, $i=1,\ldots,I$, each of which serves its own independent market. Then, our starting point is the presumption that the cost function characterizes each firm's cost-minimizing behavior, $c^i(w,y,q)$, $(i=1.,,,.I)$, where w, y, and q are vectors of variable input prices, outputs, and fixed inputs. The superscript i distinguishes the cost differences among firms. Each $c^i(w,y,q)$, $i=1.,,,.I$, satisfies the usual properties of the cost function: linearly homogenous, nondecreasing, concave in w, nonincreasing in q, and nondecreasing in y.

Cost efficiency may differ for firms; that is, for any observed combination of $(\hat{w},\hat{y},\hat{q})$, the following inequality holds if firm i is more cost-efficient than firm j at $(\hat{w},\hat{y},\hat{q})$:

$$c^i(\hat{w},\hat{y},\hat{q}) \leq c^j(\hat{w},\hat{y},\hat{q}).$$

1/ Salter argued that at a given time, the technology of the best performing firm in the industry can be viewed as the lead technology, and the rest of the firms in the industry compete to catch up with this best technology. While average cost curves of these competing firms shift downward as they closely follow the existing lead technology, the best technology also continues to evolve, and causes the shift of the respective average cost curve in the subsequent period. As this process continues, technical progress of the industry is realized. Thus, the most relevant component in examining technical change at the industry level is to identify how the best performing technology moves over time. Such a notion of technical progress is consistent with that of our paper, analyzed in terms of the frontier cost function.

Figure 1 describes relative cost-efficiency for three firms. For simplicity of graphical illustration, figure 1 assumes the same level of fixed factors and input prices for all three firms. Comparing firm 1 and firm 2, relative cost-efficiency exists with firm 1 for low production, but cost-efficiency shifts to firm 2 as output increases. Therefore, firms 1 and 2 possess local cost-efficiency. However, firm 3 is cost-inefficient for all output levels, compared with firms 1 and 2.

Suppose the markets for these three firms form a collective community, and are integrated into a single market (or industry). Then, with the existing state of technology, the minimum possible cost available in the industry can be traced as an envelope of existing cost functions. This cost function is defined as the frontier cost function, in the sense that this function exhausts cost-efficiency possibilities of the technologies of all existing firms. The frontier cost function can thus be regarded as a passive estimate of the ex post cost function. In figure 1, enveloping the cost structures of firms 1 and 2 constructs the frontier cost function $C^*(.)$. The frontier cost function is assumed to be well defined, and to possess the usual properties of a cost function. By the definition of the frontier cost function, it is always true for any observation on firm i:

$$C^*(w^i,y^i,q^i:t) \leq c^i(w^i,y^i,q^i:t) \leq \hat{c}^i(t) \quad i=1,\ldots I., \quad (1)$$

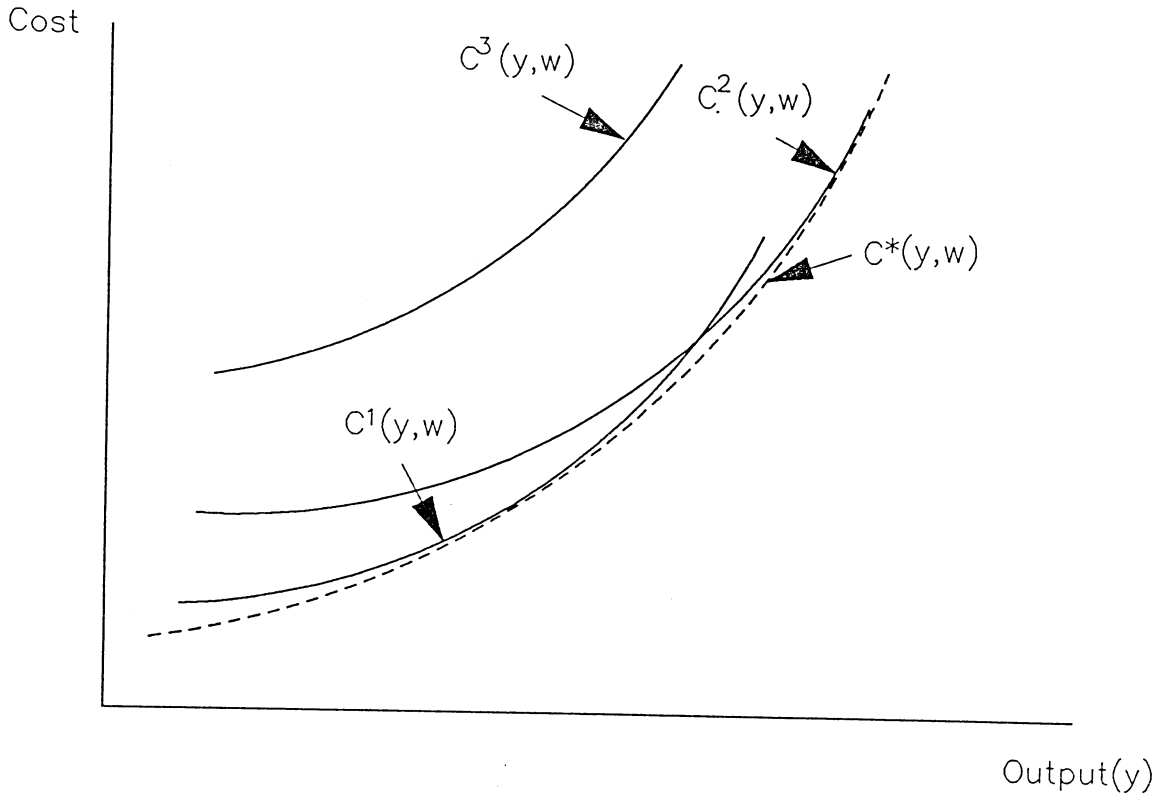
where $(w^i,y^i,q^i:t)$ are vectors of prices that firm i face, and firm i's actual outputs and fixed inputs at time t, respectively, and $\hat{c}^i(t)$ is firm i's actual cost at time t. The first inequality is due to the definition of the frontier cost function, and the equality holds when the firm operates on the frontier, or equivalently, when the firm possesses the most-efficient cost structure in the industry at the observation point (w^i,y^i,q^i). The second inequality comes from the definition of the cost function.

Firms operating above the frontier cost function entail greater cost, compared with the frontier cost, and, thus, are cost-inefficient. The difference between the actual cost and the frontier cost measures this cost-inefficiency. Thus, to incorporate cost-inefficiency into our analysis, we introduce $\mu^i(t)$ and rewrite (1) as:

$$C^*(w^i,y^i,q^i:t) = \hat{c}^i(t)\cdot\mu^i(t), \quad (2)$$
$$\mu^i(t)\epsilon(0,1] \text{ for all i's and t's,}$$

where $\mu^i(t)$ $(= C^*/\hat{c}^i)$, expressed as a ratio of the frontier cost to the actual cost, measures cost efficiency of firm i at time t. As the value of $\mu^i(t)$ approaches one, the actual cost is closer to the frontier cost, meaning that the cost-efficiency of firm i improves. Similarly, the deviation of $\mu^i(t)$ from the unitary value

Figure 1
Frontier cost function



measures firm i's cost-inefficiency. Improved dissemination of technical information or managerial ability without committing additional resources can reduce cost-inefficiency. Hence, cost-inefficiency can alternatively be interpreted as potential gains in cost-efficiency with the existing technology in the industry and the firm's existing capacity.

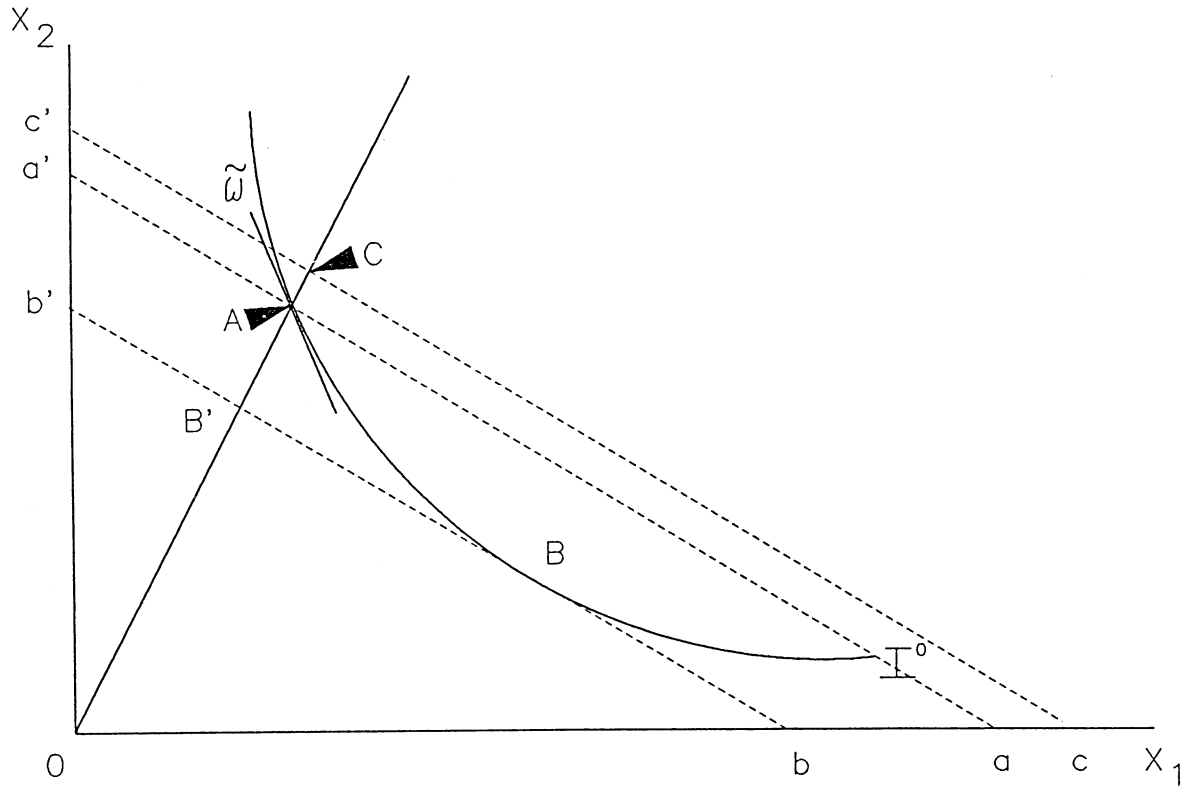
Decomposition Of Cost Inefficiency

Cost-efficiency requires that two conditions be met: technical efficiency and allocative efficiency. A production process can be technically inefficient in the sense that it fails to produce maximum output from a given input bundle. Likewise, production of a given output level incurs more than the minimal inputs required. Technical efficiency can be defined as an equiproportional use of all additional inputs. Allocative efficiency related to cost minimization requires that marginal rates of input substitution equal respective factor-price ratios.2/ Thus, allocative inefficiency results in use of inputs in incorrect proportions, given input prices.

Figure 2 describes cost-inefficiency in terms of technical inefficiency and allocative inefficiency. Suppose I^o represents the isoquant associated with the frontier cost function at output y^o. C represents our observation on the input bundle, which produces y^o, and the slope of dotted lines describes the input price ratio. The firm's inability to produce along the isoquant I^o results in overuse of inputs. The proportional reduction of inputs measured by the ratio OC/OA (=aa'/cc') evaluates technical efficiency. However, the point A is not allocatively efficient, because at A, the marginal rate of technical substitution does not equal the input price ratio. In figure 2, the allocatively efficient input

2/ Allocative efficiency can also be defined in terms of multioutput profit maximization. In this case, allocative efficiency also requires optimal allocations of output production as well as inputs.

Figure 2
Decomposition of cost inefficiency



bundle is obtained at B, and the movement from A to B represents an allocatively efficient movement. The extent of allocative efficiency is measured in terms of an extra cost, bb'/aa'. Cost efficiency (μ) measured as bb'/cc' can now be decomposed into allocative efficiency (AL) and technical efficiency (TE):

$$\mu = bb'/cc' = (bb'/aa')\ (aa'/cc') = (AL)\ (TE). \quad (3)$$

Computation of the decomposition requires identifying cost at points A, B, and C. Actual cost (cc') is known from data and the frontier cost (bb') can be computed once the frontier cost function is identified. However, computing costs at A (aa') is not straightforward. Suppose we have estimated the frontier cost function, and the structure of $C^*(.)$ is known. Note that aa' measures frontier cost, given the input price ratio $\tilde{w}$. Thus, the cost at A can be expressed as $C^*(\tilde{w},y,q)$, which can be evaluated if $\tilde{w}$ is known. The input ratio at A is known from the data (A and C lie on the same ray from the origin) and, using Shephard's lemma, this input ratio at A can be expressed as a ratio of the first derivatives of $C^*(\tilde{w},y,q)$. Thus, by equating the actual input ratio to the ratio of the first derivatives, we can solve for $\tilde{w}$. Then, substituting $\tilde{w}$ back into $C^*(.)$ yields the cost at A. In general, computation of $\tilde{w}$ involves setting up a system of equations. The system consists of N-1 independent equations (N = number of inputs), and solves for N-1 prices (Zieschang, 1983). Note that not being able to obtain N prices is not a problem because of the linear homogeneity property of C^*. So long as we use the same normalized price in calculating costs, the ratios in (3) are unaltered. For computational details, see Appendix.

Estimation Of The Frontier Cost Function

Estimation of the frontier cost function requires specification of a functional form for the frontier cost function. The functional form used in this study is the transcendental logarithmic (translog) cost function that Christensen, Jorgensen, and Lau (1971) developed. The translog places no a priori restrictions on technology. The frontier cost function is of the form:

$$\ln C^*(w,y,q,t) = A + t(\tau + \tfrac{1}{2}\tau_t t) + \Sigma_n \ln w_n (\alpha_n + \tfrac{1}{2}\Sigma_j \alpha_{nj} \ln w_j + \Sigma_r \alpha_{nr} \ln y_r + \Sigma_m \alpha_{nm} \ln q_m + \alpha^t_n t)$$

$$+ \Sigma_r \ln y_r (\beta_r + \tfrac{1}{2}\Sigma_j \beta_{rj} \ln y_j + \Sigma_m \beta_{rm} \ln q_m + \beta^t_r t)$$

$$+ \Sigma_m \ln q_m (\Gamma_m + \tfrac{1}{2}\Sigma_j \Gamma_{mj} \ln q_j + \Gamma^t_m t), \qquad (4)$$

where $w_n = w_1, \ldots, w_N$, $y_r = y_1, \ldots, y_R$, $q_m = q_1, \ldots, q_M$. The parameters satisfy the following restrictions:

$$\alpha_{nj} = \alpha_{jn}, \quad \beta_{rj} = \beta_{jr}, \text{ and } \Gamma_{mj} = \Gamma_{jm} \qquad (5)$$

$$\Sigma_n \alpha_n = 1, \quad \Sigma_j \alpha_{nj} = 0 \ (n=1,..,N), \quad \Sigma_n \alpha_{nr} = 0 \ (r=1,..,R), \qquad (6)$$
$$\Sigma_n \alpha_{nm} = 0 \ (m=1,..,M), \quad \Sigma_n \alpha^t_n = 0.$$

Condition (5) follows from the equality of second-order cross partials in a quadratic expansion; condition (6) follows the homogeneity of $C^*(.)$.

Estimation of the frontier cost function uses the definition that equation (2) provided, $\ln\hat{c}^i(t) - \ln C^*(.) = -\ln\mu^i(t) \geq 0$. Thus, $\ln\mu^i$ can be viewed as an one-sided error term. This one-sided error term can be equivalently viewed as a slack variable in mathematical programming. Following Aigner and Chu, Timmer, Førsund and Hjalmarrsson, and Nishimizu and Page, we minimize the simple sum of deviations from the frontier cost using a linear programming method. Thus, the objective function to be minimized is:

$$\text{Min} \quad \Sigma_i \Sigma_t [-\ln\mu^i(t)] \qquad (7)$$
$$\text{s.t.}$$
$$\ln\mu^i(t) = \{ A + t[\tau + \tfrac{1}{2}\tau_t t] + \Sigma_n \ln w_n^i(t)[\alpha_n + \tfrac{1}{2}\Sigma_j \alpha_{nj} \ln w_j^i(t) + \Sigma_r \alpha_{nr} \ln y_r^i(t) + \Sigma_m \alpha_{nm} \ln q_m^i(t) + \alpha^t_n t] + \Sigma_r \ln y_r^i(t)[\beta_r + \tfrac{1}{2}\Sigma_j \beta_{rj} \ln y_j^i(t) + \Sigma_m \beta_{rm} \ln q_m^i(t) + \beta^t_r t] + \Sigma_m \ln q_m^i(t)[\Gamma_m + \tfrac{1}{2}\Sigma_j \Gamma_{mj} \ln q_j^i(t) + \Gamma^t_m t] \} - \ln\hat{c}^i(t), \qquad (8)$$

$$\text{and} \quad \ln\mu^i(t) \leq 0, \qquad \text{for all i's and t's}, \qquad (9)$$

where w(t), y(t), and q(t) coincide with time-specific values. Constraint (8) is the definition of $\ln\mu^i(t)$ that (2) provided, and constraint (9) restricts $\mu^i(t)$ to lie between zero and one. Note that allowing deviations to be only one-sided forced all observations to lie on or above the frontier, and minimizing the sum of deviations constrained our frontier estimation to approximate the actual observations as closely as possible. $C^*(.)$ must also satisfy the regularity conditions, including symmetry, homogeneity, monotonicity, and curvature conditions. Symmetry and homogeneity conditions are provided in (5) and (6). Monotonicity conditions with respect to w, y, and q require:

$$\delta \ln C^*(.)/\delta \ln w_n^i(t) = [\alpha_n + \tfrac{1}{2}\Sigma_j \alpha_{nj} \ln w_j^i(t) + \Sigma_r \alpha_{nr} \ln y_r^i(t) + \Sigma_m \alpha_{nm} \ln q_m^i(t) + \alpha^t_n t] \geq 0, \qquad (10)$$

$$\delta \ln C^*(.)/\delta \ln y_r^i(t) = [\beta_r + \tfrac{1}{2}\Sigma_j \beta_{rj} \ln y_j^i(t) + \Sigma_m \beta_{rm} \ln q_m^i(t) + \Sigma_n \beta_{nm} \ln w_n^i(t) + \beta^t_r t] \geq 0, \qquad (11)$$

$$\delta \ln C^*(.)/\delta \ln q_m^i(t) = [\Gamma_m + \tfrac{1}{2}\Sigma_j \Gamma_{mj} \ln q_j^i(t) + \Sigma_r \Gamma_{rm} \ln y_r^i(t) + \Sigma_n \Gamma_{nm} \ln w_n^i(t) + \Gamma^t_m t] \leq 0, \qquad (12)$$

for all i and t. We also restrict own-price elasticities to be nonpositive:

$$\alpha_{nn} + (s_n^i(t))^2 - s_n^i(t) \leq 0, \qquad (13)$$
$$\text{for } n=1,\ldots,N, \text{ all i and t},$$

where $s_n^i = \delta \ln C^*(.)/\delta \ln w_n^i(t)$ (defined in (10)). Nonpositivity of the own-price elasticities is a necessary condition only for concavity of the cost function. Thus, the minimization problem consists of objective function (7), and constraints (5), (6), and (7) through (13).

Data And Empirical Results

The data for this study were taken from the Sectoral Production and Income Model for Agriculture developed at Bonn University. The data include observations on prices, quantities of outputs and variable inputs, and quantities of fixed inputs for each member country for 1967-88. Six variable inputs are specified, including service flows from durable inputs, hired labor, feedstuffs, chemicals, energy, and other intermediate inputs. Two fixed inputs are defined, including land and own labor. These inputs produce two outputs, crops and livestock. Finally, Belgium and Luxembourg are consolidated, so that our panel data consist of 11 cross-sections for each time period.

The concept used to develop the data was that of the national farm. Output from the national farm consists of the quantity sold plus accumulation of inventories and own-account fixed-capital formation. Inventories consist of goods in progress and finished products from own production. Estimates of capital stocks of machinery and buildings were constructed as weighted sums of past investment, where the weights are the assets' efficiency as of a given age. The efficiency function was approximated by a rectangular hyperbola, which incorporates several types of physical depreciation as special cases. The measures of labor input are numbers of full-time equivalents (2,200 hours) of hired, self-employed, and unpaid family workers. Intermediate inputs comprise all goods (other than fixed capital) and services that the sector consumed. Intermediate goods that are produced within the sector are recorded as intermediate consumption only if they

also have been recorded as output. Feedstuffs produced and consumed on the farm are excluded.

Price indices were constructed using Divisia aggregation. Quantities were measured in millions of European currency units (ECU) at 1980 prices. Finally, spatial price and quantity variations were measured in comparison with the United Kingdom.

Technical change in this study is interpreted in terms of the rate of cost reduction at the frontier, with respect to change in time, that is, $\delta \ln C^*(w,y,q,t)/\delta t$.3/ Because technical change may diminish costs, the technical change rates reflected in the cost change is often referred to as the rate of cost diminution. Table 1 presents cost reduction rates based on the translog frontier cost function. Numbers in table 1 are calculated using each country's actual levels of prices, output, and fixed inputs. Thus, these values could be interpreted as the rate of cost reduction realized from producing actual output levels using actual fixed inputs, if the country were technically and allocatively efficient, and if actual prices had prevailed. Each of the EC countries achieved significant rates of cost reduction when costs were measured at the frontier. However, the rate of cost reduction achieved by adopting best-practice techniques slows dramatically by the late 1980's.

The rate of cost reduction reflects how rapidly the cost surface shifts over time. Clearly, the rate of technical progress is not independent of the position along the cost surface. Technical progress was most rapid in those countries with relatively large agricultural sectors. A plausible explanation for this would be the ability of these countries to exhaust economies of scale.

Recall that the frontier function gives the minimum achievable cost for any feasible combination of outputs and inputs. The amount by which the observed cost is greater than this minimum is a measure of cost-inefficiency. To report cost-inefficiency indices, the study period is divided into five subperiods. Table 2 reports the averages of cost-efficiency indices for each subperiod; the last row of table 2 reports averages for

3/ Technical change is usually interpreted in the context of technology, and in the multioutput case, can be viewed as an outward shift of the production possibility set. However, unlike a single-output case, no straightforward method is available to measure this shift of the multioutput production possibility set. Thus, it may be more intuitive to discuss technical change in terms of cost reduction, which can be expressed in a scale measure.

Table 1--The rate of cost reduction, by country, selected years

Year	Germany	France	Italy	Spain	Portu-gal	Nether-lands	Belgium/ Luxembourg	UK	Ireland	Den-mark	Greece
1967	0.044	0.052	0.070	0.030	0.044	0.047	0.026	0.032	0.033	0.024	0.022
1970	.060	.038	.056	.027	.038	.035	.026	.027	.040	.023	.027
1975	.049	.064	.065	.025	.029	.049	.025	.020	.028	.028	.033
1980	.032	.037	.053	.022	.033	.020	.019	.034	.024	.008	.025
1985	.030	.029	.033	.019	.032	.019	.016	.010	.015	.007	.019
1988	.029	.032	.040	.021	.044	.019	.016	.013	.013	.006	.028

Table 2--Average cost efficiency index, by country, selected years

Selected years	Germany	France	Italy	Spain	Portu-gal	Nether-lands	Belgium/ Luxembourg	UK	Ireland	Den-mark	Greece
1967-69	0.998	0.986	0.954	0.976	0.814	0.866	0.966	0.805	0.888	0.858	0.938
1970-74	.887	.882	.846	.889	.827	.831	.939	.852	.790	.801	.976
1975-79	.764	.832	.936	.846	.905	.850	.930	.905	.900	.796	.933
1980-84	.827	.962	.984	.923	.882	.968	.955	.917	.883	.891	.975
1985-88	.862	.958	.848	.977	.930	.949	.955	.981	.839	.960	.970
1967-88	.856	.917	.913	.915	.874	.893	.947	.896	.858	.857	.960

the entire period. From these period averages, notice that countries with index values greater than 0.9 are in southern Europe, except Belgium/ Luxembourg. This may indicate the comparative advantage of the Mediterranean countries in agriculture due to geographical conditions, such as weather. Northern EC countries, the Netherlands, Belgium/Luxembourg, Denmark, and the United Kingdom have considerably improved efficiency during the 1980's.

Conclusions

This paper estimates the frontier cost function for EC agriculture. Country efficiency indices were then developed regarding the cost frontier. We also measured the rate of cost diminution when costs were measured at the frontier. Those countries with large agricultural sectors exhibited the greatest rate of cost diminution. This may reflect the ability of these countries to exhaust economies of scale. Offsetting these gains was a decline in cost-efficiency. Future research must include the effects of domestic agricultural policies on economic performance.

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Appendix

The system of equations that solves $\tilde{w}$ is:

$$x_2/x_1 = [\delta C^*(\tilde{w},y,q)/\delta\tilde{w}_2]/[\delta C^*(\tilde{w},y,q)/\delta\tilde{w}_1]$$
$$x_3/x_1 = [\delta C^*(\tilde{w},y,q)/\delta\tilde{w}_3]/[\delta C^*(\tilde{w},y,q)/\delta\tilde{w}_1]$$
$$\cdot$$
$$x_N/x_1 = [\delta C^*(\tilde{w},y,q)/\delta\tilde{w}_n]/[\delta C^*(\tilde{w},y,q)/\delta\tilde{w}_1].$$

Input ratios on the left-hand side are known from the actual data. We can solve for only N-1 normalized input prices (or, N-1 input-price ratio). For instance, if w_1 is used for normalization, then $\tilde{w}=(\tilde{w}_2/\tilde{w}_1,\ldots,\tilde{w}_N/\tilde{w}_1)$. For the formal presentation of the method, see Kopp and Diewert, and Zieschang.

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Trade Implications of EC 1992 for a Reforming Eastern Europe and Soviet Union

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Abstract

Economic reforms in Eastern Europe and the Soviet Union have significant implications for world agricultural markets. Successful reform in Eastern Europe may increase pressures for increased agricultural exports. The effects of reforms in the Soviet Union are less certain; the Soviet Union may increase or decrease imports. The future of EC agricultural trade barriers may significantly affect the success of agricultural reform in Eastern Europe and the Soviet Union. Before, and to some extent after, World War II, the EC countries were important markets for Eastern European and Soviet agricultural products. Should EC trade barriers lessen, traditional trading patterns in the region might return.

Introduction

The recent wave of political and economic reform that swept Eastern Europe and the Soviet Union in 1989-90 has enabled dramatic change in agricultural production and trade in the region. In those countries where economic reform has gone the farthest, significant adjustments in agricultural supply and demand are already occurring. In those countries where economic reform has been limited, preexisting imbalances in supply and demand are currently worsening. The regional trade regime of the Council for Mutual Economic Assistance (CMEA) countries has collapsed, leaving individual members to find their respective roles defined by domestic and world market conditions rather than planned by fiat. While Eastern Europe and the Soviet Union seek to find their new roles in world agricultural trade, the European Community (EC) is solidifying its regional trade environment under the EC 1992 initiative, so that the EC will represent a nearly unified force in world markets.

How these two seemingly disparate trends will interact in agricultural markets is difficult to predict at this time. This paper will review historical trade patterns in the two regions; cover recent trade relations, including the EC's assistance programs to the countries in transition; assess the potential new role for reformed Eastern European and Soviet agriculture in the European market; and discuss the effects of the EC's response to this new role. While the effects of EC 1992 on these countries in transition are difficult to predict, some general conclusions can be reached about the importance of the EC's response to Eastern European and Soviet reform. The potential effects on world markets of real economic reform in the European centrally planned economies (ECPE's) could be greater than the effects of EC 1992. Successful economic reform in the ECPE's is expected to produce significant surpluses of several commodities. The EC's response to these increasing surpluses has critical implications for the ECPE's potential agricultural export earnings.

Historical Trade Patterns

Before World War II, Eastern Europe and the Soviet Union were known as the breadbasket of Europe.

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During 1925-33, the ECPE's were, on average, net exporters of grains, meat, butter, and cheese (appendix tables 1-10). In this same period, the Western European countries were sizable importers of all these commodities. However, despite its reputation as a breadbasket, the region was hardly in a position to feed all of Europe--exports from the ECPE's could potentially meet only about 20 percent of Western European import needs.

During the post-war period, the ECPE's lost their status as net agricultural exporters, and began to import increasing amounts of grain. However, Eastern Europe (excluding the U.S.S.R.) remained a net exporter of meat and live animals, and until the implementation of the Common Agricultural Policy (CAP), Eastern Europe continued to supply a significant amount of meat and meat products to the Western European countries. The Soviet Union on the other hand became a large importer of both grains and meat.

Eastern Europe and Soviet Trade Relations with the EC

The countries of Eastern Europe are much farther on the road to reform than the U.S.S.R., and many of these countries are pursuing closer ties with the EC, including possible membership. Food and economic aid and subsidized exports have thus far characterized the Soviet Union's trade relations with the EC.

Characteristics of Trade Between Eastern and Western Europe

Whereas Eastern European exports to the EC slipped some with the implementation of the CAP in the early 1970's, some of the Eastern European countries continued to trade actively with the EC. Through most of the 1970's, Eastern European agricultural trade with the EC was in deficit. Through most of the 1980's, however, the agricultural trade balance between Eastern Europe and the EC has been positive in Eastern Europe's favor (table 1). This switch was not the result of any change in EC policies, but resulted from the Eastern European countries' active efforts to scale back imports and to boost exports.

Briefly, the main characteristics of EC and Eastern European trade between 1983 and 1987 were:

- The EC share in Eastern Europe's agricultural trade rose during that 5-year period. In 1987, 14 percent of Eastern Europe's agricultural imports came from the EC, and 34 percent of its agricultural exports went to the EC.
- Yugoslavia and Poland were the largest traders with the EC, followed by Hungary. In 1987, 60 percent of Yugoslavia's agricultural exports, 58 percent of Poland's exports, and 37 percent of Hungary's exports went to the EC.
- The smallest traders with the EC were Bulgaria and the German Democratic Republic.
- Major exports from Eastern Europe to the EC were meat and meat products, live animals (cattle, sheep, and horses), fruit and vegetables (both fresh and preserved), oilseeds (in the case of Poland), and maize (in the case of Yugoslavia).
- Major imports from the EC to Eastern Europe were fruit and vegetables, beverages, hides and skins, textile fibers, feedstuffs (mainly meat and fish meal), and cheap cuts of meat.

The main characteristics of EC and Soviet trade between 1983 and 1987 were:

- A declining Soviet trade deficit, from $1.4 billion to $0.6 billion.
- The EC share of Soviet imports stabilized at 7-9 percent, while the EC received between 11 percent and 17 percent of Soviet exports.
- Major Soviet imports from the EC were grains, livestock products, and fruit and vegetables.
- Major Soviet exports to the EC were textile fibers and fish products.

EC Trade Barriers Against Eastern Europe

Eastern European exports to the EC were subject to the same barriers that affected all third-country exports into the EC: ad valorem duties, variable levies, and minimum import prices. However, many Eastern European agricultural goods were also subject to quantitative restrictions, which tended to be discriminatory in nature. A fear of dumping by Eastern European partners may have motivated these discriminatory quotas.

EC trade restrictions limited Eastern European exports of meat, live animals, and fruit and vegetables. Nevertheless, total Eastern European exports to the EC have expanded, but the restrictions have kept these exports below levels that they might have reached otherwise. For several Eastern European products, the EC is the only major market. There has been some

effort to expand meat exports to the Middle East, but a more open EC market would be more important because Eastern European exports of some products could more than double.

Polish Bacon Exports

Poland exported 50,500 tons of bacon in 1969, all to Great Britain. A major part of this market was lost when Great Britain joined the EC. Polish bacon exports were down to 19,000 tons in 1974, and have been less than 3,000 tons in the 1980's.

Yugoslav Baby Beef Exports

Virtually all of Yugoslavia's baby beef exports have gone to Italy, with smaller amounts going to Greece. Yugoslav exports to Italy suffered an initial decline, as Italy went under the CAP, and dropped to zero in 1974, when the EC instituted a total ban on beef imports.

Table 1--East European and Soviet agricultural trade with the EC

Country	1983	1984	1985	1986	1987
			1,000 U.S. dollars		
Bulgaria:					
Total imports	819,620	823,635	1,072,789	1,058,120	1,013,304
Total exports	1,764,200	1,586,894	1,545,367	1,648,364	1,637,084
Imports from EC	87,402	78,240	151,707	111,991	101,767
EC share 1/	11	9	14	11	10
Exports to EC	93,790	85,456	88,333	104,907	122,225
EC share 1/	5	5	6	6	7
Balance with EC	6,388	7,216	-63,374	-7,084	20,458
Czechoslovakia:					
Total imports	1,671,388	1,743,086			644,852
Total exports	550,317	541,589	574,387	617,102	217,148
Imports from EC	130,953	140,350	150,849	174,344	217,148
EC share 1/	8	8	9	9	11
Exports to EC	138,657	144,156	135,948	155,413	181,580
EC share 1/	25	27	24	25	28
Balance	7,704	3,806	-14,901	-18,931	-35,568
German Democratic Republic:					
Total imports	2,66,110	2,535,590			
Total exports	415,810	407,410	443,755	537,620	553,980
Imports from EC	200,107	164,354	127,138	115,144	160,425
EC share 1/	8	6	7	6	8
Exports to EC	31,688	47,984	53,917	92,338	85,011
EC share 1/	8	12	12	17	15
Balance	-168,419	-116,370	-723,221	-22,806	-75,414
Hungary:					
Total imports	795,985	759,950	730,816	874,115	894,959
Total exports	2,040,719	1,960,565	1,847,219	1,889,623	1,906,471
Imports from EC	146,915	128,227	111,678	145,075	152,349
EC share 1/	18	17	15	17	17
Exports to EC	487,900	496,717	535,913	577,575	702,306
EC share 1/	24	25	29	31	37
Balance	340,985	368,490	424,235	432,500	549,957
Poland:					
Total imports	1,347,914	1,496,431	1,374,924	1,286,173	1,390,901
Total exports	789,349	903,528	953,128	1,078,457	1,194,579
Imports from EC	208,884	247,682	290,919	298,427	250,280
EC share 1/	15	17	21	23	18
Exports to EC	372,270	426,395	517,157	591,966	690,724
EC share 1/	47	47	54	55	58
Balance	163,386	178,713	226,238	293,539	440,444

--Continued

However, over the years, Yugoslavia regained some of that market in a series of preferential trade agreements with individual EC countries, mainly Italy. As a result, by the end of the 1970's, baby beef exports to Italy had returned to earlier levels. But the volume of baby beef exports remained under a fixed quota, which prevented Yugoslavia from expanding this potentially profitable line of exports. Furthermore, with the entry of Greece into the EC, exports to that country fell from 38,800 tons in 1980 to 900 tons in 1981, and have never returned to the levels of the 1970's.

Recent EC Aid and Trade Concessions to Eastern Europe and the Soviet Union

During 1990, the EC offered a total of 500 million ECU to aid the countries of Eastern Europe. Initially all the aid was directed to Poland and Hungary, but later in the year smaller amounts were offered to Bulgaria, Czechoslovakia, and Yugoslavia. The aid included five areas of assistance: food aid, improved access to EC markets, joint ventures, training, and environmental protection. As part of this program, the

Table 1--East European and Soviet agricultural trade with the EC--Continued

Country	1983	1984	1985	1986	1987
			1,000 U.S. dollars		
Romania:					
Total imports	756,980	712,870	608,050	725,255	545,170
Total exports	839,749	767,880	778,710	837,240	874,330
Imports from EC	45,109	49,158	58,408	145,162	64,319
EC share 1/	6	7	10	20	12
Exports to EC	88,984	101,281	100,815	120,828	147,487
EC share 1/	11	13	13	14	17
Balance	43,875	52,123	42,407	-24,334	83,168
Yugoslavia:					
Total imports	1,106,588	1,150,020	1,097,502	1,285,339	1,123,107
Total exports	1,188,326	1,081,755	1,020,729	939,767	1,043,669
Imports from EC	241,307	277,245	270,657	282,218	266,785
EC share 1/	22	24	25	22	24
Exports to EC	432,804	383,347	410,693	472,736	621,583
EC share 1/	36	35	40	50	60
Balance	191,497	106,002	140,036	190,518	354,798
Eastern Europe:					
Total imports	9,149,306	9,149,884	8,570,482	9,122,822	8,838,236
Total exports	7,588,470	7,249,621	7,163,295	7,548,173	7,854,965
Imports from EC	1,060,677	1,085,256	1,161,356	1,272,361	1,213,073
EC share 1/	12	12	14	14	14
Exports to EC	1,646,093	1,685,236	1,842,776	2,115,763	2,550,916
EC share 1/	22	23	26	28	32
Balance	585,416	599,980	681,420	843,402	1,337,843
Eastern Europe without the GDR:					
Total imports	6,484,196	6,614,294	6,627,167	7,094,272	6,892,121
Total exports	7,172,660	6,842,211	6,719,540	7,010,553	7,300,985
Imports from EC	860,570	920,902	1,034,218	1,157,217	1,052,648
EC share 1/	13	14	16	16	15
Exports to EC	1,614,405	1,637,252	1,788,859	2,023,425	2,465,905
EC share 1/	23	24	27	29	34
Balance	753,835	716,350	754,641	866,208	1,413,257
U.S.S.R.:					
Total imports	18,732,300	19,332,700	18,085,400	15,467,100	16,311,700
Total exports	2,366,600	2,201,100	2,211,300	2,453,200	2,857,200
Imports from EC	1,732,489	1,447,513	1,530,464	1,125,337	1,093,092
EC share 1/	9	8	9	7	7
Exports to EC	336,072	246,784	238,832	315,187	484,154
EC share 1/	14	11	11	13	17
Balance	1,396,417	1,200,729	1,291,632	810,150	608,938

1/ Measured in percent.
Source: United Nations trade statistics.

EC negotiated new trade agreements with most of the ECPE's, aimed at increasing market access for the emerging democracies.

As of April 1990, the EC had provided $186 million of food aid to Poland and $62 million to Romania. Poland received 800,000 tons of wheat, 200,000 tons of barley, 100,000 tons of corn, and smaller amounts of beef, citrus fruit, and olive oil. Aid to Romania included 125,000 tons each of rye and corn, and smaller amounts of beef, butter, and olive oil. In Poland, the food was to be sold on the market, with the proceeds (called counterpart funds) used for investment in Polish agriculture and infrastructure development. In April, 50 million ECU ($55 million) were approved for the donation of inputs that will be sold to Polish farmers, with the proceeds being used to buy more inputs. The EC has also pledged limited nonfood aid to Bulgaria, Czechoslovakia, and Yugoslavia.

The biggest help the EC could provide the emerging democracies would be to open up its markets to Eastern European products. The EC has signed trade agreements with Hungary, Poland, Yugoslavia, and Bulgaria, in which the EC has agreed to remove its discriminatory quantitative restrictions and to include Eastern European products under its Generalized System of Preferences (GSP). Under the GSP, duties on selected items are substantially reduced. In return, the Eastern European countries have promised to open up their markets to EC products.

However, some EC producers bitterly fought the tariff reduction proposals (Scottish raspberry producers, for example), and, as a result, some of the reductions were scaled back from the original proposals. Some items included on the GSP list in 1989 were removed in 1990. One example is Hungarian jam exports. In 1989, the duty on Hungarian jam was reduced from 25 percent to 6 percent. But the duty went back to 25 percent in 1990. Duties on Polish mushroom exports were also increased in 1990.

The trade concessions granted thus far are generally insignificant. Many of the discriminatory barriers were removed, placing Eastern European exporters on an equal footing with U.S. or Canadian exporters. In other words, the barriers remain formidable. As of mid-1991, Hungary, Poland, and Czechoslovakia were negotiating Association Agreements with the EC. Early indications are that these agreements will not provide much greater access to the EC market. Discussions thus far suggest that access to the EC will be pegged to the 1990 GSP import quotas with tariff/levy reductions on these quotas averaging 50 percent.

The Effects of EC 1992 on Eastern Europe and the Soviet Union

The effects of the EC 1992 initiative on Eastern European countries will generally depend on whether EC 1992 raises or lowers EC trade barriers. If eliminating the EC's agrimonetary system lowers domestic EC prices, then market access could slightly improve, but this effect is not expected to be very large. To some extent, a single set of standards across the entire EC will make things easier for Eastern European firms exporting to several EC countries. On the other hand, Eastern European exporters will have to meet tougher phytosanitary standards, and the EC 1992 initiative will void the preferential trade agreements that the Eastern Europeans have negotiated with individual EC members.

Yugoslavia is one country that could suffer as a result of EC 1992. One of the phytosanitary standards that the EC members agreed on is that by 1992, the EC will be free of foot-and-mouth disease (FMD).1/ This will mean a complete ban on fresh beef imports from countries that are not FMD-free. Of the Eastern European countries, only Poland is FMD-free; Yugoslavia has a vaccination program in place. Exports of beef and live cattle make up 20-25 percent of the value of Yugoslavia's agricultural exports to the EC. Italy and Greece are virtually the only markets for these exports. Because these markets are protected in preferential trade agreements which will be voided in 1992, Yugoslavia is likely to lose the Italian and Greek markets even if it can become FMD-free by 1992.

Tougher EC standards will also affect Eastern Europe's exports of processed food, but the magnitude of the effects is not clear. Eastern Europe's food processing facilities generally are badly in need of renovation, and much of the aid from the West is targeted to the food processing sector. Renovation will quite likely be carried out with the EC standards in mind; since these plants already need renovations, the tougher EC standards may not create much of an extra burden.

Probably the greatest effect of the EC 1992 initiative will be to intensify the drive for eventual EC membership for the Eastern European countries. Hungary, Poland, Czechoslovakia, and Yugoslavia have all announced their intention to apply for membership in the EC. EC officials have stated that they will not consider such requests until after the EC 1992 program

1/ See Kenneth W. Forsyth and Maury E. Bredahl, "The EC Single-Market Program Effects on Trade in Animal Products," in Chapter 2 of this volume.

is in place, but their responses to Hungary and Czechoslovakia, in particular, have been encouraging. The Eastern European countries are meanwhile negotiating various types of association agreements.

The continuing EC trade barriers and the prospect of even tighter barriers after EC 1992 are matters of grave concern to the Eastern Europeans. Because of the shifts occurring in Eastern European demand and supply as a result of economic reform, these countries could develop sizable surpluses of several commodities in the next few years. These countries will be seeking markets for their surpluses. The U.S.S.R. will continue to be an important market for Eastern European products, but with the deepening economic crisis in that country, chances are dim for a significant expansion of that market. The Eastern Europeans thus believe that they must expand their sales to the EC. In their eyes, the continuing difficulty of penetrating the EC market is a major barrier to economic development.

Economic Reform and Potential Agricultural Adjustments in the ECPE's

The ECPE's, prior to World War II, were significant agricultural exporters, and the countries of the EC were significant agricultural importers. Although those roles have not completely reversed in the last twenty years, there has been a strong tendency in that direction. As a group, the ECPE's are large net importers of grains and meat. The Soviet Union imports large quantities of both meat and grains. The Eastern European countries export sizable quantities of meat, while importing grains. The EC, on the other hand, was historically a significant net grain and meat importer, and is now a net exporter of both.

Koopman (1991) has argued that the patterns of financial support to producers and consumers combined with the underlying supply and demand structures in the two regions (EC and ECPE), had created dramatically different economic environments for agriculture by the beginning of the 1990's. The EC has a combination of price support and underlying supply and demand curves that work strongly in favor of self-sufficiency. The ECPE's have a combination of price support and underlying supply and demand curves that make attaining self-sufficiency difficult.

What would agricultural trade in the ECPE's be like if they operated in a distortion-free market environment? This question has been addressed at length in Cochrane (1990), Cochrane and Koopman (1990), and Liefert, Koopman, and Cook (forthcoming). These studies use simulation models to examine the effects of unilateral reform for the ECPE's and multilateral reform for the ECPE's and the industrial market economies.

The reform scenarios examined in this paper include removing price supports to producers and consumers; making supply and demand curves more elastic (to reflect greater decision-making flexibility for farmers and consumers); shifting out supply curves to simulate productivity gains; and, in some cases, shifting demand curves to account for income effects.2/ The changes in domestic supply and demand result in new net trade vectors, which cause a disequilibrium in world markets, leading to a new set of world equilibrium prices. The new world equilibrium prices determine the new domestic prices, supply, and demand in the ECPE's, as well as in the rest of the world. The reform scenarios run in this exercise are relatively short term, in the sense that we do not assume full productivity or income adjustments that might be expected in the longer term from the successful introduction of market economies.3/

Three scenarios are examined, each assuming the same productivity and income adjustments in the ECPE's, but with different responses assumed for the rest of the world's response to ECPE reform. In the first scenario, the world is assumed to respond in a very limited manner to ECPE reform by restricting international price responses to internal price changes that ECPE reform generated. The second scenario highlights the effects of an open EC response to ECPE reform, while the rest of the world remains relatively closed. In the final scenario, all countries are assumed to respond fully to ECPE reform.

In table 2, we summarize the net trade effects on meat and grains from each of these scenarios compared with the model's base year (1986) data. In the limited-response scenario, ECPE meat exports increase 314 percent, while grain imports decline nearly 25 percent. In the scenario where the EC responds openly to ECPE reform, net meat exports increase 624 percent over the

2/ The productivity supply shifts used in this paper reflect across-the-board, 10-percent gains. Elsewhere, more elaborate estimates of productivity differentials by commodity have been used. The 10-percent figure used in this paper covers only about a third of the general productivity gap between ECPE and EC agriculture. On the demand side, 5-percent shifts were used to reflect declines in real income. Both the supply and demand shifts used in this analysis should be considered more short run than those in some of the other papers mentioned.

3/ Another interpretation is that these scenarios are less optimistic about the successful implementation of effective market economies than are some of the other studies that we have conducted.

Table 2--Effects of varying external responses to ECPE net trade 1/

Item	Scenario			
	1986 base	No response	EC response	World response
	Thousand metric tons			
Net exports of:				
Meat	1,675	1,701	2,976	3,050
Grains	-31,530	-24,268	-15,987	-9,742

1/ ECPE denotes European centrally planned economies.
Source: ERS estimates.

base-year period, and grain imports decline by nearly 50 percent. Thus, an open EC greatly affects ECPE exports.

In the final scenario, where all countries respond openly, net ECPE meat exports are 642 percent greater than base-year exports, and grain imports decline 70 percent from the base-year level. Comparing the second and third scenarios emphasizes the importance of the EC response to ECPE reform. EC openness to ECPE reforms increased meat exports by 1.3 million metric tons, and decreased grain imports by 8.3 million metric tons. Adding the rest of the world increased meat exports by only 74,000 metric tons, and grain imports by 6.2 million metric tons.

Conclusions

The above model scenarios highlight the importance of the EC response to ECPE reform, especially in the short run. In the longer run, a successful reform could cause the ECPE's to switch from net importer of grains to net exporter, as the feed livestock sector rationalizes and productivity gains increase. The importance of the EC in the longer term has not been analyzed. Still, the short-term effects could be significant, especially if the ECPE's experience larger demand adjustments than are assumed here.

For example, the demand effects of Poland's price reforms have been more dramatic than anticipated. Meat consumption declined by 8 percent in 1989, and by another 10 percent in 1990. Demand for wheat, butter, and sugar fell so sharply that Poland, normally an importer of these products, is holding large surpluses of all three commodities and is experiencing difficulties marketing those surpluses. The supply effect in the longer term could be equally dramatic, but that adjustment will probably not be as rapid. If Poland's experience is repeated in the other countries as they reform, the short-term result could be significant agricultural surpluses.

If other countries develop surpluses similar to Poland's, and if world markets remain closed, then falling domestic farm prices will increase pressures for extensive internal support to agriculture. If such support systems are in place before the inefficiencies of central planning are completely eliminated, the costs could be enormous in terms of foregone hard-currency earnings and efficient market operation.

EC 1992 will benefit ECPE trade to the extent that the initiative opens borders for agricultural trade. At the same time, tougher sanitary and phytosanitary standards and the voiding of preferential trading agreements could have a negative effect. However, successful ECPE reform generally will affect world trade flows more than will EC 1992. Current estimates suggest that the direction of changes predicted for the EC 1992 and ECPE reform initiatives will complement one another.

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Appendix table 1--Pre-war wheat and flour trade in Europe

European centrally planned economies (ECPE'S)					
Countries	1925-29 average	1930	1931	1932	1933
	Thousand metric tons				
Germany (all)	2,065.9	1,165.1	520.3	536.8	1.1
Bulgaria	-32.3	-37.1	-270.9	-201.9	-104.4
Hungary	-591.8	-653.9	-527.0	-223.6	-515.7
Poland	147.3	-73.1	-72.2	-67.7	-21.9
Romania	-149.5	-364.2	-1,038.2	-111.9	-6.1
Czechoslovakia	499.9	545.5	452.9	371.0	298.7
Yugoslavia	-252.7	-262.1	-313.4	-138.3	-15.5
Total EE 1/	1,686.8	320.2	-1,248.5	164.4	-363.8
Net of Germany	-379.1	-844.9	-1,768.8	-372.4	-364.9
U.S.S.R.	-307.9	-2,544.6	-2,539.0	-460.9	-783.2
Total ECPE	-687.0	-3,389.5	-4,307.8	-833.3	-1,148.1

European Community (EC)					
Countries	1925-29 average	1930	1931	1932	1933
	Thousand metric tons				
Germany (all)	2,065.9	1,165.1	520.3	536.8	1.1
Belgium	1,103.8	1,189.7	1,286.6	1,161.4	1,065.4
Denmark	256.0	226.0	478.1	350.6	343.9
Spain	124.7	2.2	-2.4	291.9	-1.5
Ireland	494.6	492.2	513.2	499.8	509.4
France	1,254.1	240.5	1,913.3	1,945.6	541.2
Great Britain	5,560.6	5,771.4	6,475.1	558.6	6,129.4
Greece	541.2	593.7	670.1	603.5	449.4
Italy	2,186.4	1,874.2	1,398.3	886.6	278.2
Netherlands	765.8	901.5	889.9	773.9	791.7
Portugal	194.7	158.2	93.6	68.9	28.1
Total EC	14,547.8	12,614.7	14,236.1	12,677.6	10,136.3
Net of Germany	12,481.9	11,449.6	13,715.8	12,140.8	10,135.2

1/ EE denotes Eastern Europe.
Source: International Yearbook of Agricultural Statistics, 1933-34. International Institute of Agriculture, Rome, 1934.

Appendix table 2--Pre-war rye trade in Europe

European centrally planned economies (ECPE's)					
Countries	1925-29 average	1930	1931	1932	1933
	Thousand metric tons				
Germany (all)	67.9	-181.1	16.9	553.4	-24.7
Bulgaria	-12.2	-27.4	-73.9	-9.9	-1.3
Hungary	-143.5	-102.1	-68.1	-52.2	-141.4
Poland	-60.3	-382.5	-128.1	-211.7	-352.9
Romania	-26.8	-29.1	-96.0	-12.0	0
Czechoslovakia	95.2	-32.1	194.5	68.3	-5.0
Yugoslavia	-4.3	-4.0	0	0	0
Total EE 1/	-84.0	-754.7	-154.7	-335.9	-520.8
Net of Germany	-151.9	-573.6	-171.6	-217.5	-496.1
U.S.S.R.	-119.5	-645.6	-1,108.8	-421.0	-157.2
Total ECPE	-271.4	-1,219.2	-1,280.4	-638.5	-653.3

European Community (EC)					
Countries	1925-29 average	1930	1931	1932	1933
	Thousand metric tons				
Germany (all)	67.90	-181.10	16.90	553.40	-24.7
Belgium	34.00	71.30	159.70	103.10	177.4
Denmark	187.10	329.10	263.60	263.60	286.9
Spain	--	--	--	--	--
Ireland	0	0	0	0	0
France	32.60	22.40	76.50	56.00	11.5
Great Britain	12.50	4.60	5.20	1.90	4.5
Greece	--	--	--	--	--
Italy	5.90	26.30	15.80	11.00	7.2
Netherlands	98.20	178.40	217.90	185.90	182.8
Portugal	--	--	--	--	--
Total EC	438.58	451.06	755.68	1,151.15	645.6
Net of Germany	370.68	632.16	738.78	597.75	670.3

-- = Less than 100 metric tons.
1/ EE denotes Eastern Europe.

Appendix table 3--Pre-war barley trade in Europe

European centrally planned economies (ECPE's)					
Countries	1925-29 average	1930	1931	1932	1933
	Thousand metric tons				
Germany (all)	1,666.9	1,471.7	846.6	477.8	235.2
Bulgaria	-35.0	-45.3	-48.7	-4.0	-17.3
Hungary	-51.4	-42.9	-10.4	-24.6	-145.4
Poland	-129.8	-216.7	-138.0	-145.6	-145.4
Romania	-607.2	-1,443.7	-1,034.6	-542.4	-621.6
Czechoslovakia	-104.9	-142.3	-56.3	-174.9	75.6
Yugoslavia	-9.3	3.1	1.4	-.3	-9.5
Total EE 1/	729.3	-416.1	-440.0	-414.0	-714.2
Net of Germany	-937.6	-1,887.8	-1,286.6	-891.8	-949.4
U.S.S.R.	-284.5	-1,181.4	-963.8	-422.0	-567.0
Total ECPE	-1,222.1	-3,069.2	-2,550.4	-1,313.8	-1,516.4

European Community (EC)					
Countries	1925-29 average	1930	1931	1932	1933
	Thousand metric tons				
Germany (all)	1,666.9	1,471.7	846.6	477.8	235.2
Belgium	279.8	392.7	417.8	347.1	361.2
Denmark	-2.0	475.2	392.4	88.5	53.8
Spain	-.9	-9.0	-2.9	-1.0	-3.8
Ireland	8.5	14.5	21.8	19.3	8.5
France	37.6	140.8	420.4	445.3	244.9
Great Britain	681.6	770.4	779.6	512.5	810.5
Greece	14.5	8.2	1.6	7.6	.9
Italy	4.0	16.9	25.5	28.3	31.7
Netherlands	280.5	517.2	541.4	385.8	488.7
Portugal	1.7	1.6	1.4	1.2	1.6
Total EC	2,972.2	3,800.2	3,445.6	2,312.4	2,233.2
Net of Germany	1,305.3	2,328.5	2,599.0	11,834.6	1,998.0

1/ EE denotes Eastern Europe.

Appendix table 4--Pre-war oat trade in Europe

European centrally planned economies (ECPE's)

Countries	1925-29 average	1930	1931	1932	1933
	Thousand metric tons				
Germany (all)	27.3	-385.9	47.5	5.5	-57.7
Bulgaria	--	--	--	--	--
Hungary	-28.3	-10.4	-5.8	-1.1	-45.5
Poland	3.9	-56.3	-3.0	-3.1	-15.3
Romania	-45.7	-94.0	-38.2	-31.8	-23.4
Czechoslovakia	-26.9	-52.6	-6.7	-122.0	-68.2
Yugoslavia	-4.2	-5.4	-.5	--	-1.5
Total EE 1/	-7.4	-593.8	59.0	-152.5	-211.6
Net of Germany	-10.1	-207.9	-41.6	-158.0	-153.9
U.S.S.R.	-2.7	-35.3	-38.7	-1.7	-8.5
Total ECPE	-12.8	-560.4	-428.6	-175.3	-237.4

European Community (EC)

Countries	1925-29 average	1930	1931	1932	1933
	Thousand metric tons				
Germany (all)	27.3	-385.9	47.5	5.5	-57.7
Belgium	114.3	156.4	102.3	53.6	32.9
Denmark	25.6	109.7	50.4	8.4	22.0
Spain	0	0	0	0	0
Ireland	-40.5	9.4	14.9	2.2	-2.6
France	89.4	65.0	81.9	156.9	23.1
Great Britain	351.5	476.6	417.1	319.1	284.2
Greece	3.7	4.4	--	--	--
Italy	108.1	134.0	153.6	172.1	108.4
Netherlands	98.0	151.6	120.1	115.1	92.3
Portugal	--	--	--	--	--
Total EC	2,466.9	252.2	2,322.7	1,335.5	502.6
Net of Germany	2,778.0	2,855.4	2,327.4	11,387.7	560.2

-- = Less than 100 metric tons.
1/ EE denotes Eastern Europe.

Appendix table 5--Pre-war corn trade in Europe

European centrally planned economies (ECPC's)

Countries	1925-29 average	1930	1931	1932	1933
	Thousand metric tons				
Germany	1,062.4	651.29	507.2	759.7	254.0
Bulgaria	-93.9	-191.50	-135.1	-168.1	-100.4
Hungary	-83.6	-89.90	-107.6	23.0	-198.4
Poland	54.5	17.70	21.2	4.6	4.0
Romania	-775.8	-1,180.70	-1,027.1	-1,739.2	-1,072.0
Czechoslovakia	315.9	273.60	676.0	314.8	178.3
Yugoslavia	-440.1	-501.80	-223.1	-184.8	-601.2
Total EE 1/	39.4	-1,021.40	-288.5	-990.0	-1,535.7
Net of Germany	-1,023.0	-1,672.60	-795.7	-1,749.7	-1,789.7
U.S.S.R.	-100.9	-53.60	-96.6	-311.1	-123.6
Total ECPE	-1,123.9	-1,726.20	-892.6	-2,060.8	-1,913.3

European Community (EC)

Countries	1925-29 average	1930	1931	1932	1933
	Thousand metric tons				
Germany (all)	1,062.40	651.20	507.20	759.70	254.00
Belgium	595.00	576.80	791.40	794.50	686.50
Denmark	479.20	299.60	723.10	946.50	500.40
Spain	340.70	129.80	172.40	287.50	106.20
Ireland	342.50	373.60	567.90	569.50	296.20
France	674.40	808.50	1,061.50	1,169.90	720.00
Great Britain	1,638.60	1,629.20	2,591.90	2,545.90	2,520.00
Greece	24.90	7.10	19.80	151.80	26.70
Italy	547.10	713.50	737.80	643.00	43.50
Netherlands	1,084.40	1,096.20	1,561.10	1,672.50	1,236.40
Portugal	6.12	8.35	5.68	6.57	6.43
Total EC	6,868.40	6,369.00	8,790.90	19,606.50	6,454.20
Net of Germany	5,806.00	5,717.80	8,283.70	18,846.80	6,200.20

1/ EE denotes Eastern Europe.

Appendix table 6--Pre-war beef trade in Europe

European centrally planned economies (ECPE's)					
Countries	1925-29 average	1930	1931	1932	1933
	Thousand metric tons				
Germany (all)	125.2	51.2	6.5	2.7	2.9
Bulgaria	0	0	0	0	0
Hungary	-2.0	-1.9	-1.9	-1.4	-.7
Poland	-7.9	-10.6	-9.7	-2.0	-1.2
Romania	-5.9	-8.6	-3.9	-1.2	--
Czechoslovakia	3.6	2.5	.7	-.1	--
Yugoslavia	-6.1	-3.0	-3.6	-2.2	-2.5
Total EE 1/	106.9	29.6	-11.9	-4.2	-1.9
Net of Germany	-18.3	-21.6	-18.4	-6.9	-4.8
U.S.S.R.	-2.8	--	-1.3	-8.4	-6.3
Total ECPE	-21.1	-21.9	-17.1	-1.5	-1.5

European Community (EC)					
Countries	1925-29 average	1930	1931	1932	1933
	Thousand metric tons				
Germany (all)	125.20	51.20	6.50	2.70	2.9
Belgium	39.40	33.80	38.80	23.80	27.4
Denmark	-10.50	-19.70	-32.00	-14.60	-13.6
Spain	1.11	.43	.23	.67	2.4
Ireland	-.80	0	0	.10	--
France	43.60	35.30	60.10	27.80	20.3
Great Britain	629.30	591.10	613.60	565.90	568.5
Greece	.20	.14	.14	.06	--
Italy	67.30	59.80	49.40	44.30	42.4
Netherlands	1.50	14.60	13.30	6.80	6.9
Portugal	.18	.10	.05	--	--
Total EC	1,662.80	15,165.50	1,407.70	11,314.80	657.3
Net of Germany	1,486.40	1,458.80	1,398.50	1,309.20	654.4

-- = Less than 100 metric tons.
1/ EE denotes Eastern Europe.

Appendix table 7--Pre-war mutton trade in Europe

European centrally planned Economies (ECPE's)					
Countries	1925-29 average	1930	1931	1932	1933
	Thousand metric tons				
Germany (all)	3.2	3.20	-.5	.1	.1
Bulgaria	-9.0	0	0	0	0
Hungary	-10.0	-.40	-1.2	-.5	-.6
Poland	--	.50	-1.1	-.6	-.5
Romania	-1.4	0	0	0	0
Czechoslovakia	0	0	0	0	0
Yugoslavia	--	--	--	--	--
Total EE 1/	-7.4	2.30	-2.8	-1.0	-1.1
Net of Germany	-10.6	-.93	-2.3	-1.1	-1.2
U.S.S.R.	0	0	0	0	0
Total ECPE	-10.6	-.93	-2.3	-1.1	-1.2

European Community (EC)					
Countries	1925-29 average	1930	1931	1932	1933
	Thousand metric tons				
Germany (all)	3.20	3.2	-.5	.1	.1
Belgium	1.40	1.2	1.9	2.9	1.9
Denmark	-1.00	-1.1	-1.1	--	--
Spain	0	0	0	0	0
Ireland	-.46	-.8	-1.5	--	0
France	9.90	13.7	18.8	9.3	8.9
Great Britain	281.60	326.4	363.0	352.7	341.8
Greece	0	0	0	0	0
Italy	0	0	0	0	0
Netherlands	-6.80	-5.1	-5.1	-4.2	-6.4
Portugal	0	0	0	0	0
Total EC	289.90	339.7	378.0	360.7	346.5
Net of Germany	286.70	336.5	378.5	360.6	346.4

-- = Less than 100 metric tons.
1/ EE denotes Eastern Europe.

Appendix table 8--Pre-war pork trade in Europe

European centrally planned economies (ECPE's)

Countries	1925-29 average	1930	1931	1932	1933
	Thousand metric tons				
Germany (all)	35.7	10.60	16.4	17.5	15.6
Bulgaria	0	-.70	-.2	0	0
Hungary	-3.5	-2.00	-9.0	--	--
Poland	-18.3	-7.70	-12.1	-1.3	-1.4
Romania	-2.9	--	-.4	--	--
Czechoslovakia	1.4	.10	4.6	--	--
Yugoslavia	-7.7	-3.00	-1.9	-2.7	-1.6
Total EE 1/	4.7	-2.74	-5.5	-13.0	12.5
Net of Germany	-31.0	-13.30	-10.9	-4.5	-3.1
U.S.S.R.	-5.6	-.70	0	--	0
Total ECPE	-36.6	-14.00	-10.9	-4.5	-3.1

European Community (EC)

Countries	1925-29 average	1930	1931	1932	1933
	Thousand metric tons				
Germany (all)	35.70	10.60	16.4	17.5	15.60
Belgium	.38	8.80	16.8	12.0	5.70
Denmark	-1.90	-.42	-4.2	-6.0	-7.70
Spain	.51	-.91	-1.5	-1.0	-.56
Ireland	-13.80	-14.20	-19.7	-13.2	-9.80
France	20.30	23.20	24.4	8.6	8.10
Great Britain	46.50	43.20	48.2	38.8	50.90
Greece	0	0	0	0	0
Italy	-2.50	-3.80	-4.9	-3.2	-3.50
Netherlands	-37.70	-27.20	-36.1	-23.4	-15.70
Portugal	--	--	--	--	-.35
Total EC	48.10	38.50	40.1	29.8	42.50
Net of Germany	12.40	27.90	23.7	12.3	27.00

-- = Less than 100 metric tons.
1/ EE denotes Eastern Europe.

Appendix table 9--Pre-war butter trade in Europe

European centrally planned Economies (ECPE's)					
Countries	1925-29 average	1930	1931	1932	1933
	Thousand metric tons				
Germany (all)	112.8	132.8	100.0	69.3	59.1
Bulgaria	--	--	--	--	--
Hungary	--	-1.5	-1.7	-2.0	-3.6
Poland	-7.7	-12.1	-12.4	-.8	-1.5
Romania	--	--	--	--	--
Czechoslovakia	.2	.1	1.5	1.2	.6
Yugoslavia	--	--	--	--	--
Total EE 1/	105.0	118.9	8.7	67.5	54.4
Net of Germany	-7.8	-14.0	-13.1	-1.8	-4.7
U.S.S.R	-28.4	-10.5	-30.8	-30.9	-37.2
Total ECPE	-36.2	-24.4	-43.9	-32.7	-41.9

European Community (EC)					
Countries	1925-29 average	1930	1931	1932	1933
	Thousand metric tons				
Germany (all)	112.80	132.80	100.00	69.30	59.10
Belgium	1.50	9.10	17.70	20.50	12.10
Denmark	-140.20	-168.40	-170.90	-157.40	-150.40
Spain	--	--	--	--	--
Ireland	-23.70	-25.10	-17.70	-15.60	-20.50
France	-4.40	.37	13.50	8.30	6.10
Great Britain	273.00	337.20	391.20	408.80	443.90
Greece	.65	.64	.93	.54	.36
Italy	-1.07	-.58	-2.22	-1.45	-.77
Netherlands	-43.40	-39.90	-28.90	-16.10	-27.70
Portugal	3.20	--	--	--	--
Total EC	1,753.80	2,472.80	3,078.80	3,196.10	3,234.00
Net of Germany	625.80	1,144.80	2,078.80	2,503.10	2,643.00

-- = Less than 100 metric tons.
1/ EE denotes Eastern Europe.

Appendix table 10--Pre-war cheese trade in Europe

European centrally planned economies (ECPE's)					
Countries	1925-29 average	1930	1931	1932	1933
	Thousand metric tons				
Germany (all)	66.1	59.8	51.2	47.3	39.4
Bulgaria	-.9	-1.1	-1.4	-1.1	-1.1
Hungary	--	-.4	--	--	--
Poland	-1.0	-.9	-.9	-.8	--
Romania	-.3	--	--	--	--
Czechoslovakia	-2.4	-2.4	-3.2	-1.3	--
Yugoslavia	-1.9	-1.9	-1.7	-1.1	-1.4
Total EE 1/	59.7	53.2	43.9	43.5	36.7
Net of Germany	-6.4	-6.1	-7.3	-3.8	-2.7
U.S.S.R.	-.5	--	--	--	--
Total ECPE	-6.9	-6.9	-7.4	-3.9	-2.8

European Community (EC)					
Countries	1925-29 average	1930	1931	1932	1933
	Thousand metric tons				
Germany (all)	66.10	6.00	5.10	4.70	4.90
Belgium	17.00	22.80	22.10	20.50	21.80
Denmark	-6.30	-5.40	-4.00	-6.50	-10.00
Spain	3.20	2.60	1.70	1.00	1.10
Ireland	1.00	.10	1.10	.10	.13
France	3.10	12.10	22.00	10.50	9.60
Great Britain	148.10	154.10	143.30	149.30	151.60
Greece	1.80	.91	1.70	.51	-.32
Italy	-30.10	-31.00	-35.80	-26.10	-19.30
Netherlands	-89.30	-93.10	-85.80	-76.70	-63.60
Portugal	-.56	.40	.33	.23	.27
Total EC	115.20	124.10	117.90	121.00	130.50
Net of Germany	50.00	64.30	66.70	74.00	91.10

-- = Less than 100 metric tons.
1/ EE denotes Eastern Europe.

European Community Trade with African, Caribbean, Pacific, and Other Developing Countries

Liana Neff*
Terri Raney

Abstract

The European Community's (EC's) 1992 program will affect developing countries through changes in the EC's net external trade position and trade policies. The EC 1992 program may enhance demand and may reduce production for some commodities in the EC. Developing countries may see increased EC demand for their exports, less competition from the EC, and higher world prices. Many developing countries, particularly the overseas territories and African, Caribbean, and Pacific (ACP) countries (former colonies of EC members), receive preferential market access to the EC. Changes in preference levels would affect market shares of these countries. Some ACP countries export to the EC under quotas, earning quota rents. Higher world prices imply lower quota rents. Bananas are traded under a bilateral quota system that may be unenforceable after internal borders are eliminated. The EC has promised to protect ACP suppliers who are in danger of losing their trade preferences, but has not shown how it will protect the suppliers.

Introduction

The European Community (EC) plans to eliminate its remaining internal barriers to the free movement of services, people, capital, and goods by the end of 1992. The emerging single internal market will have important implications for agricultural trade between the EC and developing countries. The EC 1992 program is predicted to enhance demand and to reduce domestic production for some commodities in the EC. Developing countries may consequently see increased EC demand for their exports, less competition from the EC on world markets, and higher world prices. Some agricultural exporters to the EC will benefit from these developments, but others may suffer.

The EC uses a variety of discriminatory policy measures to control its agricultural imports, including variable levies, ad valorem duties, import quotas, licensing requirements, and export subsidies. Developing countries, particularly the overseas territories and former colonies of EC members, receive a broad range of trade preferences from the EC. The EC 1992 program will require changes in the structure of the preference schemes for certain commodities, and may change the relative preferences offered to various developing countries. The EC has promised that market integration will not hurt its overseas territories and former colonies, but they have not yet shown how they will protect suppliers who risk losing their preferential market access.

This study (1) outlines the trade preferences that the EC offers to various developing countries; (2) reviews the historical trade patterns between the EC and developing countries; and (3) analyzes how the completion of the single EC market may affect these trade flows.

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Table 1--EC agricultural import market shares 1/

Commodity exporters	1975-77	1985-87	1992 2/
	Percent		
Total agriculture:			
ACP	15	16	15
Overseas territories	1	1	1
Other developing countries	36	41	44
Rest of world	48	42	40
Beef and veal: 3/			
ACP	11	7	6
Other developing countries	30	35	42
Rest of world	58	58	52
Fish and preparations:			
ACP	7	9	11
Overseas territories	3	6	8
Other developing countries	24	28	31
Rest of world	66	56	50
Food grains and preparations:			
ACP	2	5	7
Other developing countries	11	16	17
Rest of world	88	79	76
Feed grains:			
ACP	0	3	4
Other developing countries	16	18	17
Rest of world	84	78	78
Oilseeds:			
ACP	9	2	1
Other developing countries	26	29	41
Rest of world	66	69	58
Animal feeds:			
ACP	7	2	0
Other developing countries	48	59	68
Rest of world	44	39	33

Table 1--EC agricultural import market shares 1/--Continued

Commodity exporters	1975-77	1985-87	1992 2/
	Percent		
Fruit and vegetables:			
ACP	8	8	6
Overseas territories	3	3	2
Other developing countries	54	58	63
Rest of world	35	31	28
Bananas: 4/			
ACP	24	23	19
Overseas territories	19	19	18
Other developing countries	55	58	63
Rest of world	2	0	0
Sugar: 5/			
ACP	45	73	96
Overseas territories	12	14	12
Other developing countries	31	1	-19
Rest of world	11	12	12
Coffee, tea, cocoa, and spices:			
ACP	50	48	45
Other developing countries	48	48	51
Rest of world	2	4	5
Beverages and tobacco:			
ACP	11	14	16
Overseas territories	2	2	1
Other developing countries	38	34	33
Rest of world	50	50	50
Other agriculture:			
ACP	13	10	8
Other developing countries	39	41	43
Rest of world	47	49	49

1/ Country groupings are defined in Appendix A.
2/ Projections are based on trend lines of market shares from 1975 to 1987, except for oilseeds and animal feeds, which are based on 1980-87.
3/ Beef and veal data are from Eurostat; all other trade-share data are from the United Nations.
4/ Bananas are also included in the fruit and vegetables category.
5/ India is included in ACP for sugar, and in Other developing countries for all other commodities.

Third Lomé Convention and a separate agreement with India. Sugar from these areas, often referred to as preferential sugar, enters the EC duty free. The EC imports sugar from ACP countries in specific quantities and at guaranteed prices.

ACP countries market their sugar under normal commercial arrangements in the EC. However, if they do not receive at least the guaranteed price in world markets, the EC will purchase the sugar at the guaranteed price. Note in table 2 that in the last few years, the guaranteed price for ACP sugar has been at a substantial premium above world prices. In 4 of the last 8 marketing years, the ACP guaranteed price for preferential sugar was more than triple the world market price. The benefit of the EC protocol for sugar to ACP countries lies in the quota rents, and the difference between the world price and the EC guarantee price that accrues to ACP exporters.

The total EC quota for preferential sugar is about 1.3 million metric tons (white-sugar equivalent). The EC and the individual sugar exporters negotiate specific bilateral quotas to allocate the total quota. Exporting countries must fill their quotas from domestic production, and they must fill their entire quota or face the possibility of a quota reduction. Kenya, Suriname, and Uganda have lost their quotas.

Table 2--ACP and EC sugar prices

Year	EC guaranteed price	ACP price received	World price received
	ECU per metric ton		
1981-82	38.58	38.94	31.96
1982-83	42.63	42.63	19.89
1983-84	44.34	44.34	20.98
1984-85	44.34	44.34	14.53
1985-86	44.85	44.85	11.70
1986-87	44.92	44.92	13.55
1987-88	44.92	44.92	12.91
1988-89	44.92	44.92	19.01

Sources: Agra Europe, Ltd., CAP Monitor, London, March 1989; and International Monetary Fund, International Financial Statistics, Washington, DC, various issues.

The 1975-77 average market share of EC sugar imports from ACP countries was 45 percent. This share grew to 73 percent in 1985-87. Based on a straight-line trend projection, the ACP market share in 1992 would be 96 percent, in the absence of any policy change. The growth in the ACP share has occurred primarily at the expense of other developing countries, most notably Latin American producers. Their share of the EC market fell from almost a third to practically zero. The EC overseas territories have held a fairly constant 12- to 14- percent market share.

The effect of EC 1992 on ACP sugar exporters will depend on what the EC does regarding its internal sugar quota policy. If there is no change in the quota system, the effect of EC 1992 on ACP sugar exporters will be minimal, and Latin American suppliers will remain locked out of the market. If EC sugar producer quotas are traded, EC production and exports may decrease, allowing world prices to rise. For the ACP exporters to the EC, this would decrease the value of their quota rents, but would not reduce their export revenue unless the EC guarantee price also falls. Meanwhile, ACP sugar exporters to the world market would benefit from increased world prices.

Beef and Veal

The EC maintains ad valorem customs duties on all categories of bovine imports, and additional variable import levies on four categories of beef. These categories are live cattle and calves other than pure-bred animals for breeding; fresh, chilled, and frozen beef and veal; salted, dried, or smoked beef and veal; and uncooked, prepared, or preserved beef or veal.

The EC gives preferential treatment for beef and veal from ACP producers. The EC imports an annual quota of 39,000 metric tons, boneless equivalent, of beef from five specific ACP countries: Botswana, Madagascar, Swaziland, Zimbabwe, and Kenya. ACP exporters cannot ship beef to the EC beyond the quota limits. Beef is the largest agricultural product and a major export for Botswana, with 50-60 percent going to the EC. Beef is also a traditional export for Swaziland, Madagascar, and Kenya. Botswana is the primary beneficiary of the ACP beef quota, receiving almost half of the entire EC quota for ACP beef and veal.

Under Lomé IV, beef imports from ACP countries are exempt from customs duties. ACP countries pay only 10 percent of the applicable variable levies for beef. The value of the exemption from customs duties and levies is substantial. In 1985, for example, the value of Botswana's variable levy preference was estimated to be 45 million European currency units (ECU).

Table 1 shows that the average EC market share that ACP beef and veal exporters captured was 11 percent in 1975-77, and fell to 7 percent in 1985-87. Other developing countries have gained market share over this same time period, from 30 percent in 1975-77 to 35 percent in 1985-87, despite the preferences given to ACP exporters. Based on straight-line trend projections, the ACP market share would drop to about 6 percent by 1992, while the share going to other developing countries would rise to 42 percent.

EC 1992 may have important implications for ACP beef exports to the EC. If the gross domestic product (GDP) of the EC rises as a result of EC 1992, as many say it will, the demand for beef will increase. The EC is currently a net exporter of beef. Thus, an increase in the demand for beef would decrease exports, thereby pressuring world beef prices to rise. The ACP countries would experience a decline in their quota rents, as defined by the net EC import price minus the world price, but their export earnings would increase if the EC import price rose. At the same time, these countries would benefit from increased world prices in their exports to other countries.

A potential disadvantage of EC 1992 for ACP countries is the harmonization of sanitary and phytosanitary regulations. These regulations might be more restrictive after 1992. The ability of the ACP countries to keep their market share may depend on their ability to meet these stricter standards. The EC may have to give aid in the form of technology transfers to help the ACP countries meet the stricter sanitary standards.

Bananas

The EC does not maintain a unified banana import policy. Policies vary among the EC member countries and depend on the existence of intra-EC trade barriers. EC countries use three general types of import regimes: free trade; import quotas and licensing to protect domestic producers and former colonies; and discriminatory import duties. Under a special protocol of the Treaty of Rome, the Federal Republic of Germany is the only EC country that imports bananas duty free and without quantitative restrictions.

EC countries that produce bananas domestically or import them from overseas territories or former colonies use import quotas. Spain, Greece, Portugal, and France produce bananas domestically or in their overseas territories, such as Martinique, Guadeloupe, Crete, Madeira, and the Canary Islands. These countries retain most or all of their markets for domestic producers. Former colonial powers, including France, the United Kingdom, and Italy, retain portions of their markets for former colonies. France reserves about two-thirds of its market for French Overseas Departments and a third for ACP countries. French imports from other sources are subject to licensing. The United Kingdom grants access to producers formerly of the Commonwealth and to other ACP countries. Imports to the UK from other countries are permitted, but require licensing. Italy grants free access to imports from EC overseas territories and ACP countries, but sets a global quota for other sources.

The remaining EC countries--Belgium, the Netherlands, Luxembourg, Denmark, and Ireland-- import bananas without quantitative restrictions, but they levy discriminatory tariffs. Bananas from EC overseas territories and ACP countries are admitted duty-free, while bananas from other sources are subject to a 20-percent ad valorem tariff (Fitzpatrick and Associates, 1990).

In 1987, the ACP countries accounted for about 24 percent of the bananas imported by the EC. About 19 percent of EC imports came from overseas territories, and Latin America held the remaining 58 percent of the market. Of course, these EC total market shares disguise widely divergent market profiles for the separate EC importers. In West Germany, which has free trade in bananas, ACP exporters account for none of the market. Latin American producers, known as dollar-zone producers, dominate the German market through a combination of lower costs and higher quality. Even those EC countries that allow ACP bananas duty-free access, while charging a 20-percent ad valorem duty on other suppliers, are almost completely dominated by dollar-zone producers.

The average ACP share of the EC market for bananas fell from 24 percent in 1975-77 to 23 percent in 1985-87. An increase in Latin American producers' market share matched the decline in the ACP share. Based on a straight-line trend projection, the ACP share of the EC banana market would fall to 19 percent in 1992 without any policy change.

Policy changes in the EC will be necessary after 1992. The structure of the EC banana market depends on the existence of internal borders. In the absence of internal EC borders, bananas would move from free-trading Germany to the rest of the EC, and the ACP countries would be excluded from the market. The EC has promised that the completion of the internal market will not hurt ACP banana producers. If the EC is to protect ACP producers after 1992, the banana program must be changed.

The EC could implement an EC-wide quota system for bananas similar to the current sugar program. Such a system could reserve a portion of the market for ACP banana producers, with the rest of the market being allocated to dollar-zone producers. Under a quota system, consumers in some EC countries, notably West Germany, would face price increases for bananas, while others, such as Greece and France, would see price reductions. Latin American producers are likely to oppose such a policy as discriminatory, and it is unclear whether or not a market-sharing scheme would be considered legal under the GATT.

Another possibility would be for the EC to implement an EC-wide tariff on dollar-zone bananas high enough to allow ACP producers to compete. Again, dollar-zone producers would likely protest, particularly as the tariff would have to be higher than the 20-percent duty already in place in many EC countries. The EC could liberalize the banana market by implementing a nondiscriminatory tariff, but ACP producers would clearly be hurt. The EC could aid these countries, either with direct compensatory payments or with investment in diversification schemes, to reduce their dependence on bananas. This would be especially important for the Windward and Leeward Islands, where more than half of their export earnings come from banana exports to the EC.

The effects of the EC 1992 program on the EC banana market will be substantial. The EC has not stated how it will avoid hurting ACP producers, but fundamental changes in the organization of the market will be necessary. Whether or not the EC can accomplish its goals in a manner consistent with GATT rules remains to be seen.

Conclusions

Completion of the single internal market will affect trade between the EC and developing countries. Most ACP commodities enter the EC on a preferential basis, many duty free and under non-binding quotas. After EC 1992, demand for these commodities may increase slightly due to GDP growth and marketing efficiency gains in the EC. But ACP countries will not necessarily benefit. Some ACP commodities are traded under a bilateral quota system, with individual EC member countries reserving their markets and guaranteeing price premiums for specific ACP suppliers. With the elimination of internal borders, the EC members will be unable to enforce bilateral quota regimes for bananas. Sugar, beef and veal, and other ACP commodities exported to the EC under quotas receive quota rents due to high internal EC prices. The value of these quota rents and ACP export revenues will decrease if EC prices fall toward world price levels. The EC has not yet shown how they will protect the ACP suppliers who are in danger of losing their preferential access to EC markets.

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Appendix A: Country composition of aggregate regions

ACP--Angola, Antigua and Barbuda, Bahamas, Barbados, Belize, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoro Islands, Congo, Djibouti, Dominica, Equatorial Guinea, Ethiopia, Fiji, Gabon, Gambia, Ghana, Grenada, Guinea, Guinea-Bissau, Guyana, Ivory Coast, Jamaica, Kenya, Kiribati, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Niger, Nigeria, Papua New Guinea, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Solomon Islands, Somalia, St. Kitts and Nevis, St. Lucia, St. Vincent, Sudan, Suriname, Swaziland, Tanzania, Togo, Tonga, Trinidad and Tobago, Uganda, Vanuatu, Western Samoa, Zaire, Zambia, Zimbabwe, and Tuvalu.

Other developing countries--Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, Venezuela, Algeria, Cyprus, Egypt, Israel, Jordan, Lebanon, Malta, Morocco, Syria, Turkey, Tunisia, Afghanistan, Brunei, Singapore, Bahrain, Thailand, Indonesia, Malaysia, Philippines, South Korea, Taiwan, Hong Kong, Bangladesh, Bhutan, Burma, East Timor, India, Iran, Iraq, Kampuchea, Kuwait, Laos, Macao, Maldives, Nepal, North Yemen, Oman, Pakistan, Qatar, Ryukyu, Saudi Arabia, Sikkim, South Vietnam, South Yemen, Sri Lanka, and the United Arab Emirates.

Overseas territories--Bermuda, British Indian Ocean Territory, British Virgin Islands, Cayman Islands, Falkland Islands, French Guiana, French Polynesia, Greenland, Guadeloupe, Martinique, Montserrat, Netherland Antilles, New Caledonia, Pitcairn, Reunion, St. Helena, St. Pierre and Miquelon, Turks and Caicos, and Wallis and Futuna. Note: Overseas territories of Spain and Portugal are included in other developing countries.

Rest of World--Residual of world, minus the other categories.

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The Single European Market: Implications for European Community Trade

Terri Raney*

Abstract

The European Community's (EC's) creation of a single internal market after 1992 may affect world trade for a number of agricultural commodities. The elimination of physical borders will stimulate growth in gross domestic product and improve marketing efficiency, which, in turn, will stimulate consumer demand. Monetary union may translate into lower producer prices in some EC countries, with attendant reductions in supply. The EC's agricultural trade flows will be influenced by several political and economic events other than the 1992 program, including German reunification, economic restructuring in Central Europe and the Soviet Union, and the outcome of the current GATT negotiations.

Introduction

The European Community's (EC) creation of a single internal market after 1992 may affect world trade for a number of agricultural commodities. This paper reviews the potential trade effects of further economic integration within the EC, using standard neoclassical international trade theory, and analyzes EC trade flows for 12 agricultural commodities. Trade flows between the EC and three regional trading partners are projected to 1992, and the potential effects of the EC 1992 program are assessed.

The EC 1992 program may affect the EC's net trade position in agriculture in a number of ways. EC 1992 is intended to eliminate the remaining internal fiscal, physical, and technical barriers to trade among member states. Each of these features will affect production, consumption, and net exports of some commodities. Taken together, they will enhance income growth, which, in turn, will stimulate consumption and will affect the EC's net export position. Finally, the creation of a single internal EC market will change the structure of some of the trade preferences that the EC has given to developing countries.

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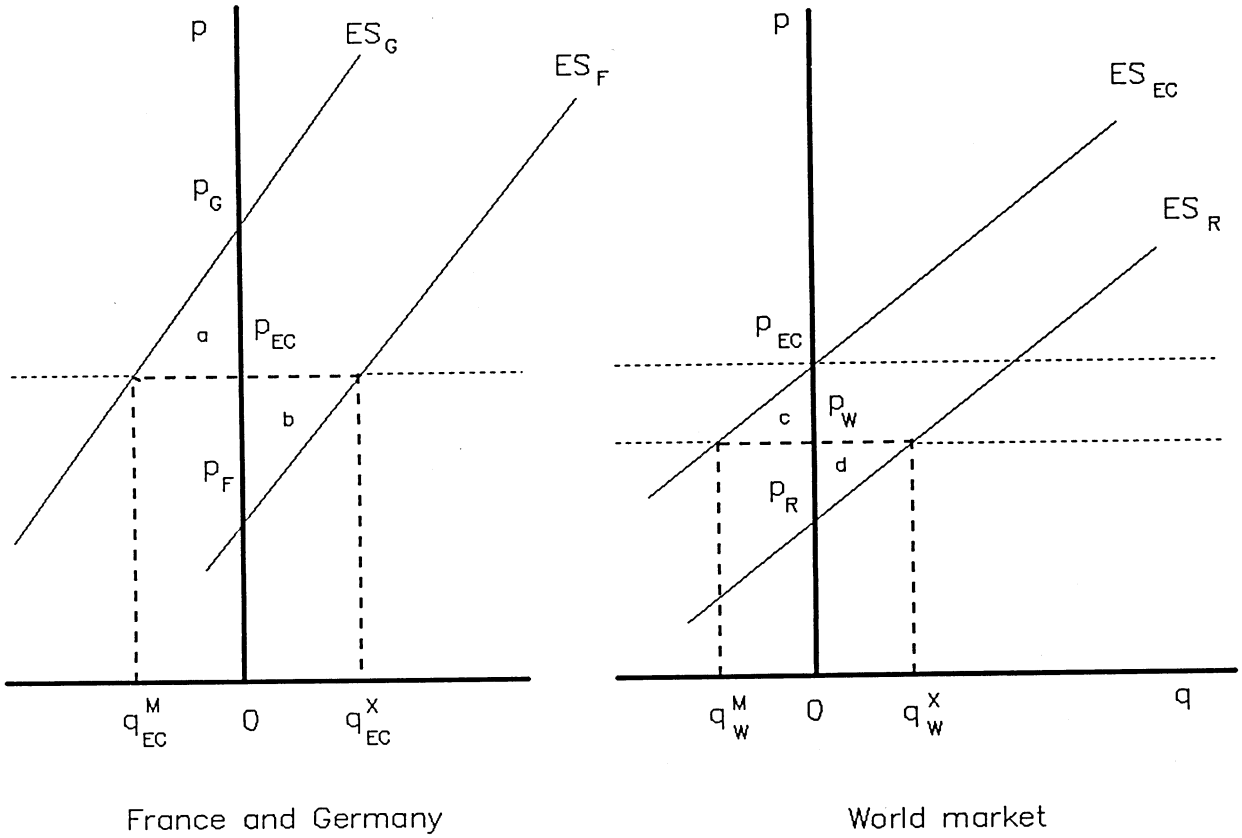
A number of political and economic events, in addition to the EC 1992 program, will influence EC agricultural trade. German unification, economic restructuring in Central Europe and the Soviet Union, the Uruguay Round negotiations in GATT, and reforms of the Common Agricultural Policy (CAP) are occurring as the EC 1992 program unfolds. Given the complex policy environment, isolating the effects of the completion of the internal market is difficult.

Theory of Market Integration

EC 1992 can be viewed conceptually as a continuation of the process of economic integration, which began with the formation of the EC in 1957. The formation of an economic union is often analyzed in terms of trade creation and trade diversion, concepts first developed by Viner (1950).

Figure 1 illustrates the trade effects of economic integration between two countries. The first panel of figure 1 represents the market for a single commodity in France and Germany. Demand and supply for the commodity is represented in each country by a single curve, called the excess supply (ES) curve. The point at which the ES curve intersects the vertical axis for each country represents the point at which domestic demand and domestic supply are equal and ES is zero.

Figure 1
Welfare effects of a customs union



This point also determines the domestic price in the absence of trade, P_F for France and P_G for Germany. To the right of the vertical axis and above the domestic price, ES is positive and the country would export the commodity if trade were permitted. To the left of the vertical axis and below the domestic price, ES is negative, and the country would import the commodity if trade were possible. For convenience, negative excess supply can be thought of as excess demand.

Germany is represented as a higher cost producer than France in figure 1. If France and Germany form a customs union, permitting free trade between themselves, they will trade at price P_{EC}. Of course, the actual European Community (EC) now has 12 members, but for ease of exposition, we will refer to the hypothetical union of France and Germany as the EC throughout this discussion. P_{EC} is the price at which the quantity France is willing to export (q^X_{EC}) equals the quantity Germany is willing to import (q^M_{EC}). Viner defined trade creation as the gain in consumer and producer surplus that the uniting countries experience as a result of trading rather than remaining isolated. In figure 1, the sum of the triangles a and b represents trade creation.

The EC 1992 process will involve a deepening of the economic integration among the EC countries that began with the formation of the EC. The elimination of the remaining trade barriers within the EC can enhance the trade-creating effects of the original customs union. Free movement of people, capital, and goods would allow production to occur in the lowest-cost locations within the EC, enhancing both the level of trade within the EC and the economic welfare of its residents. Trade creation arising from EC 1992 can increase the trade volume among the EC countries, with concomitant improvements to general welfare.

In the second panel of figure 1, the world market consists of two separate regions, the EC and the rest of the world (ROW). The ES curve for the EC, ES_{EC}, is found by horizontally summing the ES curves for France, Germany, and the 10 other EC members whose

individual ES curves are not shown. The domestic price in the EC is given by the point where ES_{EC} crosses the vertical axis, P_{EC}. The ES curve for the ROW, ES_R, is the horizontal sum of the ES curves for all the other countries in the world. The ROW will export at prices above P_R and will import at prices below P_R.

Trade diversion occurs when a customs union erects common barriers against lower cost producers in other countries. In figure 1, ROW is depicted as a lower cost producer than either France or Germany. If free trade were allowed, the quantity traded would equalize the excess supply of ROW and the combined excess demands of France and Germany, ES_{EC}. In figure 1, ROW would export $q^X{}_W$ to France and Germany at price P_W.

Viner defines the potential producers' and consumers' surplus that free trade could create, but the customs union prevents, as trade diversion. In this case, the areas labelled c and d measure trade diversion.

The first panel in figure 1 suggests that the formation of a customs union can create trade if the integrating partners initially have high trade barriers against each other and against the rest of the world. The second panel indicates that the customs union can divert trade if the integrating countries erect higher trade barriers against other countries. Michaely (1977) argues that trade diversion will be small if the initial level of protection among the integrating economies is low, and if the change in the level of protection against outsiders is small.

The EC has stated that EC 1992 will not involve the creation of higher barriers to imports from the rest of the world, and the world arguably has already absorbed most of the initial trade-diverting effects from formation of the EC. The static framework used in this analysis suggests that the EC 1992 process may cause little additional trade diversion. However, EC 1992 probably will not substantially reduce the existing trade distortions that arose from formation of the EC, and a dynamic framework could show that the EC's trade diverting effects continue to distort world trade.

Agricultural Price Supports

The EC's Common Agricultural Policy (CAP) includes a system of trade-distoring variable levies and export subsidies. Figure 2 illustrates, in highly simplified form, the effects of the CAP on EC production and trade. Again, we are using France and Germany to represent the entire EC. The excess supply curves for Germany and France and the excess demand curve for the ROW are depicted in figure 2 as in figure 1. The EC's combined excess supply curve changes, however, when an internal support price is established at $P^2{}_{EC}$. At prices above $P^2{}_{EC}$, the curve in figure 2 is the same as in figure 1, but at lower prices, the excess supply curve, $ES^2{}_{EC}$, becomes vertical, indicating a kink at the EC support price.

If the EC were a completely free trader, it would import $q^M{}_W$ from the ROW at price P_W, just as in figure 1. By forming a customs union and prohibiting imports from the ROW, the EC pushes the world price down to P_R, also as in figure 1. Finally, by establishing an internal support price and by stimulating domestic production, the EC must subsidize its exports of surplus production on the world market. The EC exports $q^{X2}{}_W$ at price $P^2{}_W$, and pays an export subsidy equal to the difference between $P^2{}_W$ and the internal support price, $P^2{}_{EC}$.

The Implications of EC 1992 for World Markets

As mentioned above, the EC 1992 program will eliminate the remaining internal fiscal, physical, and technical barriers to trade. Each of these features will affect production, consumption, and net exports of some commodities. Taken together, these features will enhance income growth, which, in turn, will stimulate consumption and net exports.

Removing Physical and Technical Barriers

Physical and technical barriers to internal EC trade include border checkpoints and differing sanitary and phytosanitary regulations that restrict the flow of goods between EC countries. Removing physical and technical barriers to internal EC trade will lower production and marketing costs for many agricultural products in the EC, particularly for processed foods. Producers within the EC and potential exporters to the EC should all experience cost reductions because they will have to meet only 1 set of standards rather than 12 sets.

Lower production and marketing costs are illustrated in figure 3 by shifting the excess supply curves of the individual EC countries and the EC as a whole downward and to the right, to $ES^3{}_F$, $ES^3{}_G$, and $ES^3{}_{EC}$. The point at which ES_R and the new $ES^3{}_{EC}$ are equidistant from the vertical axis shows that the quantity exported by the EC increases to $q^{X3}{}_W$. The ROW imports the same quantity, denoted $q^{M3}{}_W$, and the world price falls to $P^3{}_W$.

Figure 2
Effects of an EC support price

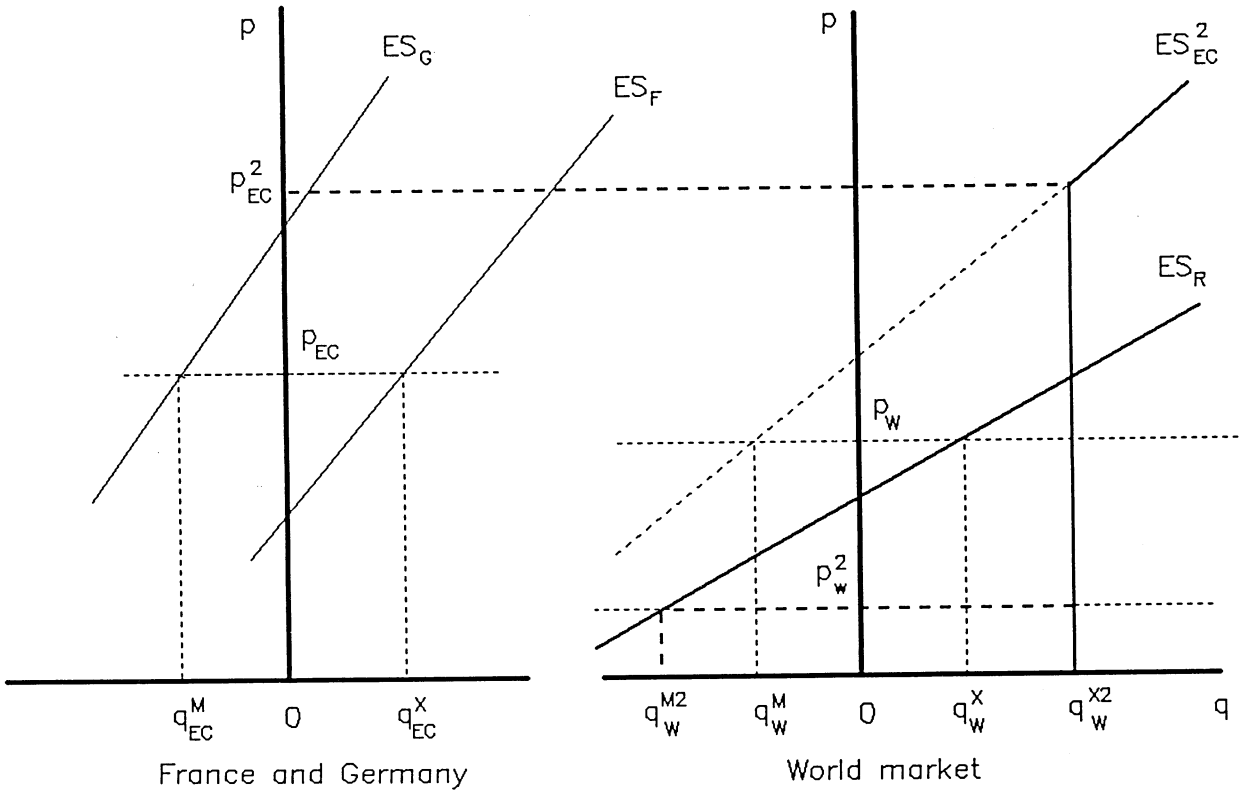
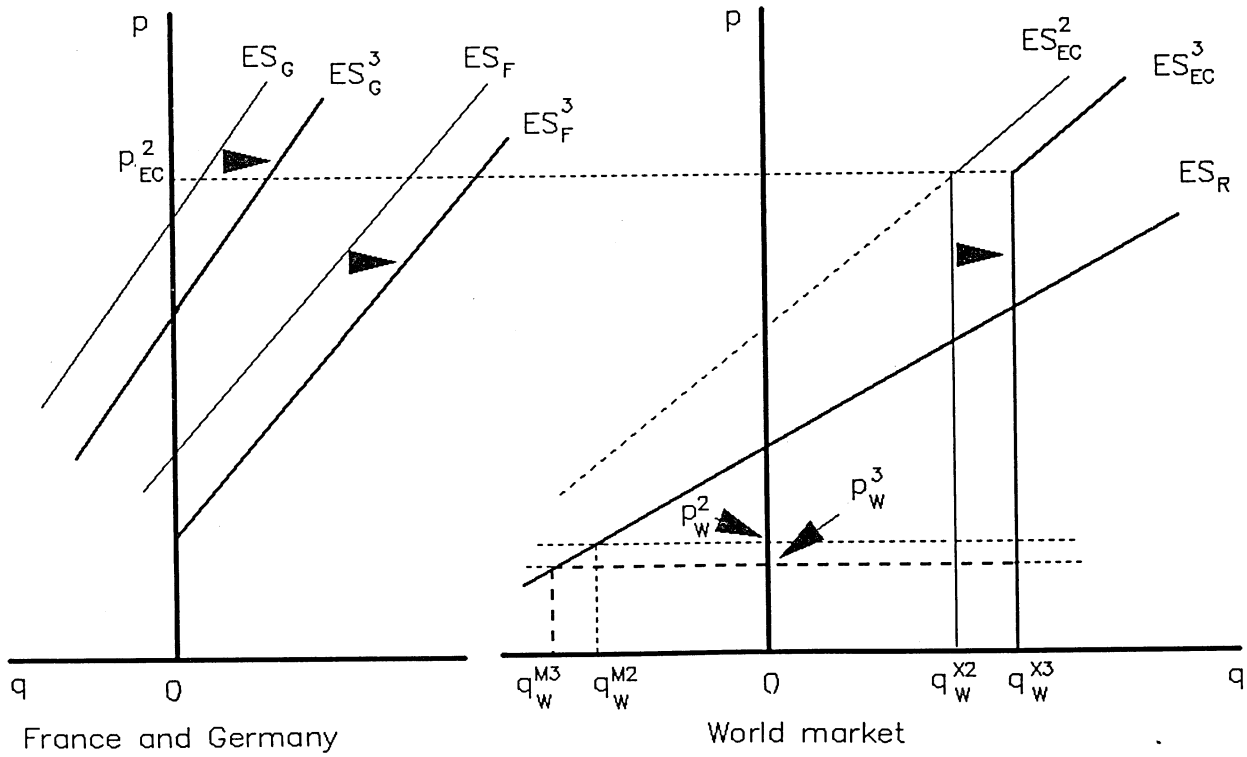


Figure 3
Effects of removing physical and technical barriers to intra-EC trade



The EC is not a net exporter for every commodity, as depicted in figure 3, but this framework can be used to analyze the import case as well. Similar downward and rightward shifts in the French, German, and EC excess supply curves would occur if the EC were a net importer of the commodity in question. Removing physical and technical barriers would reduce the quantity imported by the EC and, as in the export case, would reduce world prices.

Fiscal Harmonization

There are two primary fiscal barriers to agricultural trade among EC member countries: divergent excise taxes and divergent producer prices. The first is relatively simple. EC member countries are permitted to set national excise taxes on products, such as alcohol and tobacco. These rates diverge widely across countries, but the EC 1992 program calls for harmonizing them within a much narrower range. The implication is that consumer prices will increase in the countries that now have relatively low excise-tax rates (Italy, Spain, and Greece for tobacco) and will decrease in the countries that have relatively high excise-tax rates (Denmark, Belgium, and the United Kingdom). The net effect on consumption in the EC is unclear, because the final rates have not been determined.

The aspect of fiscal harmonization involves the divergence of producer prices for CAP commodities across EC countries. Under the CAP, agricultural support prices are officially denominated in European currency units (ECU) rather than in the national currencies of the member countries. Farmers are paid in their national currencies, so an exchange rate must convert the ECU prices. If the exchange rate reflected the true market exchange value of the national currencies, ECU prices would be uniform across the 12 countries, as originally intended under the CAP. Using market exchange rates meant that producer prices in countries with strong, or rising, currencies would fall in terms of their national currencies even if the ECU price remained unchanged.

To protect farmers in countries with strong currencies, such as Germany, from experiencing falling national currency prices, and to protect consumers in countries with weak currencies, such as France, from experiencing rising national currency prices, the EC adopted a system of special green exchange rates. Using green rates, however, meant that producer prices were no longer uniform across countries. To prevent farmers from shipping products into countries with high prices, border taxes and subsidies called monetary compensatory amounts (MCA's) were adopted.

This intricate agrimonetary system of green exchange rates, MCA's, and a switchover coefficient, which has raised farm prices by 14.5 percent since 1984, has distorted production incentives to farmers by raising producer prices in all countries, but to different levels in the different countries (Josling and Gardiner, 1991). Eliminating the agrimonetary system as part of the EC 1992 process will lower producer prices at differential rates. The effect of agrimonetary reform on production and trade is illustrated in figure 4. As in figure 3, the initial export supply curves for France, Germany, and the EC are denoted ES_F, ES_G, and ES_{EC}, and world trade occurs at the point where ES^2_{EC} and ES_R are equidistant from the vertical axis. The ROW imports quantity q^{M2}_W from the EC at price P^2_W.

The effects of eliminating green rates are shown in figure 4 by rotating Germany's export supply curve counterclockwise to ES^4_G. ES^4_{EC} represents the new EC export supply. EC exports decrease to q^{X4}_W, and the world price rises to P^4_w. This analysis suggests that fiscal harmonization will reduce EC production and exports, and will increase world prices of some CAP commodities.

Macroeconomic Effects of EC 1992

The EC 1992 program as a whole is expected to increase the efficiency of the EC economy. The EC Commission estimated that greater market integration will raise EC gross domestic product (GDP) by between 2.5 percent and 6.5 percent, and employment by between 2 million and 5 million (Cecchini, 1988). Other studies, notably by Baldwin (1989), have predicted even larger dynamic increases in GDP, ranging from 3.4 percent to 15.7 percent. Based on these estimates of income growth, Sheldon (1990) has predicted that the demand for food in the EC will increase by 1.5-9.7 percent, or between $8.5 billion and $53.5 billion.

The income effects of the EC 1992 program are illustrated in figure 5. Increased domestic demand for food causes leftward shifts in the export supply curves of France, Germany, and the EC, to ES^5_F, ES^5_G, and ES^5_{EC}. EC exports fall to q^{X5}_W, and world prices rise to P^5_w. Other things being equal, the macroeconomic effects of EC 1992 will be increased EC consumption, decreased EC exports, and higher world prices.

The analysis in figure 4 suggests that fiscal harmonization will reduce EC production and exports of CAP commodities, and will cause world prices to increase. Figure 5 showed that the macroeconomic effects of EC 1992 will also reduce EC exports and will

Figure 4
Agrimonetary reform in the EC

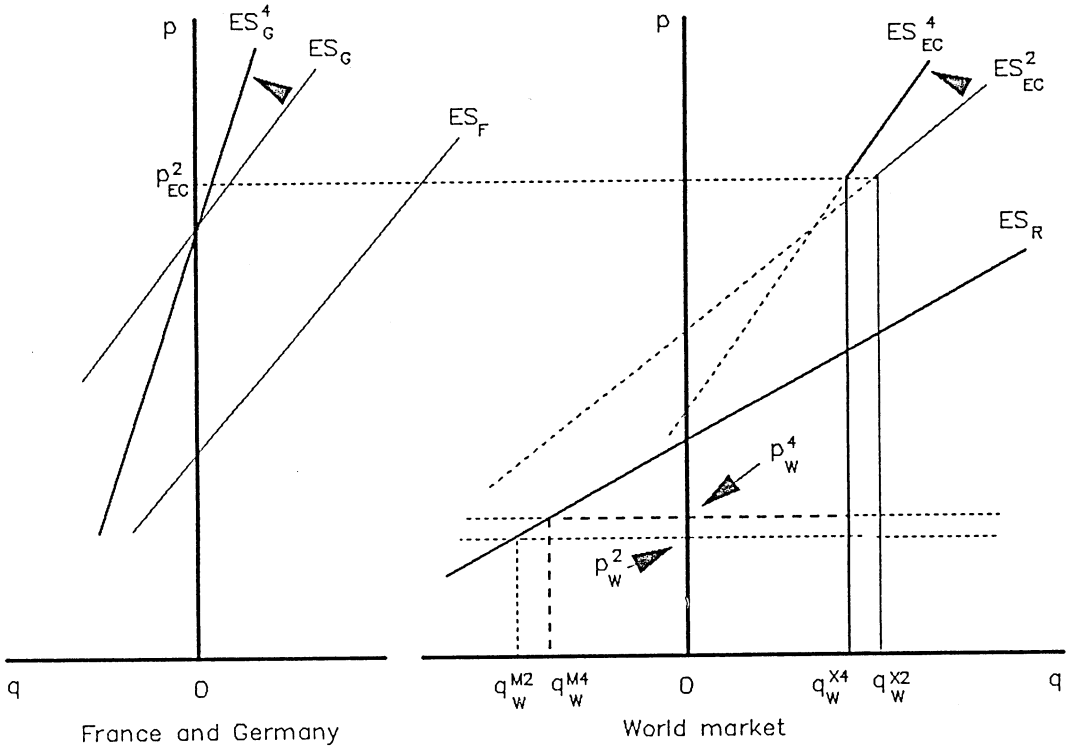
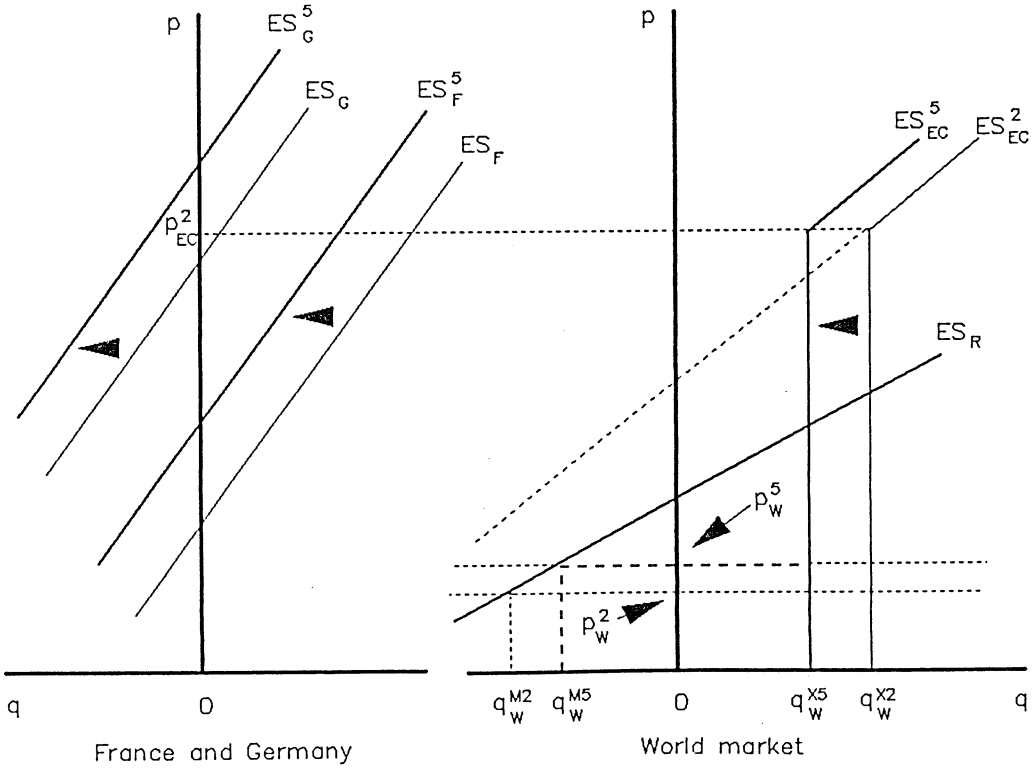


Figure 5
Macroeconomic effects of EC 1992



raise world prices. Figure 3 showed that physical and technical harmonization could have the opposite effect; EC production and exports could expand and world prices could fall. The net effects of the EC 1992 program on EC production, consumption, and trade are not clear from this analysis, but can be expected to differ across commodities.

EC Trade Flows

Viewing the EC 1992 process as a continuation of the economic integration of EC countries suggests that historical trade flow patterns may be a good guide to the future. Trade flows for 12 commodity categories among the EC countries and between the EC-12 and 4 regional country groupings are examined in table 1. Import values are traced from 1975, and historical trends are used to project trade flows and market shares to 1992. The EC 1992 program and other policy changes may shift actual trade flows and market shares away from the trend projections in predictable ways.

For almost all commodity categories, intra-EC imports have increased steadily as a share of total EC imports at the expense of the other three regions. PanAmerica, which includes the United States, has lost market share in food grains, feed grains, oilseeds, animal feeds, and livestock. The Euromediterranean countries and the Rest of world have been particularly hurt in fruit and vegetables, coffee, tea, cocoa, and spices. Fish and preparations is the only category in which intra-EC imports have declined as a share of total EC imports.

Table 1 shows the average EC import market shares from the four regional trade partners for the 12 commodity categories described above for 1978-80 and 1985-87, with straight-line trend projections to 1992. The slope parameters indicate the direction and strength of the time trend, and the R^2 indicates the proportion of the variation in the market shares that the time-trend parameter explains. A low R^2 can indicate that either the time-trend equation does not very well explain variations in the market shares, or the market shares have not varied much over the time period.

The share of EC imports that intra-EC trade supplied has increased since 1978-80 for 11 of the 12 commodity categories in table 1. Conversely, PanAmerica's share of EC imports has declined for 11 commodities. If the trend established from 1978 to 1987 continues, the EC will become more self-sufficient in every commodity category except fish.

Conclusions

Customs union theory suggests that economic integration will stimulate trade among the integrating countries and may discourage trade with outsiders. Import market shares confirm the pattern that theory predicts, and indicate that greater economic integration from the EC 1992 program will reinforce the trend toward more intra-EC trade. The excess supply shifts described above suggest ways in which EC 1992 may cause trade patterns to deviate from the time-trend projections.

Physical and technical harmonization will lower production and marketing costs in the EC, making EC producers and food processors more competitive in world markets. Stricter sanitary and phytosanitary regulations in some EC member countries may create insurmountable barriers for some exporters to the EC, while other exporters may benefit from having to meet only 1 set of EC standards rather than 12 sets. Physical and technical harmonization will support the historical trend toward agricultural self-sufficiency in the EC.

The elimination of the agrimonetary system may reduce producer prices in some EC member countries. This could reduce overall EC surpluses of CAP commodities, lowering EC exports on the world market. Greater regional specialization within the EC will increase the level of intra-EC trade.

Income growth arising from the EC 1992 process is expected to stimulate domestic demand for foods that are income elastic, such as fruit and vegetables, meat and dairy foods, and processed products, particularly in the lower income countries of the EC. This will probably reduce EC exports, increase EC imports of some commodities, and stimulate intra-EC trade.

The use of internal support prices in the EC tends to make each member country more self-sufficient and consequently to reduce the amount of intra-EC trade. Several aspects of the EC 1992 program may encourage greater regional specialization within the EC, but CAP reform and a GATT agreement that reduce internal levels of support will probably have more direct effects on EC production and trade.

A number of economic and political adjustments are occurring simultaneously with the EC 1992 process. Some of these adjustments may reinforce the market

Table 1--EC import market shares and projections

Commodity category and region 1/	1978-80	1985-87	1992*	Slope	RSq
			Percent		
Total agriculture 2/:					
Intra-EC 12	50	59	67	0.0134	0.88
PanAmerica	25	19	13	-.0097	.74
Euromediterranean	8	8	8	-.0001	.11
Rest of world	17	14	12	-.0035	.66
Livestock and products 3/:					
Intra-EC 12	80	84	88	.0062	.91
PanAmerica	6	5	4	-.0016	.70
Euromediterranean	8	7	5	-.0022	.60
Rest of world	6	4	2	-.0024	.89
Fish and preparations:					
Intra-EC 12	42	42	41	-.0011	.04
PanAmerica	18	13	9	-.0065	.85
Euromediterranean	20	23	25	.0039	.65
Rest of world	20	23	25	.0037	.53
Food grains and preparations:					
Intra-EC 12	61	79	94	.0257	.71
PanAmerica	34	14	-3	-.0282	.76
Euromediterranean	2	3	4	.0012	.53
Rest of world	3	4	5	.0013	.10
Feed grains:					
Intra-EC 12	35	70	100	.0499	.76
PanAmerica	62	26	-5	-.0517	.76
Euromediterranean	1	2	3	.0020	.54
Rest of world	2	1	1	-.0002	.11
Oilseeds:					
Intra-EC 12	5	27	45	.0308	.87
PanAmerica	86	68	52	-.0266	.80
Euromediterranean	1	2	3	.0014	.39
Rest of world	7	4	0	-.0055	.75
Other animal feeds:					
Intra-EC 12	33	38	43	.0080	.64
PanAmerica	53	51	49	-.0026	.02
Euromediterranean	3	2	2	-.0004	.01
Rest of world	12	8	6	-.0049	.64
Fruit and vegetables:					
Intra-EC 12	54	58	62	0.0067	0.77
PanAmerica	14	14	14	-.0003	.08
Euromediterranean	15	13	11	-.0027	.57
Rest of world	18	15	13	-.0037	.67
Sugar:					
Intra-EC 12	43	52	59	.0117	.76
PanAmerica	15	6	-1	-.0120	.71
Euromediterranean	4	6	8	.0035	.78
Rest of world	38	36	34	-.0032	.46

--Continued

Table 1--EC import market shares and projections--Continued

Commodity category and region 1/	1978-80	1985-87	1992*	Slope	RSq
			Percent		
Coffee, tea, cocoa, and spices:					
Intra-EC 12	20	27	32	.0097	.77
PanAmerica	33	30	27	-.0044	.19
Euromediterranean	1	2	3	.0011	.75
Rest of world	46	41	38	-.0064	.38
Beverages and tobacco:					
Intra-EC 12	68	74	79	.0088	.46
PanAmerica	18	15	12	-.0049	.22
Euromediterranean	5	4	3	-.0016	.47
Rest of world	9	7	6	-.0023	.58
Other agriculture.4/:					
Intra-EC 12	47	59	71	.0184	.93
PanAmerica	12	8	5	-.0051	.80
Euromediterranean	13	10	8	-.0038	.70
Rest of world	29	22	16	-.0095	.82

* = Projection.
1/ PanAmerica includes North, Central, and South America and the Caribbean; Euromediterranean includes non-EC Western Europe, Eastern Europe, the Soviet Union, the Mediterranean countries of North Africa, and the Middle East; the Rest of the world includes East and South Asia and sub-Saharan Africa.
2/ The sum of the categories below.
3/ Includes live cattle, pigs, sheep, poultry, meat, eggs, and dairy products.
4/ Excludes textile fibers, natural rubber, and wood products.
Source: ERS calculations; United Nations trade data.

liberalizing tendencies inherent in the 1992 process, but German reunification, CAP reform, and the GATT talks may overwhelm the EC 1992 program. Whether or not the EC will use the momentum of EC 1992 as an opportunity to reform the CAP and to liberalize international trade is not certain, but doing so would reinforce the benefits of the single market.

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Implications of EC 1992 for U.S. Agricultural Commodity Trade

Howard McDowell*

Abstract

The completion of a single European market by December 31, 1992, would pressure the European Community (EC) to reduce internal agricultural trade barriers. Policy analysts predict that EC prices for wheat, corn, dairy, and beef should fall as a result, reducing production growth rates. Food consumption is expected to increase through positive macroeconomic effects of the single European market initiative. Prices on world commodity markets should rise, because of increased excess demand and reduced excess supplies in the EC. As simulated in this study, the resulting small increases in U.S. commodity exports would marginally increase U.S. prices and net farm income. Annual average Government expenditures on price and income support would decline by about 6 percent, if U.S. export shares were maintained.

Introduction

Economic changes in major trading countries that affect agriculture are important to the U.S. general economy and agricultural sector. Increased U.S. exports are a key factor in reducing the persistent international trade and budget deficits. While agricultural exports are declining as a proportion of the value of U.S. exports, the agricultural sector can activate idled capacity and can significantly expand its output and exports. Thus, any policy changes that affect world agricultural markets could be important to the U.S. economy.

The European Community (EC) has set December 31, 1992, as the date by which internal trade barriers are to be abolished through initiatives known as EC 1992. It is widely thought that without the barriers, arbitrage will drive prices downward (Cecchini, 1988; Fieleke, 1989). Initial price reductions could be limited to those associated strictly with intra-EC border measures. Further reductions could take place with increased international competition, ultimately reaching some competitive level consistent with greater cost efficiency.

This longer run adjustment is estimated to yield a 4- to 6-percent increase in gross domestic product (GDP). In summary, prices are expected to fall, and income is expected to increase as a result of EC 1992. Following this scenario, EC agricultural prices should fall, resulting in reduced production, increased consumption, and reduced net exports of EC agricultural commodities. The analysis in this paper uses the changes in EC net exports of wheat, corn, barley, beef, and dairy products resulting from EC 1992, as estimated by Josling and Gardiner (1991) through price effects, and by Kelch (1991) through income effects.

Changes in U.S. exports in response to EC changes in net trade follow two scenarios, minimum and maximum. In the minimum scenario, U.S. exports change in accordance with its historical shares of world markets. In the maximum scenario, the United States is assumed to absorb the entire change in EC net trade. That is, maximum changes in U.S. exports are the inverse of the change in EC net exports. The effects of the changes in U.S. exports on the agricultural sector are analyzed with the Food and Agricultural Policy Simulator (FAPSIM), maintained by J. Michael Price in the U.S. Agricultural Policy Branch of the Economic Research Service (ERS), USDA. This dynamic simulator generates annual economic projections for the major U.S. field crop and livestock subsectors.

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U.S.-EC Trade Background

The value of U.S. exports to the world has tripled since the early 1960's, from around $70 billion in 1962 to more than $180 billion since 1974, with peaks in 1980 and 1988 (fig. 1). Agricultural exports follow a similar trend, but with less growth. In the early 1980's, the negative effects of the strong U.S. dollar on all exports, and the negative effects of U.S. farm programs on agricultural exports, were much discussed topics (Duncan and Harrington, 1986; Melichar, 1984; Orden, 1986; and Johnson, and others, 1986). The programs implemented under the 1985 farm bill, and the weakening of the U.S. dollar compared with other currencies since 1986, have helped to reverse the downward trend of the early 1980's for U.S. exports.

The other major factor in the export demand for U.S. agricultural commodities is the policies and economic conditions in foreign agricultural markets. Of interest here are the policies of the EC. The value of U.S. exports to the EC is shown in figure 2. The trend for total U.S. exports to the EC is similar to that for U.S. exports to the world, and the importance of the EC as a U.S. export market is demonstrated. However, the value of agricultural exports to the EC declined at a greater rate after 1980, and has shown little increase since 1985.

The effects of the Common Agricultural Policy (CAP) on world markets and U.S. exports of wheat, corn, and barley, are shown in figures 3, 4, and 5. The CAP operates a system of intervention and threshold prices that provide internal price support, external border measures, and export subsidies to help clear EC markets. The effects of the high support levels for grain under the CAP are clear. The EC became a major net exporter of wheat in the 1980's. More dramatic is the rapid decline in net corn imports, from about 20 million metric tons in the mid-1970's to nearly self-sufficient levels in the late 1980's. Barley reached net export status in the late 1970's, with significant growth in the mid-1980's. The growth in EC grain production under the CAP, and its depressing effects on world prices, has had a negative effect on the value of U.S. agricultural exports.

Single European Market

The White Paper on Completing the Internal Market written in 1985 by the Commission of the European Communities delineated the steps required to unify the EC into a single market. The implication for EC agriculture is that the agrimonetary system and other intra-EC trade barriers would be abolished. The market intervention instruments of the CAP are unaffected by EC 1992, hence the CAP programs that have the greatest effect on the EC's domestic production, consumption, and trade are unchanged.

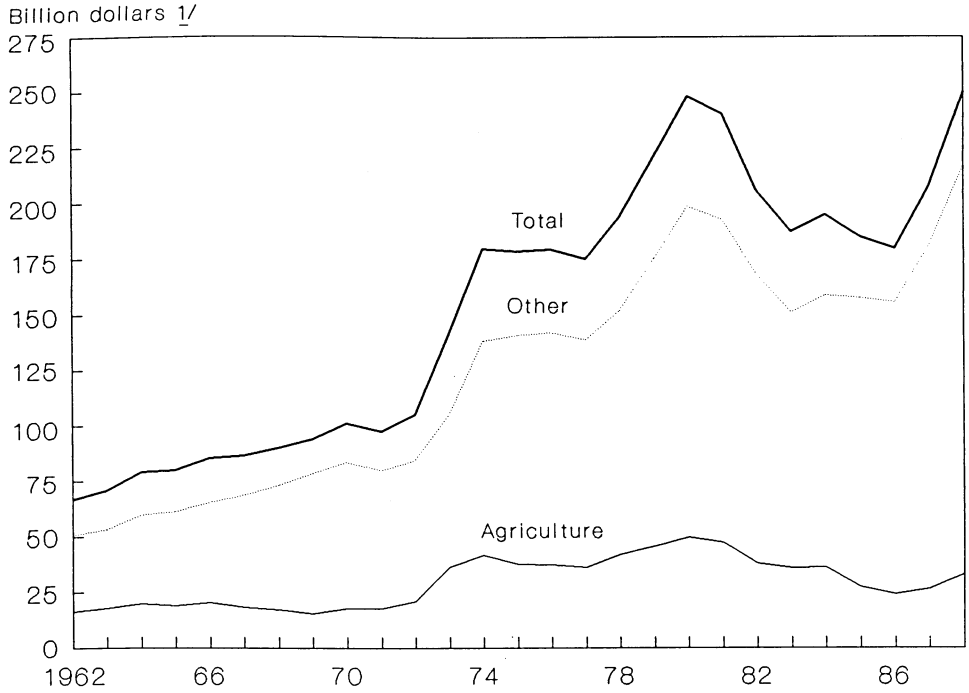
The estimated effects of EC 1992 on EC net exports take into account two factors. The first factor is the reduction in commodity prices, assuming that a European Monetary Union is established and that the agrimonetary system under the CAP is dismantled (Josling and Gardiner, 1991). The second factor is the positive effects on consumption of increases in real income that greater economic efficiency under the single market is expected to generate.

Cecchini (1988) estimated additional real income growth resulting from EC 1992 to be between 4 percent and 7 percent. Kelch (1991) estimated the effects of a 6-percent increase in income on consumption from 1993 to the year 2000, using the CAPFRAME model that Josling developed. The sum of these net export changes are given in table 1. Less production and more consumption combine to reduce exports for wheat, corn, beef, butter, and nonfat dried milk. Barley exports increase as the result of the positive effects that dismantling the agrimonetary system is expected to have on UK barley production.

The effects of EC 1992 on U.S. agricultural commodities will be indirect. Predicting shifts in trade patterns is difficult at best. Therefore, the analysis assumes the net changes in U.S. exports, and in turn determines the accompanying changes in U.S. prices and quantities supplied and demanded. The analysis also assumes that competitive suppliers will absorb the changes in EC net exports on world markets. EC net exports decline, except those of barley. Two scenarios are analyzed concerning the changes in U.S. exports. The minimum scenario assumes that the increase (decrease) in U.S. net exports is equal to the decrease (increase) in EC net exports multiplied by the U.S. shares of world markets. The maximum scenario assumes that the change in U.S. exports is equal and opposite to the change in EC net exports.

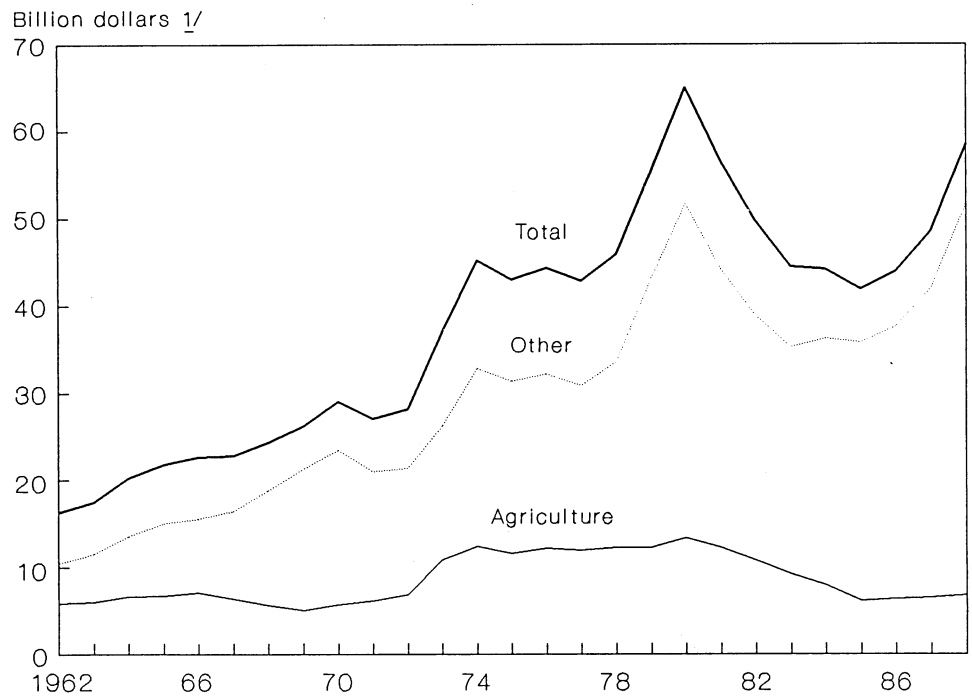
The analysis assumes: (1) that other trading countries in the world markets absorbed the changes in EC exports; and (2) minimum and maximum scenarios for the U.S. share. The minimum scenario conservatively assumes that any changes in U.S. exports would be consistent with its historical world market share. Changes in U.S. exports consistent with the minimum share are shown in table 2.

Figure 1
U.S. exports to the world



1/ Constant U.S. dollars.

Figure 2
U.S. exports to the EC



1/ Constant U.S. dollars.

Figure 3
EC net wheat imports

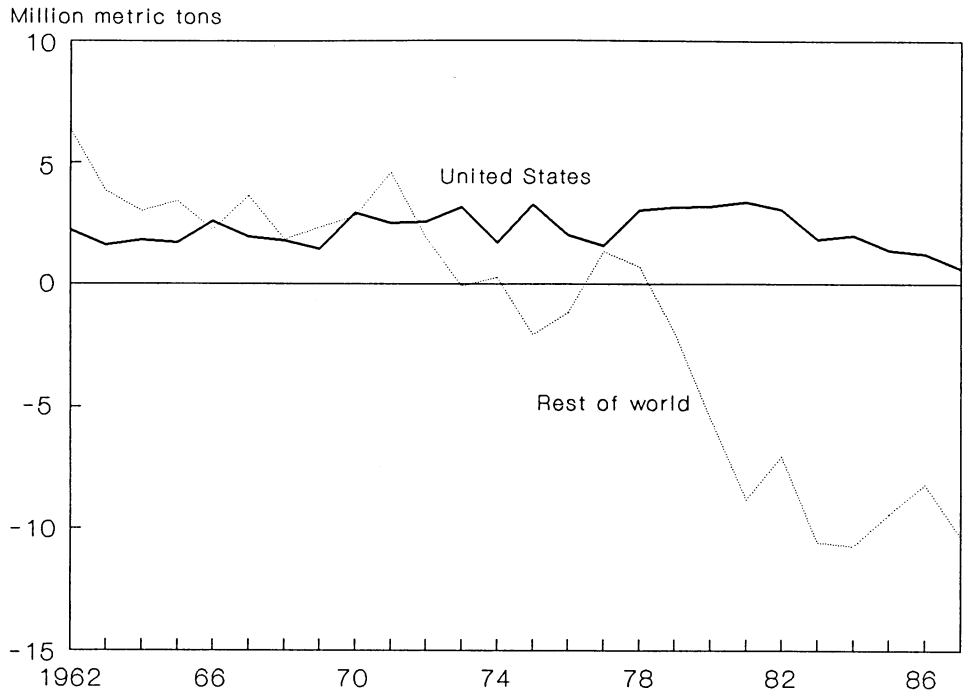


Figure 4
EC net corn imports

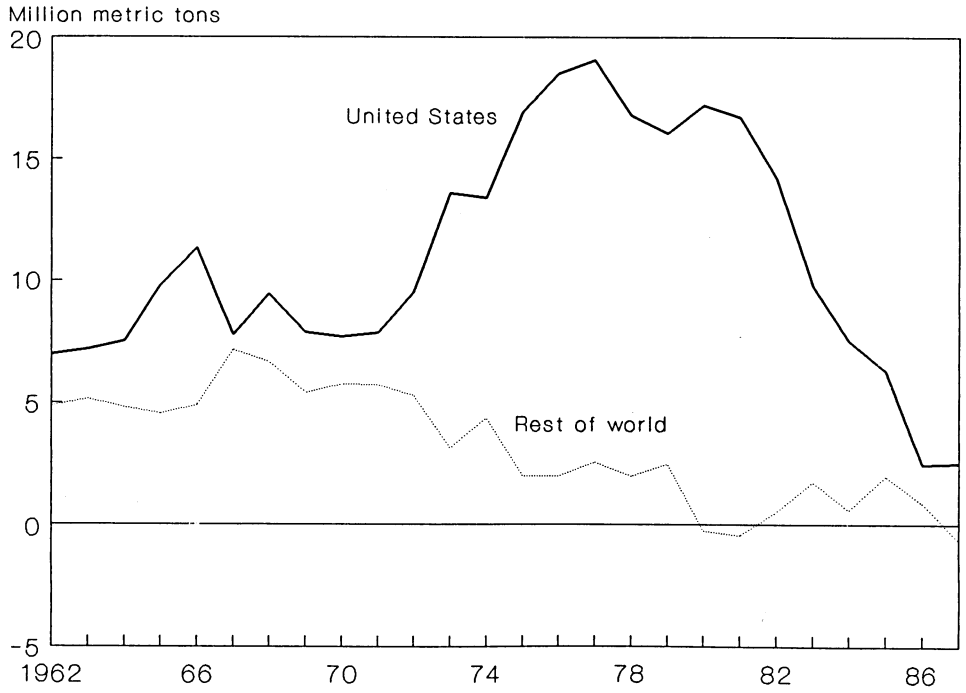


Figure 5
EC net barley imports

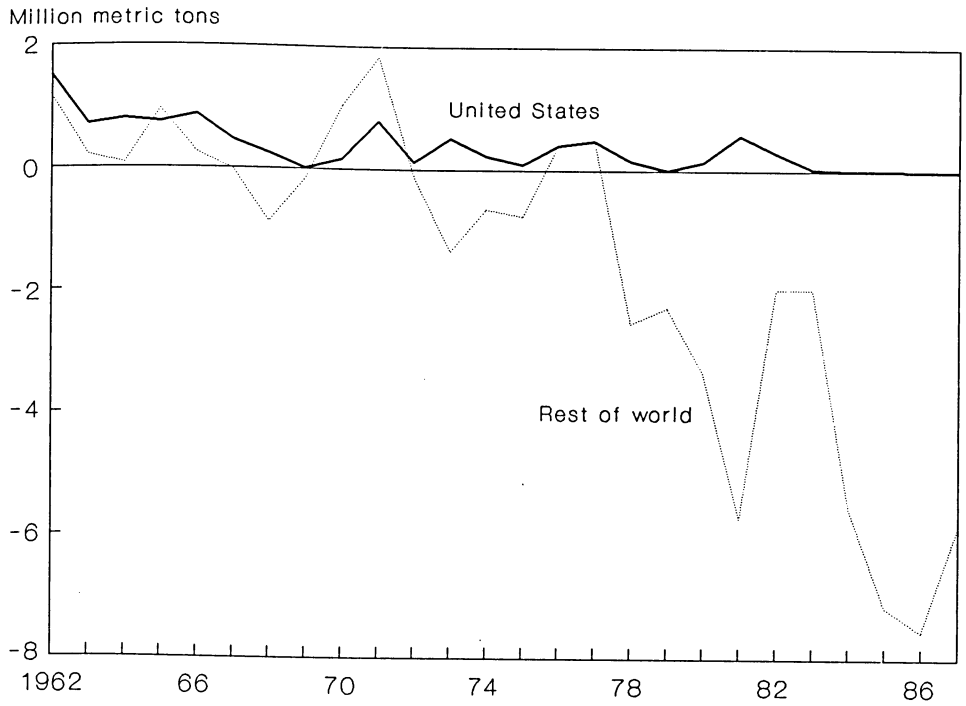


Table 1--Estimated EC net export changes from EC 1992, for selected commodities

Year	Barley	Wheat	Corn	Beef	Butter	Nonfat dry milk
			Thousand metric tons			
1993	278	-150	-365	-291	-38	-47
1994	464	-64	-666	-451	-76	-91
1995	540	-477	-920	-649	-107	-126
1996	521	-919	-1,291	-896	-134	-155
1997	608	-842	1,540	-874	-127	-134
1998	417	-900	-1,631	-841	-112	-110
1999	337	-827	-1,631	-816	-97	-89
2000	334	-800	-1,455	-838	-91	-83

The maximum scenario assumes that changes in U.S. exports are the inverse of the entire change in EC exports, as given in table 1. Any sustained increase over the U.S. historic market share would depend on the inability of other exporting nations to increase their shares. This does not appear likely, given the small magnitudes of estimated change from EC 1992. However, the exercise somewhat indicates the magnitudes of export increases necessary to significantly increase U.S. agricultural prices and income. The effects of changes in exports on the U.S. agricultural sector are analyzed assuming the continuation of the Food Security Act of 1985.

The simulation is accomplished with FAPSIM, a dynamic simulator of the major field crop and livestock subsectors of U.S. agriculture (Salathe, Price, and Gadson, 1983 and 1982). The model comprises crop

Table 2--Estimated changes in U.S. exports, historical share, for selected commodities

Year	Barley	Wheat	Corn	Beef	Butter	Nonfat dry milk
			Metric tons			
1993	-22.9	65.3	256.9	11.2	1.1	4.2
1994	-38.1	27.9	468.8	17.3	2.3	8.3
1995	-44.4	207.8	647.6	24.9	3.2	11.4
1996	-42.8	400.3	908.7	34.4	4.0	14.1
1997	-50.0	366.8	1,111.5	33.6	3.8	12.1
1998	-34.3	392.0	1,184.0	32.3	3.3	10.0
1999	-27.7	360.2	1,148.1	31.3	2.9	8.1
2000	-27.5	348.5	1,024.2	32.2	2.7	7.5
			Percent			
U.S. share of world market	8.22	43.56	70.39	3.84	2.98	9.08

Source: 1980-87 U.N. trade data.

and livestock subsectors, for which prices, production, consumption, exports, and stock levels can be endogenously solved under a variety of U.S. farm policy options and subject to exogenous variables.

The changes in U.S. exports in tables 1 and 2 are incorporated into FAPSIM as shifts in the export demand functions facing the United States. Given these changes, equilibrium prices and quantities are solved for.

Effects on U.S. Agriculture

The simulated effects of EC 1992 on U.S. agriculture are positive. However, the positive effects are small by any standard. Planted acreage increases are negligible under the minimum export scenario. Under the maximum scenario, simulated plantings of wheat and corn increase by an average of 1 percent, while total acreage planted in the eight major crops increases by about 0.5 percent on average. Average net farm income increases are less than 0.5 percent if U.S. historical export shares are assumed, and are about 6 percent if the United States is assumed to capture the entire change in EC net exports. Downward pressure is placed on U.S. Government expenditures for price and income support. Under minimum and maximum scenarios, U.S. deficiency payments decline an average 6 percent and 30 percent, and average expenditures on surplus dairy products decline by 8 percent and 12 percent. Thus,the analysis concludes that the primary effects of EC 1992 on the United States may be the single European market's potential to reduce U.S. Government spending on agricultural price and income support.

The following discussion draws on changes in U.S. export volumes (table 3) and prices (table 4) for wheat, corn, beef, and dairy products. Changes in planted acres (table 5) and cow numbers (table 6) focus more on production capacity. Changes in U.S. expenditures for deficiency payments and surplus dairy products are given in table 7. Cash receipt and net farm income changes are given in table 8.

The two scenarios, maintaining historic (minimum) world market shares and exporting at the maximum level, have different implications for different commodities. The U.S. share of exported grain from 1980 through 1987 was 44 percent for wheat and 70 percent for corn, but less than 10 percent for any livestock or dairy product (table 1). Thus, the U.S. share of the entire change in EC net exports of livestock and dairy products appears much less likely than the U.S. share of the grain trade. In either case, the minimum scenario of maintaining the U.S. share of export markets appears more likely.

Table 3--Estimated U.S. export changes, by scenario, selected commodities

Commodity/ scenario	1993	1994	1995	1996	1997	1998	1999	2000	1993-2000 average
					Percent				
Corn:									
Minimum	0.4	0.8	1.1	1.5	1.8	1.7	1.7	1.5	1.3
Maximum	.6	1.1	1.5	2.1	2.5	2.4	2.5	2.2	1.9
Wheat:									
Minimum	.2	.1	.5	.9	.8	.9	.8	.7	.6
Maximum	.4	.2	1.2	2.1	1.9	2.0	1.8	1.7	1.4
Beef:									
Minimum	1.8	2.5	3.4	4.4	4.1	3.9	3.7	3.8	3.5
Maximum	46.2	64.2	88.9	114.8	107.6	101.3	95.7	97.8	91.3
Butter:									
Minimum	2.0	3.3	4.6	6.0	5.3	4.6	4.0	4.0	4.2
Maximum	55.6	111.3	156.3	195.4	185.4	163.6	141.7	133.1	142.8
Nonfat dry milk:									
Minimum	3.6	7.1	9.9	12.5	11.7	10.4	8.9	8.4	9.1
Maximum	38.7	77.6	108.9	136.1	129.3	114.0	98.7	92.9	99.5

Effects on Grain

The discussion of simulated EC 1992 effects on grains focuses on wheat and corn. Maintaining historic (minimum) wheat market shares increases U.S. annual wheat exports by nearly 1 percent after 1995 (table 3). Wheat prices respond by increasing an average of nearly 3 percent after 1995 (table 4). Wheat plantings, in turn, increase by nearly 0.5 percent (table 5). Maximum shares increase export levels by 2 percent after 1995, increasing prices by about 11 percent, and plantings by about 1.6 percent.

The change in U.S. corn exports is greater than that for wheat because of the larger effects EC 1992 is expected to have on EC import demand, and because of the larger historic share of world markets that the United States holds. The historic (minimum) market share increases corn exports by about 1.6 percent after 1995, increasing prices an average of about 2.1 percent, and plantings by about 0.24 percent. The maximum scenario increases exports by about 2.3 percent after 1995, thus increasing prices by about 10 percent, and plantings by about 1.25 percent.

The overall effect of EC 1992 on the eight major crops --barley, wheat, corn, sorghum, oats, rice, soybeans, and cotton--implies little effect on the allocation of U.S. cropland. In aggregate, planted acreage for the eight crops increases less than 0.2 percent under the minimum export scenario, and less than 1 percent under the maximum export scenario. On balance, EC 1992 marginally decreases planted acreage for the six major crops other than corn and wheat.

Prices for other feed grains increase with corn prices. In response to the slightly changing relative net returns, sorghum acreage increases slightly, while barley and oats acreage declines. Soybean acreage declines slightly, resulting in soybean price increases of about 4 percent under the maximum scenario. The EC's import demand for soybeans and soybean products could also increase. Projections, however, were not available.

Table 4--Estimated U.S. price changes by scenario, selected commodities

Commodity/ scenario	1993	1994	1995	1996	1997	1998	1999	2000	1993-2000 average
					Percent				
Corn:									
Minimum	1.0	1.0	1.4	2.4	1.9	1.9	2.3	1.8	1.7
Maximum	6.0	8.3	11.4	11.9	11.0	9.8	10.2	8.6	8.9
Wheat:									
Minimum	1.0	.3	2.3	3.2	2.6	2.9	2.8	2.4	2.2
Maximum	5.4	5.3	10.5	12.6	11.0	11.1	11.3	10.0	9.7
Beef:									
Minimum	.3	.6	.9	1.3	1.5	1.3	1.4	1.6	1.1
Maximum	6.0	10.6	16.3	22.8	20.9	15.5	10.1	8.4	13.5
Milk:									
Minimum	.1	.3	.6	.8	1.0	.1	0	0	.4
Maximum	3.7	7.9	10.6	12.9	12.2	11.3	5.2	5.3	8.5
Butter:									
Minimum	.3	.6	1.2	1.6	-3.4	.8	0	0	.2
Maximum	7.3	9.6	12.1	17.3	16.1	-2.7	0	0	8.2
Nonfat dry milk:									
Minimum	0	0	0	0	4.8	0	0	0	.6
Maximum	.3	7.5	10.0	10.0	10.0	21.9	9.8	10.0	10.3

Table 5--Estimated changes in U.S. planted acreage, grain crops, by scenario 1/

Commodity/ scenario	1993	1994	1995	1996	1997	1998	1999	2000	1993-2000 average
					Percent				
Corn:									
Minimum	0	0.1	0.2	0.2	0.3	0.3	0.2	0	0.2
Maximum	.4	.8	1.2	1.3	1.4	1.3	1.1	1.2	1.1
Wheat:									
Minimum	0	.2	.1	.4	.5	.4	.4	.4	.3
Maximum	.3	.9	.8	1.7	1.8	1.6	1.6	1.5	1.3
Total:									
Minimum	0	.1	.1	.1	.2	.2	.2	.2	.1
Maximum	.2	.4	.6	.8	.9	.8	.7	.7	.6

1/ Includes corn, sorghum, barley, oats, wheat, rice, soybeans, and cotton.

The effects of EC 1992 on deficiency payments are more significant. Deficiency payments are made to producers of designated program crops, including the feed and food grains. The payment is the difference between the target price and the greater of the market price or the nonrecourse loan rate. Total deficiency payments decline with the increases in price, by an annual average of 6 percent under minimum exports and 30 percent under maximum exports (table 7).

Effects on Livestock

The analysis of EC 1992 and its effects on livestock focuses on exports of beef and dairy products, specifically butter and nonfat dry milk. U.S. trade volume for these products is minuscule. The United States is a small net importer of beef, with imports probably less than 2-3 percent of U.S. beef supplies. Similarly, U.S. trade in dairy products is minimal, with net exports limited to nonfat dry milk and butter. Thus, maintaining the U.S. historic (minimum) share increases beef exports an average of about 4 percent after 1995, while the maximum export scenario shows beef export increases of more than 100 percent on average. Exports of butter and nonfat dry milk follow a similar pattern, with minimum increases around 5-10 percent, and maximum export increases averaging 164 percent for butter and 114 percent for nonfat dry milk after 1995. These increases, while large in percentage terms, are extremely small in absolute magnitude when compared with grain.

Beef price increases reflect higher grain prices and lower beef quantities on the domestic market. Under the minimum export scenario, price increases average about 1 percent. Increasing exports under the maximum scenario raises beef prices by about 20 percent in 1997, before tailing off to about 8 percent in the year 2000. Increased cow numbers reflect the producer's incentives to expand both the breeding herd and the capacity to produce beef.

Under the minimum export scenario, dairy product and milk prices change very little. Average butter prices increase marginally before returning to base levels in 1999, while the price of nonfat dry milk increased only in 1996. Milk prices increase slightly between 1993 and 1998, before returning to base levels. This marginal milk price increase is attributed primarily to slightly higher grain prices and lower milk production. The maximum export scenario raises prices for butter and nonfat dry milk sufficiently to increase the milk price by more than 10 percent in 1995 through 1998 before tailing off to about a 5-percent increase by the year 2000. Dairy cow numbers increase slightly before falling below base levels in 1998. In both scenarios, grain price increases ultimately overwhelm milk price increases, yielding fewer dairy cows by 1998 than under the base levels.

The most important simulated effect of EC 1992 on the U.S. dairy industry is the reduction in Government price-support expenditures (table 7). The increases in exports of butter and nonfat dry milk significantly reduce expenditures for surplus dairy purchases. Under the minimum export scenario, U.S. expenditures for dairy are reduced by an annual average of about 8 percent. With maximum exports, annual expenditures are reduced an average of about 12 percent.

Farm Income Effects

The potential effects of EC 1992 on net farm income are positive, but small. Under both export scenarios, annual net farm income increases peak in 1996 and then tail off, turning negative in 1998 for minimum exports and in 1999 for maximum exports (table 8). In the case of maximum exports, the peak increase in net farm income is nearly 14 percent, with an average increase of 6 percent. Net farm income changes under minimum exports are negligible. In both scenarios, increases in revenues are largely absorbed or are capitalized into the cost structure by the year 2000. However, the composition of simulated net farm income shifts toward the market as Government expenditures for price and income support decline.

Broader Considerations

The issue of market institutions is at least as important as market-driven supply and demand relationships in determining foreign competitors'access to EC markets after 1992. There is considerable concern that the EC will become a fortress Europe. Stoeckel, Pearce, and Banks (1990) offer four arguments that suggest greater European insularity because of EC 1992. First, there is precedence, as demonstrated by the CAP. Second, certain interests hold protectionist positions in both Europe and North America, exemplified by support for nontariff protection. Third, the industrial sector will probably become more concentrated and will wield greater political power to achieve its special interests, including protection from foreign competition. Fourth, in establishing a single policy to provide foreign access, the EC could adopt the policies of those countries providing the lowest level of foreign access. In summary, the fear is that while the EC may reduce internal trade barriers, limited access for foreign competitors may accompany the reduced trade barriers.

Table 6--Estimated change in U.S. cow numbers, by scenario

Commodity/scenario	1993	1994	1995	1996	1997	1998	1999	2000	1993-2000 average
					Percent				
Beef:									
Minimum	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Maximum	.2	.7	1.5	2.9	4.5	5.7	6.2	6.2	3.4
Dairy:									
Minimum	0	0	.1	.1	.1	.2	.4	.5	.2
Maximum	.1	.1	.2	.1	0	.1	.4	.6	.1

Table 7--Estimated changes in U.S. deficiency payments and surplus dairy purchases, by scenario, selected commodities

Commodity/ scenario	1993	1994	1995	1996	1997	1998	1999	2000	1993-2000 average
					Percent				
Deficiency payment:									
Minimum	-2.2	-3.5	-5.2	-7.6	-7.7	-8.0	-8.9	-7.7	-6.2
Maximum	-16.4	-26.3	-38.0	-40.6	-38.3	-37.7	-37.7	-36.3	-33.3
Wheat:									
Minimum	-2.9	-1.8	-7.4	-12.0	-9.7	-11.6	-12.1	-11.4	-8.3
Maximum	-15.3	-17.1	-36.0	-44.6	-40.2	-42.8	-45.4	-47.5	-35.1
Other:									
Minimum	-.6	-.9	-1.6	-2.7	-3.0	-3.3	-3.6	-3.4	-2.3
Maximum	-5.3	8.3	-13.5	-16.5	-16.2	-17.2	-17.9	-17.5	-13.6
Total:									
Minimum	-2.1	-2.6	-5.0	-7.7	-7.3	-8.0	-8.7	-7.7	-5.9
Maximum	-14.0	-20.4	-32.7	-36.9	-34.6	-34.7	-35.7	-35.1	-29.9
Surplus dairy purchases:									
Minimum	-.9	-2.3	-3.5	-5.2	-8.3	-12.6	-14.1	-15.9	-7.7
Maximum	-13.1	-19.1	-30.5	-35.0	-33.3	-33.3	-34.6	-34.3	-12.2
Deficiency payment and surplus dairy purchases:									
Minimum	-2.0	-2.5	-4.9	-7.5	-7.4	-8.3	-9.1	-8.6	-6.1
Maximum	-13.1	-19.1	-30.5	-35.0	-33.0	-33.3	-34.6	-34.3	-28.5

Trade regulations in the EC with direct and negative effects on U.S. agriculture include the oilseed subsidy under the CAP, and the EC 1992 directives that ban meat from hormone-treated livestock and regulate third-country meat imports. In December 1987, the American Soybean Association filed a complaint against the EC with the U.S. Trade Representative (USTR) under Section 301 (unfair trade practices) of the Trade Agreements Act of 1974. The complaint alleged that EC production and processing subsidies for oilseed and protein crops were established after the EC granted duty-free status to soybeans and soybean meal under the GATT. The complaint claims that the subsidies displaced U.S. exports with EC production. In July 1989, the USTR ruled that the subsidies constituted an unfair trade practice subject to retaliatory action under Section 301, but delayed action pending the determination of the GATT's dispute settlement procedure.

In January 1990, the GATT ruled that the EC oilseed-support programs violated the GATT rule on consistent treatment of imported goods. The EC accepted the ruling, stating that new regulations would be implemented under the Uruguay Round of the GATT negotiations.

The EC 1992 directive banning meat from hormone-treated animals went into effect on January 1, 1989, after a delay of 1 year. The ban, if continued, is expected to create an annual loss of about $100 million in U.S. exports of beef and beef products. The U.S. Food and Drug Administration has found certain hormones to be safe and has approved them for the treatment of meat animals, as have Japan and Canada. The EC Commission found treatment with certain natural hormones to be safe, if properly administered. European consumer groups generally support the ban, bolstered by recent discoveries of illegal hormone treatment of animals and outbreaks of illness associated with meat treated with illegal hormones or meat treated illegally with legal hormones. Because the ban applies to domestic production, the EC claims that the ban is not a trade barrier. The U.S.-EC Joint Task Force has not devised a plan that would allow U.S. shipments of beef and beef products to return to historic levels, although some hormone-free shipments have been made under a certification process that the Food Safety and Inspection Service (FSIS) operates.

The Third-Country Red Meat Directive, invoked on April 1, 1988, established the standards that any meat processor must meet to export to any EC country. The standard also applies to EC plants shipping to other EC countries. The directive makes no allowances for equivalent standards or practices, as had previously been the case. As a result, the number of U.S. plants shipping to the EC has dropped from more than 300 to about 20. The United States claims that the directive is a discriminatory nontariff barrier that is more strictly enforced on third countries than on EC members. A 301 petition, against Section 301 of the Trade Agreements Act of 1974, was filed in 1987, and the EC and the United States have agreed to establish a panel to investigate the red meat directive.

Table 8--Changes in total U.S. cash receipts and net farm income, by scenario

Commodity/ scenario	1993	1994	1995	1996	1997	1998	1999	2000	1993-2000 average
					Percent				
Cash receipts:									
Crops--									
Minimum	0.2	0.3	0.5	0.7	0.8	0.8	0.8	0.7	0.6
Maximum	1.4	2.1	3.2	4.0	4.0	3.7	3.5	3.5	3.2
Livestock--									
Minimum	.2	.4	.6	.9	1.1	.8	.8	1.0	.7
Maximum	4.9	8.8	13.0	17.6	16.2	13.1	9.4	8.8	11.4
Net farm income:									
Minimum	.3	.3	.6	.9	.5	-.1	0	0	.3
Maximum	4.9	7.6	10.9	13.8	8.8	4.5	-.9	-1.4	6.0

There is some sentiment, however, that EC 1992 will increase the likelihood for reform of the CAP. If for no other reason, the European agribusiness companies operating in an international environment will probably want to face competitive prices for inputs. Governmental cooperation may be evident in the solutions generated by the joint U.S. and EC commissions that have been appointed and convened to address the disputes cited above. Furthermore, expenditure levels on the CAP may be difficult to maintain, given the problems facing the EC in Eastern Europe. EC 1992, coupled with other related issues, could thus enhance the environment necessary for reforming agricultural price and income support programs of major trading nations.

Conclusions

The establishment of a single European market is expected to reduce real prices for agricultural commodities in the EC. Furthermore, efficiency gains and accompanying macroeconomic policies will likely increase income in the EC. These factors reduce exports and increase imports of agricultural commodities by the EC, and increase prices on world commodity markets. However, the magnitude of change is expected to be small.

The United States and other exporters are thus expected to maintain their shares of world markets to absorb the changes. These export increases marginally increase commodity prices and net farm income. The most significant effects of EC 1992 on U.S. agriculture, as analyzed here, is reduced Government expenditures for agricultural prices and income. EC 1992 should thus be viewed as important. It remains to be seen whether EC 1992 will actually contribute to freer trade, or will result in less access to the EC for producers in the United States and elsewhere.

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EC Agricultural Trade with the Developed Pacific Rim: Implications of EC 1992

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Abstract

The seven Pacific Rim countries with developed economies--Japan, South Korea, Taiwan, Hong Kong, Canada, Australia, and New Zealand--take about 14 percent of the European Community's (EC's) agricultural exports and provide about 9 percent of the EC's agricultural imports. The three agricultural exporters--Canada, Australia, and New Zealand--have lost some of their share in the European market and have faced increased competition in world markets. If the EC 1992 process decreases internal EC prices and exports of grains and livestock products, Canada, Australia, and New Zealand might regain some of their competitive export position in these traditional products. The United States is the dominant agricultural supplier of both total and high-value products (HVP) to the lucrative East Asian market, but EC exports of high-value products grew faster in the 1980's. If EC harmonization leads to lower commodity prices and a more-efficient food processing sector, the EC may increase its share of the fast-growing East Asia HVP market. Canada, Australia, and New Zealand provide only 11 percent of East Asia's HVP imports and could face increased EC competition in HVP's, both in East Asia and elsewhere.

Introduction

The Pacific Rim countries of Japan, South Korea, Taiwan, Hong Kong, Canada, Australia, and New Zealand are a disparate group of agricultural exporters and importers, mature and newly industrializing economies, and densely and sparsely populated areas.1/ The group includes the non-European countries of the Organization for Economic Cooperation and Development and three of the Asian economic "tigers." Canada, Australia, New Zealand, and Hong Kong, first as colonies and later as members of the Commonwealth, have had longstanding trade ties to the United Kingdom, which became a European Community (EC) member in 1973. The Pacific Rim countries do not constitute an integrated economic area, but are linked by increasingly important trade and investment flows across the Pacific. Regional, political, and economic factors have all played a role in shaping these economies' agricultural trade patterns with the European Community, the United States, and the rest of the world.

By stimulating internal trade compared with external trade, the EC's formation, further integration, and expansion has already had a significant effect on Pacific Rim trade patterns. Japan, Australia, and New Zealand sought closer economic relations with each other and with other Asian nations in response to the formation of the EC, while Canada looked southward to the United

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1/ Although Hong Kong is a territory of the United Kingdom and Taiwan is not recognized by many countries, both will be referred to as countries in this paper.

States (Goodloe and Normile, 1990). A key question for the Pacific Rim countries is whether the EC 1992 harmonization process to remove internal EC trade barriers will accelerate past trends, fundamentally change current trade patterns, or leave the status quo unchanged. This article explores trends in agricultural trade patterns between the EC and the Pacific Rim countries and examines the implications of EC 1992 for potential effects on agricultural trade patterns.

Overview of EC-Pacific Rim Trade

The Pacific Rim countries do not lend themselves easily to categorization regarding EC agricultural trade. Canada, Australia, and New Zealand are traditional agricultural exporters to the EC, while only Canada and Hong Kong are traditional importers. Japan, Korea, and Taiwan have become large agricultural importers since World War II, in response to expanding economies, growing incomes, and declining agricultural sectors. The EC has participated in this import growth, mainly providing high-value products (HVP's).

Total Trade

The developed Pacific Rim countries take about 13 percent of the EC's exports and provide almost 20 percent of EC imports.2/ Overall, the EC runs a large trade deficit with the developed Pacific Rim, mainly with Japan, but also has deficits with South Korea, Taiwan, and Hong Kong (table 1). Between 1975 and 1987, EC trade with the developed Pacific Rim grew faster than both total and intra-EC trade. Trade with the Asian countries has driven this growth, as trade with the traditional partners of Canada, Australia, and New Zealand increased at a much slower rate.

Agricultural Trade

EC agricultural trade is a small share of its total trade, averaging 12 percent for exports and 15 percent for imports between 1975 and 1987 (table 1). EC agricultural trade with the Pacific Rim is even less significant, averaging about 9 percent of EC agricultural trade during 1975-87. The developed Pacific Rim countries take about 14 percent of the EC's agricultural exports, while providing only 9 percent of agricultural imports. EC agricultural exports to the developed Pacific Rim grew almost three times faster than agricultural imports in 1975-87, resulting in the EC becoming a net agricultural exporter to the area in 1986.

2/ All trade data exclude intra-EC trade.

Of the seven Pacific Rim countries we studied, Japan is the EC's largest export market, followed by Canada. EC export growth to Korea and Taiwan has been fastest, partly reflecting increases from a low base. On the EC import side, Australia, New Zealand, and Canada are the major suppliers. The value of EC imports from Australia and New Zealand increased steadily over the 1975-87 period, but imports from Canada fell.

The importance of agricultural trade with the EC varies considerably for the seven countries. Almost 80 percent of New Zealand's exports to the EC are agricultural, compared with almost 33 percent of Australia's exports to the EC. The shares are much lower for the other countries--even for Canada, a major agricultural exporter. For Taiwan, once primarily an agricultural exporter, 13 percent of exports to the EC in 1975 were agricultural, but that share had dropped to only 1 percent by 1987.

Agricultural products have not been a major part of the EC's total exports to the developed Pacific Rim. EC agricultural exports as a share of total exports in 1975-87 were most significant for Japan (13 percent), Canada (11 percent), and Hong Kong (11 percent), but were insignificant for the other countries.

EC-Pacific Rim Agricultural Trade

A review of EC-Pacific Rim agricultural trade entails two main stories. One concerns the EC as an agricultural exporter to the East Asian economies. This story mainly focuses on competition in HVP trade.3/ The other story concerns Canada, Australia, and New Zealand and their loss of market share in the EC, as well as growing competition between them and the EC in other countries.

More than 75 percent of the EC's agricultural exports are classified as HVP's. The EC uses a combination of export and processing subsidies to make some HVP's competitive in world markets. A large number of processed foods, such as candy, chocolate, pasta, biscuits, cake mixes, wheat flour, dairy-based breakfast and baby foods, casein, ice cream, refined sugar, frozen dinners, and soups, receive both processing and export subsidies. The United States and the EC are the

3/ No generally accepted system exists for classifying products as HVP's. The classifications used here are based on other ERS studies (Elleson, 1990; Evans, 1990). HVP's are divided into three categories: semiprocessed, highly processed, and high-value unprocessed. Appendix table 1 provides product classification.

Table 1--Indicators of EC-Pacific Rim trade, 1975-87

Country and item	Growth in total trade, 1975-87		Growth in agricultural trade, 1975-87		Trade balance, 1987 1/		Agriculture's share of total trade, 1975-87 average	
	EC exports	EC imports	EC exports	EC imports	Total	Agriculture	Exports	Imports
	Percent				Million U.S. dollars		Percent	
EC trade with world	9.1	8.7	8.3	6.2	1,137	-15,364	11.9	14.8
Intra-EC trade	10.0	10.0	8.6	8.6	6,621	n.a.	14.7	14.7
EC trade with Pacific Rim	10.9	12.1	10.1	3.6	-29,239	228	9.2	9.3
Canada	8.9	4.4	6.9	-1.5	2,255	173	10.8	14.8
Australia	5.8	6.0	6.4	6.5	1,639	-1,257	5.4	31.6
New Zealand	4.7	5.3	6.2	5.4	-107	-1,345	3.8	77.6
Japan	13.0	15.0	10.7	3.3	-24,558	1,827	12.7	.7
South Korea	17.8	18.6	21.5	1.2	-2,457	149	3.7	3.7
Hong Kong	14.7	11.7	13.1	5.1	-2,042	570	10.6	.5
Taiwan	16.9	18.5	25.7	-1.0	-3,968	110	5.5	6.4

n.a. = Not available.
1/ A positive number means that the EC was a net exporter; a negative number means that the EC was a net importer.
Source: United Nations trade data, ERS tabulations.

world's leading exporters of HVP's, but the composition of their HVP exports differs significantly. Semiprocessed products, such as meat and oilseed meals and oils, dominate U.S. HVP exports, while highly processed products, such as wheat flour, butter, cheese, cereal products, wine, and chocolate products, dominate EC exports. The U.S. share of high-value unprocessed products, such as fruit, nuts, vegetables, and eggs, is much larger than the EC share (Elleson, 1990).

East Asia

Over the past 30 years, growth in agricultural imports by Japan, Korea, Taiwan, and Hong Kong has been rapid (fig. 1). Between 1962 and 1988, growth in HVP imports of 14.9 percent annually exceeded the 11.1-percent annual growth in imports of bulk products. Growing incomes, exchange-rate appreciation, liberalization of some trade barriers, and changing tastes in favor of western and convenience foods have accelerated the shift since 1980 toward imports of HVP's and away from bulk commodities.

The United States is the leading agricultural exporter to the area, providing 36 percent of East Asia's bulk imports in 1987 and 29 percent of HVP imports. China, Australia, and the countries of the Association of Southeast Asian Nations (ASEAN) (Brunei, Indonesia, Malaysia, the Philippines, Singapore, and Thailand) are the other main suppliers of East Asia's bulk agricultural products. The EC countries, along with China and the ASEAN countries, are the other main exporters of HVP's to East Asia (Evans, 1990).

Despite its modest overall position in the East Asian agricultural market--9 percent of total imports and 12 percent of HVP imports--growth in East Asian imports from the EC has exceeded growth in imports from the United States, resulting in a growing EC share of the East Asian market (fig. 2). A similar story can be told for HVP imports, although both the EC and the United States have increased their share of East Asia's HVP imports (fig. 3). Since the 1960's, an average of more than half of EC exports to East Asia have been HVP's. About 60 percent of the EC's 1987 exports to East Asia were HVP's, compared with about 30 percent for the United States (fig. 4). The main EC exports are meat and dairy and cereal products. Given that HVP's are the fastest growing segment of East Asia's agricultural imports, and EC HVP exports to East Asia are growing more rapidly than U.S. HVP exports, the EC will remain a formidable competitor in the East Asia HVP market.

Japan

Japan is the world's largest net importer of agricultural products. In 1988, $2.5 billion, or 9.2 percent (double

Figure 1
East Asia's agricultural imports

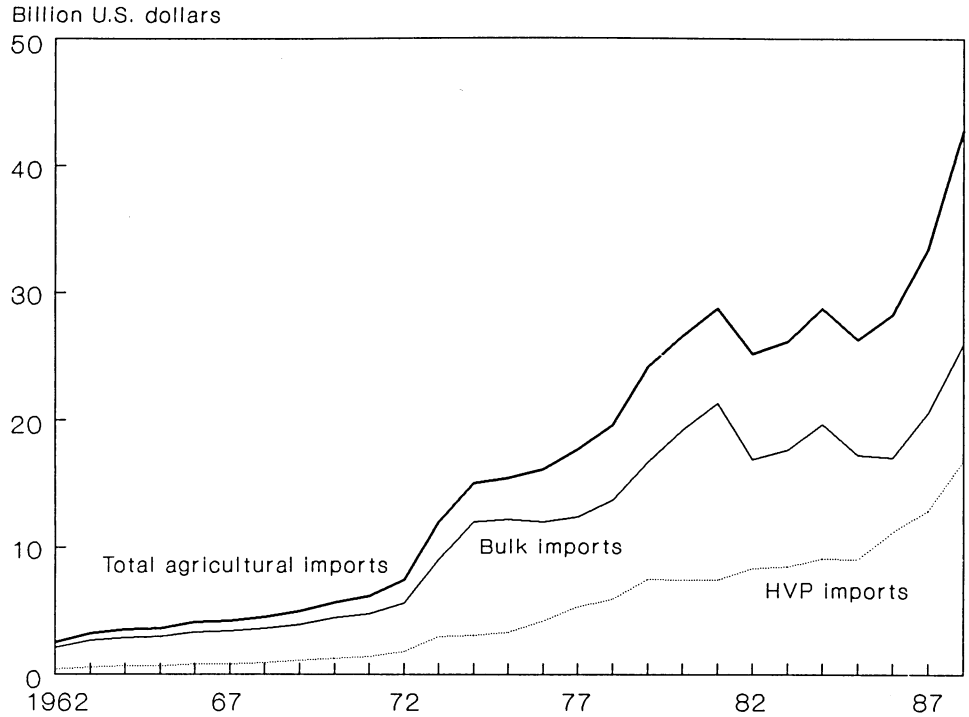
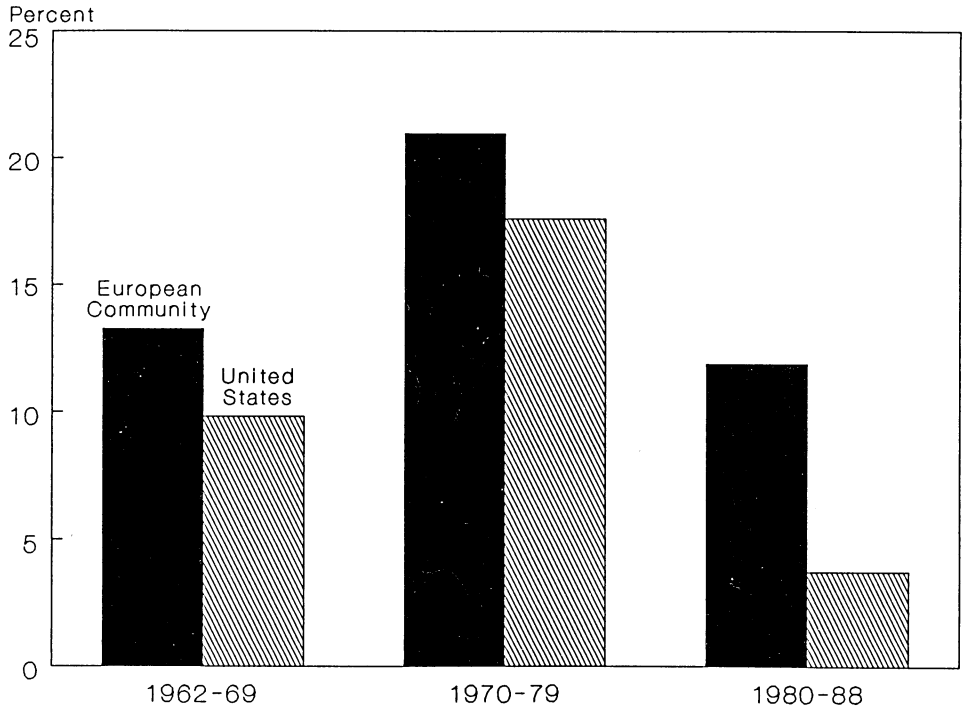


Figure 2
U.S.-EC competition in East Asia's agricultural imports: Average annual growth rate



the 4.6-percent share in 1977), of Japan's agricultural imports came from the EC countries, and $9.9 billion, or 36 percent, came from the United States. Both the U.S. and EC shares of Japan's imports rose between 1962 and 1988. However, the EC share grew faster, as Japan's imports from the EC increased faster than imports from the United States (table 2).

Both the EC and the United States increased their share of Japan's HVP imports in the 1980's. In 1988, 45 percent of Japan's agricultural imports were HVP's, and 62 percent of the EC's agricultural exports to Japan were HVP's. Meat, mainly pork, dairy products, cereal products, and wine and beer are the main EC HVP exports. High Japanese domestic prices for rice, wheat, dairy products, and sugar, among other commodities, along with the yen's appreciation and tariff reductions for some items, have spurred Japan's imports of processed products, such as confectionery and prepared and frozen foods, since the mid-1980's.

While the United States has been vociferous in its demands that Japan open its agricultural (and forestry) markets, the EC has also pressed for greater access and fairer treatment for certain items, such as Scotch whiskey, brandy, and wine. The EC submitted a petition to the General Agreement on Tariffs and Trade (GATT) in 1987 against Japan's labeling and taxation policies on imported liquor. The EC has also pressed Japan to lower tariffs or enlarge quotas on many processed agricultural items.

The EC has been effectively shut out of Japan's lucrative beef import market as a result of a 1985 agreement signed with Australia, under which the EC agreed not to export beef to Asian markets using export subsidies. Denmark and Ireland are the only EC countries with a Japanese veterinary approval. They have been pushing the EC to renege on the agreement and to make export refunds available for beef. The EC has also complained about Japanese practices on pork imports, which the EC claims favor Taiwan.

Although behind that of the United States, the Japanese trade presence in the EC is large. In 1989, there were about 400 Japanese manufacturing companies operating in the EC, including 16 food companies. Japanese food companies will probably increase their stakes in Europe (as they have moved production overseas in some Asian countries) to take advantage of lower input costs and the anticipated increase in demand for value-added farm products, both in Japan and in Europe. For example, in July 1990, Suntory Ltd. announced plans to start marketing its own beer in Europe by opening sales channels with its partner Carlsberg A/S, a Copenhagen-based brewer (U.S. Department of Agriculture, 1990).

Table 2--U.S. and EC share of Japan's agricultural imports

Item	Average share of total		
	1962-69	1970-79	1980-88
	Percent		
Total agricultural imports:			
From EC	2.3	4.5	6.9
From United States	26.9	33.5	38.3
High-value product (HVP) imports:			
From EC	5.3	9.0	10.8
From United States	20.7	18.7	24.3
Average share of HVP to total	15.8	26.5	36.7

Source: Derived from United Nations trade data.

South Korea

The EC has not been a significant force in Korea's agricultural import market. The United States has traditionally held that role as a result of large food aid shipments after the Korean War. But EC agricultural exports, total and HVP, to Korea grew faster than U.S. exports in the 1980's, resulting in a higher EC market share as U.S. market share fell (table 3). Recent market opening measures, combined with rapidly growing incomes, have contributed to a rapid rise in Korea's HVP imports, reaching 21 percent of total agricultural imports in 1989. The EC provided 20 percent of Korea's HVP imports in 1989, up from only 4 percent in 1986, while the U.S. share was 25 percent. The share of HVP's in EC exports has fluctuated wildly, from a low of 6 percent in 1981 to a high of 81 percent in 1985. (Whether this variability reflects data reporting problems or the fitful nature of EC-Korean trade requires further investigation.) Leather and furskins, dairy products, alcoholic beverages, and tobacco products are the main EC HVP exports, along with a wide variety of other processed products.

As in Japan, the EC has agreed not to export subsidized beef to Korea, whose market has recently reopened with good growth potential (Jones and Dyck, 1990). Recent trade liberalization measures for cigarettes, frozen concentrated orange juice, and whiskey have also contributed to growing Korean HVP imports.

Figure 3
U.S.-EC competition in East Asia's high-value product (HVP) imports: Average annual growth rate

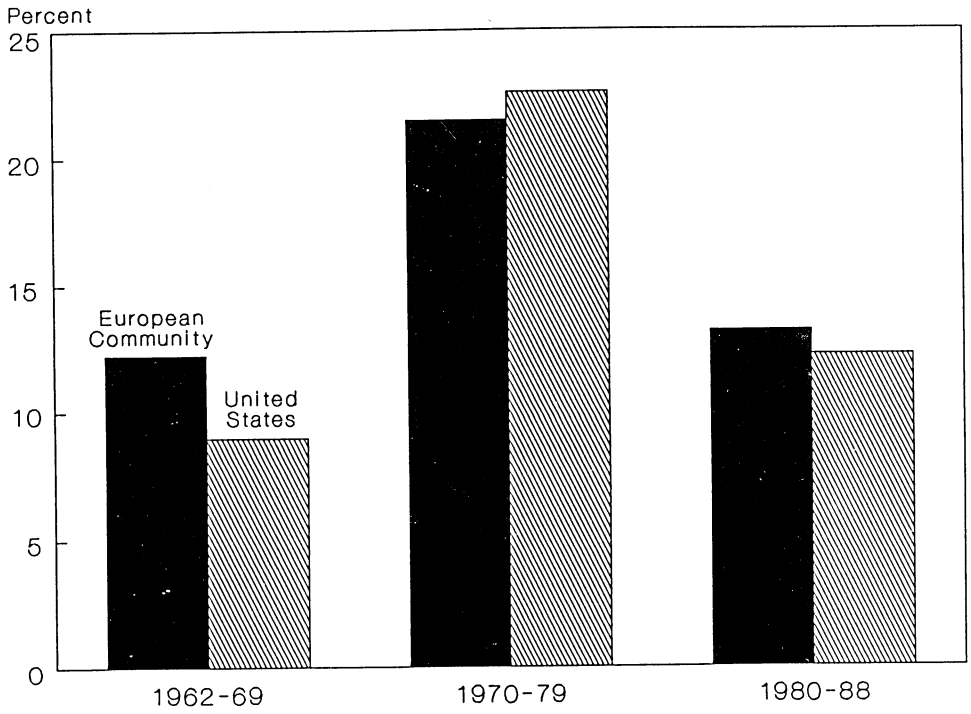


Figure 4
High-value product (HVP) share of U.S. and EC agricultural exports to East Asia

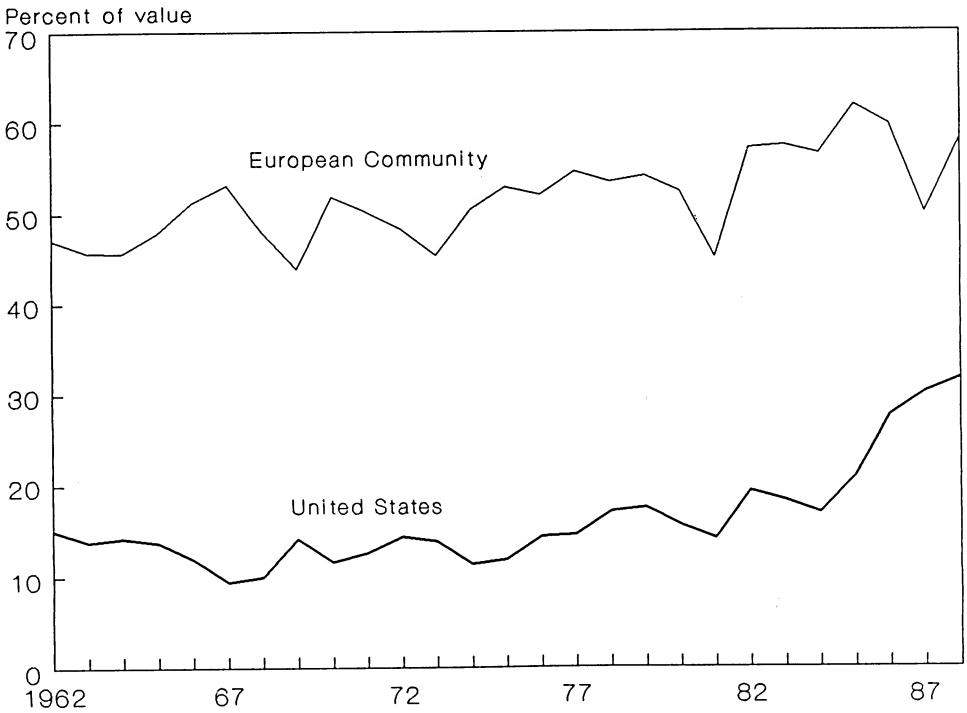


Table 3--U.S. and EC share of Korea's agricultural imports

Item	Average share of total		
	1962-69	1970-79	1980-88
	Percent		
Total agricultural imports:			
From EC	1.0	1.5	3.3
From United States	67.8	65.7	52.8
High-value product (HVP) imports:			
From EC	4.0	3.3	9.7
From United States	74.1	49.7	22.3
Average share of HVP to total	9.4	11.0	14.4

Source: Derived from United Nations trade data; 1988 estimated.

Table 4--U.S. and EC share of Taiwan's agricultural imports

Item	Average share of total		
	1962-69	1970-79	1980-88
	Percent		
Total agricultural imports:			
From EC	1.9	2.0	4.5
From United States	53.6	48.8	48.7
High-value product (HVP) imports:			
From EC	11.9	9.1	11.7
From United States	26.5	18.0	23.4
Average share of HVP to total	10.8	15.1	20.8

Source: Derived from United Nations trade data; 1988 estimated.

Taiwan

The story of EC agricultural trade with Taiwan is similar to that of South Korea. The EC provides only 5 percent of Taiwan's total agricultural imports, but is more competitive in the HVP market, shipping about 13 percent of Taiwan's HVP imports. As in Japan and Korea, growth in EC total and HVP exports to Taiwan in the 1980's exceeded U.S. export growth; EC market share grew while U.S. market share fell (table 4). HVP's account for a growing proportion of Taiwan's agricultural imports, reaching 23 percent in 1987. Taiwan's increasingly prosperous population is a ready target for high-quality, high-priced EC specialty products. Names and brands of European products are becoming status symbols for Taiwan's population. More than 60 percent of the EC's agricultural exports to Taiwan in 1987 were HVP's and included beverages, dairy products, manufactured tobacco, and feedstuffs.

The lack of diplomatic ties hampers trade between Taiwan and the EC. Nevertheless, the EC's changing perception of Taiwan's role in the international economy has fueled a trade increase. For example, in July 1985, the EC passed a resolution to promote trade between Taiwan and the EC countries. The resolution influenced Taiwan to extend the recent opening of its beer and liquor markets to U.S. products to the EC as well. Taiwan understands that efforts to increase imports from Europe, as part of its strategy to diversify exports away from the United States, will result in a warmer welcome for Taiwan's exports in the EC.

The importance of the EC as a market for Taiwan's exports has diminished greatly, mainly because of the decline of Taiwan's canned produce industry. This industry was once a world leader, and the EC was a major destination for Taiwan's canned produce exports. Rising production costs, a shrinking and aging labor force, small and inefficient farms, import competition, and currency appreciation have all contributed to the industry's decline. Canners in developing countries, notably China and Thailand, have taken over many of Taiwan's markets (U.S. Department of Agriculture, 1990).

Hong Kong

Because it has few agricultural resources and is densely populated, Hong Kong imports more than 90 percent of its food supplies. The Hong Kong Government generally favors a free trade policy and imposes few barriers. Price and quality are key factors to determining competitiveness in the Hong Kong market. China is, by far, the largest supplier. The EC's presence in Hong Kong is larger than in the three other Asian countries, reflecting historical ties with the British Commonwealth. The EC provided

about 12 percent of Hong Kong's total agricultural imports in 1988, compared with 17 percent from the United States.

With high per capita incomes, Hong Kong's mostly Chinese population enjoys a wide variety of traditional and western foods. As incomes and the desire for more convenience-oriented food products grow, consumption and imports of value-added products will probably continue to expand. About 50 percent of Hong Kong's agricultural imports are HVP's (table 5). Although the EC share of HVP's dropped in 1980-88 from 1970-79 levels, it slowly increased from a low point in the early 1980's and nearly reached the 1970-79 level. The U.S. share increased during both periods. About half of the EC's exports to Hong Kong are HVP's, and include poultry meat, eggs, bacon, certain dairy products, rye flour, corn meal, jams and marmalades, chocolate, wine, whiskey, brandy, and mink skins.

Hong Kong is concerned about ensuring market access for its manufactured products in Europe's single market after EC 1992. In 1988, 22 percent of Hong Kong's domestic exports went to EC countries. Hong Kong textile producers are worried that a unified market for textiles and garments could help Spain and Portugal become competing low-cost producers.

Canada, Australia, and New Zealand

As major exporters, these three countries contrast sharply with the role that the East Asian economies play in EC agricultural trade. Canada, Australia, and New Zealand's concerns focus on loss of market share in the EC and EC competition in third-country markets. In addition, Canada imports some EC products in significant quantities and has had trade disputes with the EC about imports as well as exports.

Many studies have documented and analyzed the costs of EC agricultural policies on EC consumers, taxpayers, and other exporting countries (Bureau of Agricultural Economics, 1985; Organization for Economic Cooperation and Development, 1987; Roningen and Dixit, 1989). They concluded that the Common Agricultural Policy (CAP) has been the most important factor depressing world market prices below levels that would prevail in the absence of government intervention. By encouraging domestic production through high agricultural support prices and providing border protection against cheaper imports, the CAP has increased agricultural trade within the EC at the expense of imports from non-EC countries. In addition, excess production has been dumped on world markets, reducing both prices and the volume that other countries can sell. The CAP has contributed to world price instability and, in cases where world market conditions required supply adjustment, forced most of the adjustment onto other exporting countries.

The EC's switch from a net agricultural importer to a net exporter has had a substantial effect on world markets for wheat, coarse grains, sugar, dairy products, beef, and sheepmeat, which are major export commodities for Canada, Australia, and New Zealand. The effects are twofold. These three countries were traditional suppliers of grains, meat, and dairy products to Europe, especially to the UK. Their shares of the EC agricultural market have declined since the early 1960's, as the EC developed and enlarged (fig. 5).

The three countries' combined share of EC farm imports fell from about 12 percent in 1962 to only 3 percent in 1987. The United States, also a major supplier to the EC, also saw its share fall. Over the same period, agricultural trade among EC countries rose from 27 percent to 63 percent (Goodloe and Normile, 1990).

Loss of the EC market forced these former suppliers to seek other export markets. The share of Canadian agricultural exports going to the EC fell from about 40 percent in 1962 to just 10 percent in 1987 (fig. 6). Similarly, the share of Australia's agricultural exports to the EC fell from 43 percent in 1962 to 11 percent in 1981, before rising to 17 percent in 1987. For New Zealand, the drop was from 72 percent in 1962 to a low of 28 percent in 1983, increasing to 33 percent in 1987.

Table 5--U.S. and EC share of Hong Kong's agricultural imports

Item	Average share of total		
	1962-69	1970-79	1980-88
	Percent		
Total agricultural imports:			
From EC	5.7	8.1	9.6
From United States	11.1	15.6	17.4
High-value product (HVP) imports:			
From EC	10.6	11.0	10.0
From United States	14.6	18.8	23.5
Average share of HVP to total	40.0	44.3	49.7

Source: Derived from United Nations trade data.

Figure 5
EC imports, by country of origin for selected countries

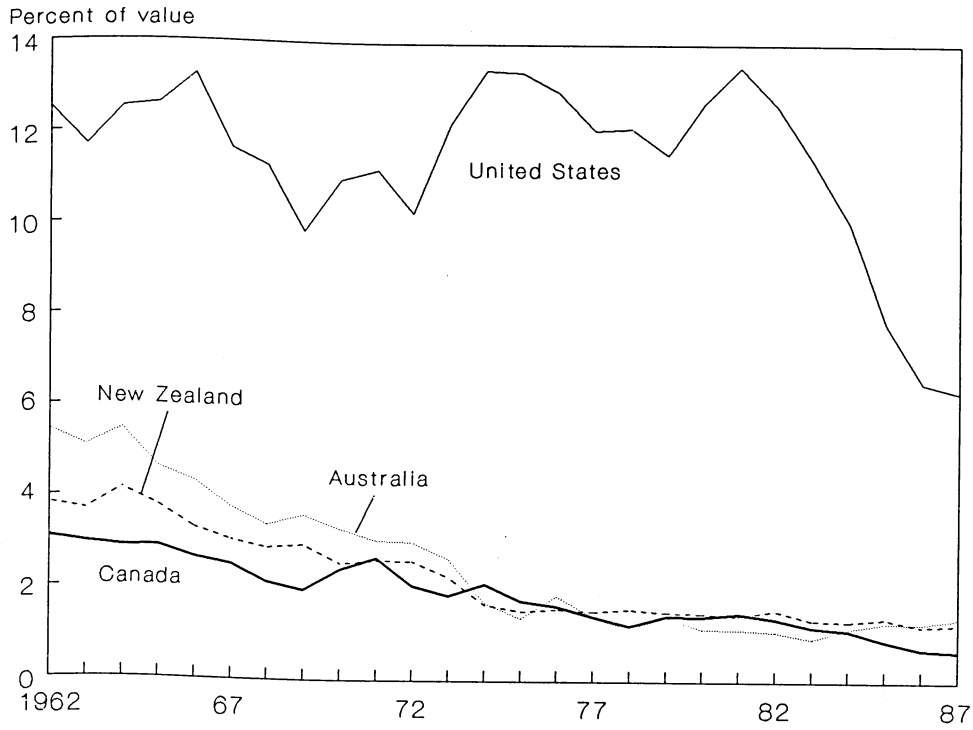
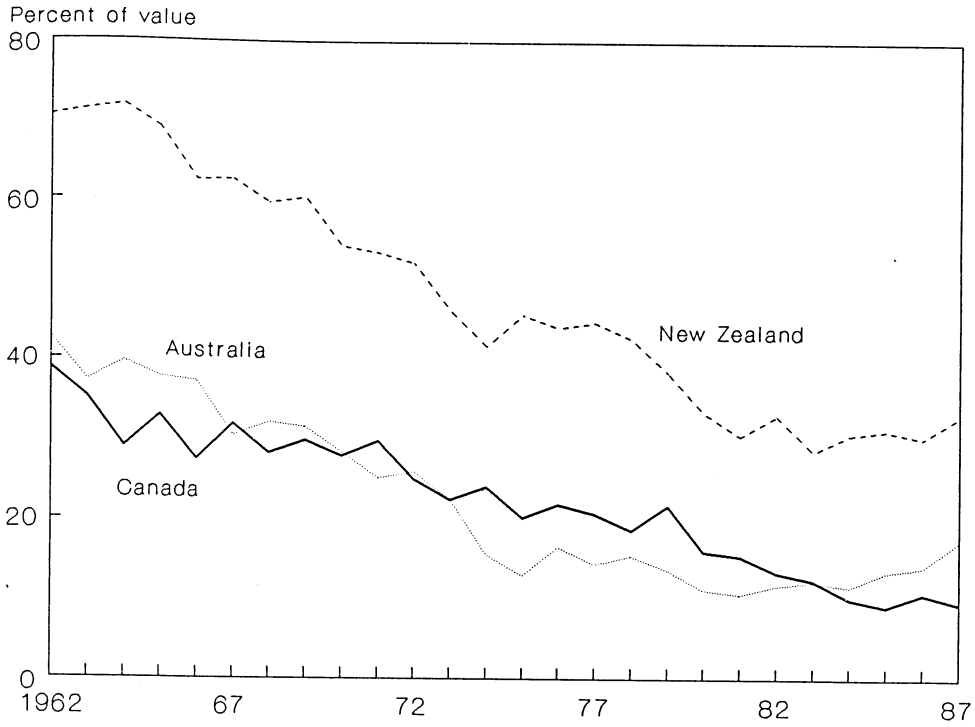


Figure 6
Agricultural exports to the EC from selected countries



Canada

Over the past 30 years, Canada's agricultural exports have shifted away from the EC toward the United States. The U.S.-Canada Free Trade Agreement (FTA), enacted in 1989, will accelerate this trend. Particularly in the 1980's, Canadian exports to the EC fell sharply, while increasing to the United States (table 6). The United States imports more than a third of Canadian agricultural exports, while the EC imports only a tenth. In 1962, Canadian wheat provided 30 percent of the EC's food grain imports, but by 1987, that share was only 3.5 percent. Canada's main exports to the EC are wheat, flaxseed, offals, horsemeat, hides, and pulses.

Trade developments have been even more pronounced for HVP exports. HVP's account for almost a third of Canadian agricultural exports; two-thirds are shipped to the United States but less than a tenth to the EC. The value of Canadian exports of HVP's to the EC, mainly livestock, fruit, and vegetable products, declined during the 1962-88 period.

Because of its cold climate and short growing season, Canada is also a large agricultural importer. The United States is Canada's traditional supplier, especially of horticultural products, which Canada cannot economically produce. But the EC has steadily increased its share of Canada's import market since the 1960's. Canada's imports from the EC grew faster than its imports from the United States in the 1980's.

Table 6--Share of Canada's agricultural exports to the United States and the EC

Item	Average share of total		
	1962-69	1970-79	1980-87
	Percent		
Total agricultural exports:			
To EC	31.6	23.3	12.1
To United States	24.8	22.3	26.1
High-value product exports:			
To EC	31.9	18.5	11.2
To United States	35.7	39.5	51.6
Average share of HVP to total	20.0	20.8	24.6

Source: Derived from United Nations trade data.

These general trends hold true for Canada's HVP imports, which account for 70 percent of Canadian agricultural imports. The United States provides more than half of Canada's HVP imports, but the EC share grew faster in the 1980's. Almost three-fourths of the EC's agricultural exports to Canada are HVP's. The main items are bakery, dairy (60 percent of Canada's global import quota for cheese is reserved for the EC), fruit, and vegetable products.

In addition to Canada's longstanding complaints about the CAP, with its high support prices, export subsidies, and other policies that limit access for Canadian products to the EC, other trade disputes emerged in the 1980's. In 1986, following large increases in EC beef imports, Canada put a countervailing duty on EC beef. The EC initiated a GATT case, which eventually ruled Canada's duty was illegal. The EC also filed a GATT complaint against Canadian import policies on alcoholic beverages; the GATT again ruled in the EC's favor (Commission of the European Communities, various issues).

Australia

The share of Australia's agricultural exports to the EC has generally slipped, but has rebounded after 1985. Australia provided about 10 percent of the EC's wheat imports in 1962, but that share had dropped to practically zero by 1987. Nevertheless, the EC remains a major market for Australia's exports of fruit and vegetables, wool, and hides and skins. In 1988, 55 percent of Australia's hide and skin exports, 29 percent of wool exports, and 24 percent of fruit and vegetable exports went to the EC.

About a third of Australia's agricultural exports are HVP's, mostly livestock products. The share of Australia's HVP exports to the EC has followed the same path of total exports, declining from 37 percent in 1962 to only 6 percent in 1977. The EC remains a larger market for Australia's agricultural exports than the United States, but the United States takes a much larger share of Australia's HVP exports (table 7).

To offset the effects of the CAP on Australia's exports, and especially the loss of the UK market when it joined the EC in 1973, the EC offered special concessional arrangments to Australia (and to New Zealand). Australia was granted concessional arrangements on sheepmeat, beef and veal, and cheese to guarantee access levels. Australia's exports to the EC rebounded after 1983, partly as a result of these agreements.

Table 7--Share of Australia's agricultural exports to the United States and the EC

Item	Average share of total		
	1962-69	1970-79	1980-87
	Percent		
Total agricultural exports:			
To EC	36.1	19.1	12.8
To United States	12.5	12.2	10.0
High-value product exports:			
To EC	33.5	13.6	7.1
To United States	29.9	29.3	26.4
Average share of HVP to total	20.0	20.8	24.6

Derived from United Nations trade data.

Table 8--Share of New Zealand's agricultural exports to the United States and the EC

Item	Average share of total		
	1962-69	1970-79	1980-87
	Percent		
Total agricultural exports:			
To EC	57.1	46.3	31.4
To United States	13.5	15.3	14.3
High-value product (HVP) exports:			
To EC	59.8	41.8	26.9
To United States	12.0	18.8	18.1
Average share of HVP to total	20.0	20.8	24.6

Source: Derived from United Nations trade data.

Australia's agricultural imports are small, and more than half are HVP's. The EC provides about a quarter of both total agricultural and HVP imports in Australia. The United States provides less than 10 percent of Australia's HVP imports. More than half of EC agricultural exports to Australia are HVP's.

New Zealand

The pattern of New Zealand-EC trade is similar to that of Australia. The share of exports from New Zealand to the EC dropped sharply over 1962-87 (table 8). As the share of New Zealand's exports to the EC steadily declined during the 1960's and 1970's, New Zealand was forced to seek other outlets for its exports, mainly the United States and Japan. However, despite EC import barriers, the value of New Zealand's exports to Europe actually rose in the 1980's. The UK remains the major market for New Zealand's exports of apples, butter, sheepmeat, and offals. A high proportion of New Zealand's agricultural exports are HVP's, mainly meat and dairy products. The EC has steadily declined in importance as a market for New Zealand's HVP exports.

Special access was negotiated for New Zealand butter and sheepmeat when the UK joined the EC. In 1985, New Zealand agreed to limit sheepmeat exports to the EC to 245,000 tons annually in exchange for a reduction in the EC import tariff from 20 percent to 10 percent. In 1989, the quantity was lowered to 205,000 tons in exchange for a waiver of the import levy. New Zealand was allowed to ship 6,000 tons of chilled lamb to the EC in 1989, and this amount can increase 1,500 tons per year until 1992. In October 1989, the UK and New Zealand agreed to a new arrangement for butter exports, under which exports will drop from 64,500 tons to 55,000 tons by 1992 in exchange for a reduction in the import levy.

New Zealand is a small agricultural importer. At 12-13 percent share each in 1987, neither the EC nor the United States is a dominant supplier to New Zealand. Imports from the EC in the 1980's grew faster than those from the United States, especially HVP imports.

Implications of EC 1992 for Pacific Rim Agricultural Trade

The specific longrun effects of the EC 1992 process are not yet clear, but some ideas about the general effects have been advanced (Gardiner and Kelch, 1990; Ichter, 1990). Potential effects are significant mostly for processed agricultural products, but also for bulk commodities. Other political and economic events, in addition to EC 1992, including German unification,

economic restructuring in Eastern Europe and the Soviet Union, and the Uruguay Round of trade negotiations will influence EC agricultural trade patterns.

EC 1992 and EC Agriculture

The EC 1992 harmonization process does not directly affect commodity policies under the CAP, but is expected to pressure the CAP, especially through changes in the agrimonetary system. Stricter, harmonized rules on environmental and food safety standards could limit growth in EC agricultural production. In addition, pressure to change the current inefficient allocation of dairy and sugar quotas may grow. The longrun effects of such changes will be lower internal support prices and a change in production patterns based more on comparative advantage than artificial financial incentives. Lower EC producer prices for bulk commodities will lead to lower production, higher consumption, and reduced exports--all of which will result in higher world prices for key commodities. On the demand side, higher incomes and lower meat prices should stimulate meat demand, leading to higher feed imports.

A variety of proposed policy changes, in addition to changes in bulk commodity prices, will affect European food processing firms. An ambitious program aims to harmonize plant and animal health standards, packaging and labeling requirements, excise and value-added taxes, and transportation and financial services. The longrun effects of such changes will be a more competitive EC food processing sector. One hypothesized advantage for exporters from harmonizing standards will be easier access to a large, wealthy market that will have one standard, not twelve different standards. An unanswered question is at what level will the EC decide to harmonize its product and commodity standards, a level that could jeopardize a country's ability to export to the EC.

EC 1992 and Pacific Rim Agricultural Trade

Many of these hypothesized effects of EC 1992 relate directly to Pacific Rim countries. How does harmonized EC agriculture fit in with current and projected Pacific Rim agricultural trade?

East Asia

For the East Asian countries, the story again focuses on HVP trade. In Japan, Korea, Taiwan, and Hong Kong, the trend toward growing imports of HVP's compared with bulk commodities is clear. This trend is most pronounced in Japan, the highest income country in the Pacific Rim. The structure of Japanese agricultural imports has changed significantly in the past two decades (Coyle, 1990). Value-added imports now nearly equal bulk commodity imports. Reductions in tariffs and other trade barriers, the rising value of the yen, higher incomes and changing tastes, and changing comparative advantage in some food and agricultural industries has induced the shift toward HVP's.

ERS projections reflect the changing import trends, where population, income, and import growth are forecast to slow from earlier periods. Imports of major bulk commodities, such as wheat, coarse grains, and oilseeds, are forecast to rise at a slower rate than value-added imports, such as beef, pork, and poultry (table 9).

The proliferation of rules and standards for 12 separate EC countries may have sensitized European firms to different cultures and may have helped them understand niche marketing, which has been a useful concept in East Asia. Harmonizing the internal EC market is expected to strengthen some EC food firms, making them better able to export to the Asian countries. A simple extrapolation of the 1980's growth rates for East Asian imports from the EC and the United States would further increase the EC's share of the market. The combination of a larger share of East Asia's agricultural imports being comprised of HVP's and a more competitive EC food-processing sector could further increase the EC's market share.

Canada, Australia, and New Zealand

The three traditional exporters of the Pacific Rim are not likely to regain any market share within the EC as a result of EC 1992, although some of the proposed changes may modestly improve their export opportunities--for example, by having to meet only one product standard instead of twelve. Any reduction in EC output is more important, and subsidized exports of competing commodities--grains, meat, dairy products, or sugar--especially if accompanied by an increase in world prices, would benefit Canada, Australia, and New Zealand.

These three countries have lagged the EC in the HVP share of agricultural exports. Like the United States, their HVP exports of meat, fresh fruit and vegetables, and oilseed products have been concentrated in the semiprocessed and unprocessed categories. Canada, Australia, and New Zealand are not in especially good positions to compete either in the harmonized EC or in the East Asian countries, especially in the highly processed food items, because they have not focused their marketing efforts in this area. The three countries

Table 9--East Asia: Historical and projected growth for population, income, and major imports 1/

Item	Unit	1990 base	1980-89 change	1990-2000 projected change
			---- *Percent* ----	
Japan:				
Population	Millions	123.8	0.5	0.4
Per capita GNP	U.S. dollars 2/	20,950	3.6	3.8
Imports:	1,000 metric tons			
Wheat	do.	5,400	-.8	.4
Coarse grains	do.	21,400	1.5	.8
Soybeans	do.	4,450	1.1	1.8
Beef	do.	637	11.4	8.7
Pork	do.	525	12.2	2.6
Poultry	do.	330	14.5	7.7
South Korea:				
Population	Millions	42.8	1.2	1.0
Per capita GNP	U.S. dollars 2/	4,500	8.0	5.8
Imports:	1,000 metric tons			
Wheat	do.	3,100	5.3 3/	5.7
Coarse grains	do.	7,548	10.4	2.4
Soybeans	do.	950	6.1	3.2
Beef	do.	105	9.6 4/	11.8
Taiwan:				
Population	Millions	19.9	1.1	.9
Per capita GNP	U.S. dollars 2/	7,562	6.3	6.0
Imports:	1,000 metric tons			
Wheat	do.	940	4.9	1.3
Coarse grains	do.	4,800	3.8	3.6
Soybeans	do.	1,850	5.9	3.9
Beef	do.	44	13.0	9.0
Poultry	do.	2	7.2	21.5
Hong Kong:				
Population	Millions	5.9	1.3	1.2
Per capita GNP	U.S. dollars 2/	5,624	4.6 5/	2.4
Imports:				
Pork	1,000 metric tons	220	1.8	2.5
Poultry	do.	210	8.3	1.9
Rice	do.	409	1.0	.7
Cotton	do.	264	5.0	.9

1/ Average annual growth rate.
2/ Real GNP; change based on local currency.
3/ 1980-90: 1989 was unsually low.
4/ 1981-89: 1980 was unsually low.
5/ 1981-89: 1980 was unusually low.
Sources: Country data and ERS projections.

combined currently provide only 11 percent of East Asia's HVP imports. That share was flat in the 1980's, perhaps reflecting Australia's declining share of Japan's beef imports (fig. 7).

Regional trading arrangements and recent policy reforms may lead to more-competitive food processing sectors in Canada, Australia, and New Zealand. Even though such arrangements are expected to increase regional trade more than trade with other countries, much the same as EC 1992 is expected to further stimulate intra-EC trade, the surviving food firms will be more competitive in world trade.

The U.S.-Canada Free Trade Agreement (FTA) is expected to pressure Canada's food industries through competition with the larger, more efficient U.S. sector, as tariffs and other trade barriers fall. The FTA will stimulate more North American trade, and the importance of the EC market may diminish.

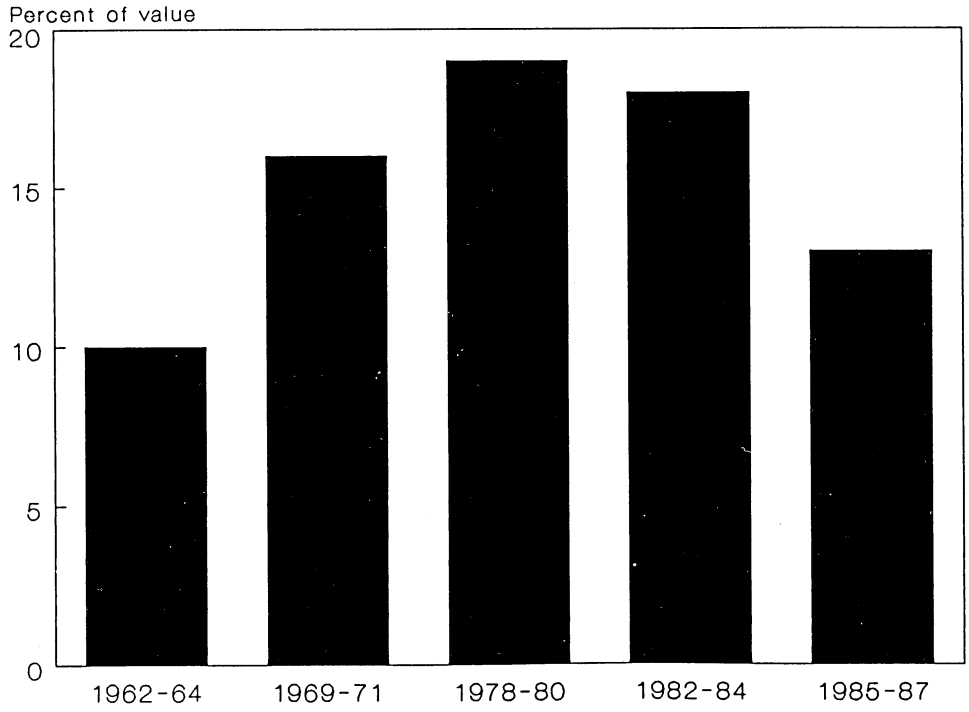
Recent policy reforms in New Zealand and Australia, including the Closer Economics Relations agreement between the two countries, will also make their agricultural sectors more competitive and will spur an increase in bilateral trade as trade barriers fall. But with their small populations and a similar production mix, third-country export markets will remain crucial to Australia and New Zealand.

Outlook for EC-Pacific Rim Agricultural Trade

If the trend toward HVP imports and away from bulk commodities emerges as strongly in the lower income Pacific Rim countries as in Japan, the greatest potential for exporters lies in tapping this growing area, especially since import growth in bulk commodities is slowing. The East Asian countries could prove to be the economic battleground between the three Pacific Rim exporters, the United States, and the EC, as all are actively seeking export opportunities. For example, Canada is working to increase exports of beef and pork to the Japanese and Korean markets, and Australia is expanding exports of fed beef to Japan. The EC countries are increasing their promotional programs in Japan for agricultural products, mainly for value-added products. The shift to value-added imports implies greater economic benefits to exporters, but it also means exporters will have to deliver high-quality, well-packaged products that meet consumer demands. The EC is already well positioned to do so, and the EC 1992 process could make them even more competitive.

Many questions remain unanswered about the final form and effects of the EC 1992 process on EC agricultural trade. Processing and export subsidies have helped make the EC a formidable competitor in the East Asian

Figure 7
High-value product (HVP) share of East Asia's agricultural imports from Canada, Australia, and New Zealand



HVP markets, especially for meat, dairy products, and cereal products. How these subsidies fare after 1992 will be a key factor for EC agricultural exports to the region. Australia's and New Zealand's bilateral access agreements to the EC for sheepmeat and dairy products have greatly determined trade. What happens to such agreements once the EC 1992 process is completed is a major question for Australia and New Zealand.
Finally, the scope of and outlook for investment activity by Pacific Rim countries in the EC agribusiness sector is not known. Such investment could affect the level and composition of agricultural trade.

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Appendix table 1--Selected bulk and high-value products by Standard International Trade Classification (SITC) code

Bulk products		High-value products	
SITC code	Commodity	SITC code	Commodity
	Cereals	Unprocessed	
041.0	Wheat	025	Eggs
042.1/042.2	Rice	051	Fresh fruit and nuts
043.0	Barley	054	Vegetables, fresh, frozen, or simply preserved
044.0	Corn		
045.1	Rye		
045.2	Oats	Semiprocessed	
045.9	Other cereals, unmilled		
		011	Meat, fresh, chilled, or frozen
	Oilseeds	046	Wheat flour
		061.2	Refined sugar/related products
221.4	Soybeans	071	Coffee and products
221.1	Peanuts	072	Cocoa beans and products
221.2	Copra	074	Tea and mate
221.3	Palm kernels	081.2/081.4/ 081.9	Animal feeding stuffs
221.6	Cottonseed		
221.5	Linseed	081.3	Oilseed cake and meal
		411.3	Animal oils
		421/422	Vegetable oils
	Miscellaneous	Highly processed	
263.1	Cotton	012	Meat, dried, salted, or smoked
262	Wool and other hair	013	Meat (canned) and meat preparations
121.0	Tobacco, unmanufactured		
231.1	Natural rubber and gums	022	Milk and cream
21	Hides and skins	023	Butter
061.0	Sugar, raw	024	Cheese
001	Live animals	048	Cereal preparations
		052	Fruit, dried
		053	Fruit, preserved or prepared
		055	Vegetables, preserved or prepared
		062	Sugar preparations
		073	Chocolate/related products
		091	Margarine and shortening
		075	Spices
		112.1-112.3	Wine, beer, and other fermented beverages
		122	Tobacco, manufactured

EC 1992: Turning Point for the European Free Trade Association?

Mary Lisa Madell*

Abstract

The European Community's (EC's) program to complete its internal market by 1992 has forced the countries of the European Free Trade Association (EFTA) to reexamine their relationships with the EC. Policy options for EFTA countries range from the formation of a European Economic Space to full EC membership. The highly protective agricultural policies of the EFTA countries could, however, stand in the way of closer cooperation. The EFTA countries and the EC signed a series of bilateral free trade agreements in 1973, but these agreements exclude agriculture. Agricultural policy differences between the EFTA countries and the EC will play a role in the process of European integrations.

Introduction

Like the 12 countries of the European Community (EC), the 6 European Free Trade Association (EFTA) countries (Austria, Finland, Iceland, Norway, Sweden, and Switzerland) have promoted economic integration among themselves to try to increase their mutual welfare. The European Free Trade Area was therefore established under the Stockholm Convention in 1960. Unlike the EC, however, the EFTA countries have not formed a true customs union, for they do not maintain a common external tariff, nor are all goods freely traded within their territories. Where the EC has established a number of supranational governing bodies, to which the member states have surrendered part of their national sovereignty, the EFTA countries have only a weak secretariat, and all decisions are taken by consensus.

Important differences between the EC and EFTA also exist in the field of agriculture. The EC has its Common Agricultural Policy (CAP), which operates market regimes for all major agricultural commodities, except potatoes, and which absorbs nearly two-thirds of the total EC budget. The EFTA countries, on the other hand, have no such common policy for agriculture. Each operates its own national agricultural policy, and trade in agricultural products, even with other EFTA countries, is tightly controlled.

The series of bilateral free trade agreements (FTA's) negotiated between the EC and the individual EFTA countries do not include trade in agriculture, although both sides provided special duty concessions on some processed food products. In the current negotiations between the EC and the EFTA countries on the establishment of a European Economic Space (EES), neither free trade in agriculture nor joining the CAP play a role. This paper examines the agricultural policies of the EFTA countries, their general goals in the EES negotiations, and the effects that the EC's single market program is likely to have on agriculture and food production in the EFTA countries.

EFTA Agriculture: Structure and Policy

The total land area of the EFTA countries is 1,236,400 square kilometers (excluding Iceland, whose agriculture is insignificant compared with its fisheries), or almost 55 percent of the total land area of the EC-12. The size of EFTA's agricultural area, however, is only 10 percent of the EC-12's agricultural area. This results from the vast arctic regions in the Nordic countries, and the mountainous terrain in the Nordic and the Alpine countries. Small family farms are characteristic of EFTA agriculture. Despite the EFTA's smaller

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agricultural area, production of the basic agricultural commodities--cereals, meat, and milk--is usually more than adequate to meet the needs of the region's small population. The EFTA's high per capita income, however, stimulates the demand for imports of high-value processed foodstuffs and horticultural products.

Agricultural policy in the EC and EFTA countries has traditionally tried to match agricultural incomes with nonagricultural incomes, and to keep a stable food supply. In the EFTA countries, assuring the food supply is also often tied to national security objectives. Other social and ecological goals are important in EFTA agricultural policies. The need to populate mountain and arctic regions, and to maintain fragile Alpine ecosystems, has led to policies that promote small inefficient farms in very disadvantaged areas.

In the EFTA, these goals have been pursued through price support programs and high levels of import protection, much as in the EC. Producer prices for agricultural products in EFTA countries are set at levels higher than those prevailing in the EC. In the EFTA countries, negotiations among the government, farmers' organizations, and other interested organizations (that is, employers' or workers' groups) determine producer prices. Supply control also plays a more significant role in EFTA farm policies than it does in the CAP. The agriculture and food sectors in EFTA countries are characterized by higher regulation and government intervention than is found in the EC.

EFTA countries also use variable import levies and export restitutions, the cornerstone of the EC's CAP. Import levies make up the difference between the price of imports delivered at the port and an officially fixed entry price. Export subsidies, the exporter's equivalent of variable levies, bridge the gap between the high domestic price and the lower world price.

Compared with the EC, the EFTA countries are less suited to agricultural production, as significant parts of their individual land areas are mountainous or otherwise not ideal for agricultural production. To maintain farming in these disadvantaged areas, support to farmers must be quite high. A comparison of producer subsidy equivalents (PSE's) for the EFTA countries and the EC-12 reveals higher support levels in the EFTA countries. Support levels differ, however, according to the commodity, and the means of support vary by country (figs. 1-6). For 1989, the latest period for which PSE's were available for individual commodities, pork received much greater protection in Sweden, Finland, and Austria than in the EC, but for some commodities, EC levels were higher (table 1).

Austria

Austrian farm policy has always placed heavy emphasis on maintaining the many small mountain farms, which make up a large segment of the rural economy, as well as on protecting the fragile Alpine ecosystem. This policy, however, has led to costly surplus disposal problems. Livestock surpluses are mainly in breeder and slaughter cattle produced in the Alpine regions, where few production alternatives are possible.

Austrian agricultural policy relies on high agricultural prices to help maintain farm incomes, especially on traditional, small Austrian family farms. With the increasing costs of surpluses, the GATT negotiations, and possible membership in the EC and the CAP, Austrian officials are now looking into decoupled payments and other alternative measures for supporting agriculture (fig. 2).

In addition, the processing and distribution systems for agricultural products are highly regulated in Austria, particularly for the dairy sector. Buying and selling are allocated to individual dairies by a central dairy board, which must also license all new products. This regulation, and producer prices approximately 10 percent above EC producer prices, has allowed considerable inefficiency in the sector.

Finland

The Finnish Government has decided to introduce decoupled support to keep farm-family income in line with incomes of industrial workers. Other measures to cope with surplus production have been in use for several years (fig. 3).

Under a new 5-year Farm Income Act, effective January 1, 1990, Finnish farmers will continue to be compensated annually for increased costs. This year, however, only 35 percent of the compensation will be in the form of higher target prices, while 45 percent will be in the form of decoupled support per hectare of cultivated land and per lactating cow. The balance will cover agriculture's share of the costs for reducing agricultural production.

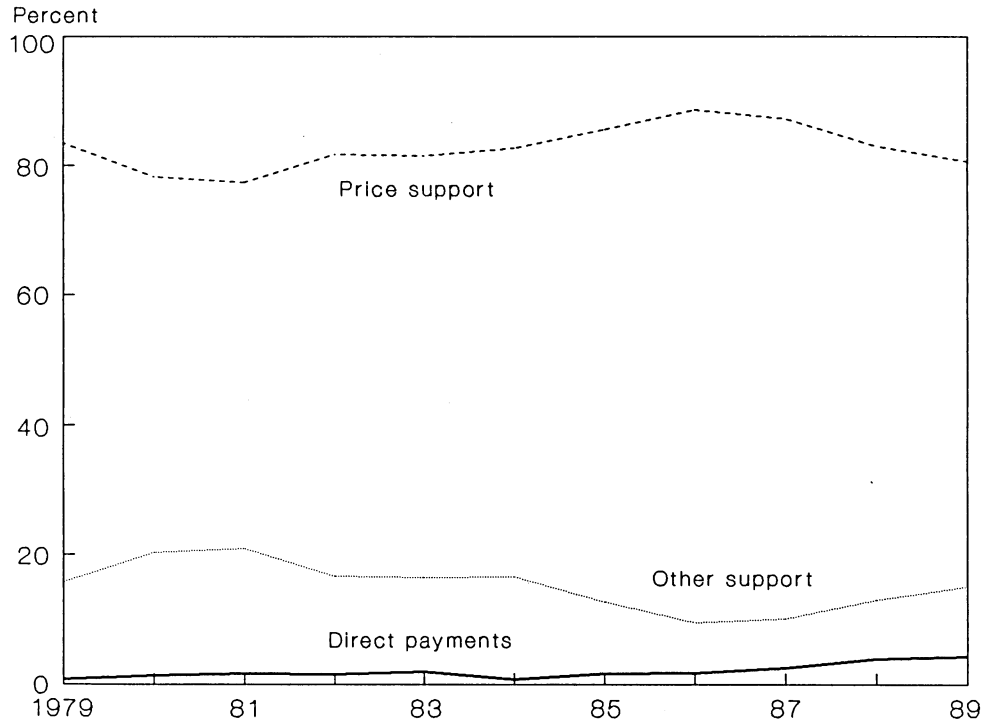
The new Farm Income Act is not expected to have a major effect on production in 1990. However, Finland's production of basic agricultural products will most certainly be reduced in the future, along with exportable surpluses and export subsidies. Decoupling will also help to slow the rise in retail food prices, the subject of much public criticism in recent years.

Table 1--EFTA PSE's for various commodities, 1989

Commodity	Country					
	Norway	Sweden	Finland	Austria	Switzerland	EC
			Percent			
Wheat	72	77	48	81	81	24
Coarse grains	82	26	78	51	84	35
Sugar	n.a.	38	77	70	77	52
Milk	79	62	73	47	76	52
Pork	47	35	53	11	45	5
Beef	74	61	76	58	86	55

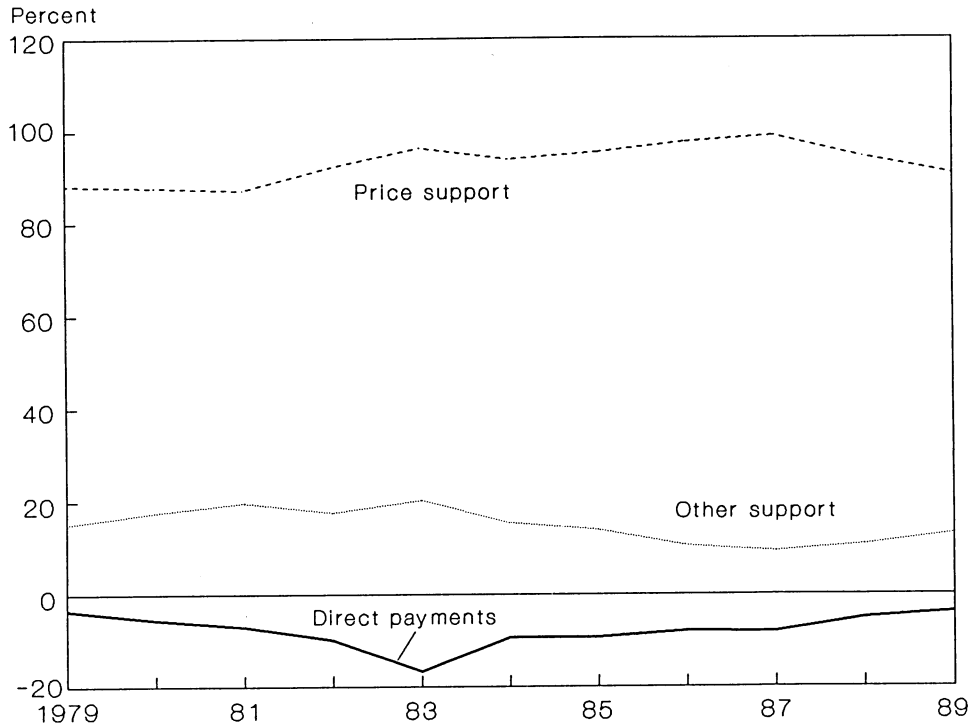
n.a. = Not available.
Source: Organization for Economic Cooperation and Development, Tables of Producer Subsidy Equivalents and Consumer Subsidy Equivalent, 1979-1989. Paris. 1990.

Figure 1
EC: Aggregate producer subsidy equivalents (PSE's), by means of support



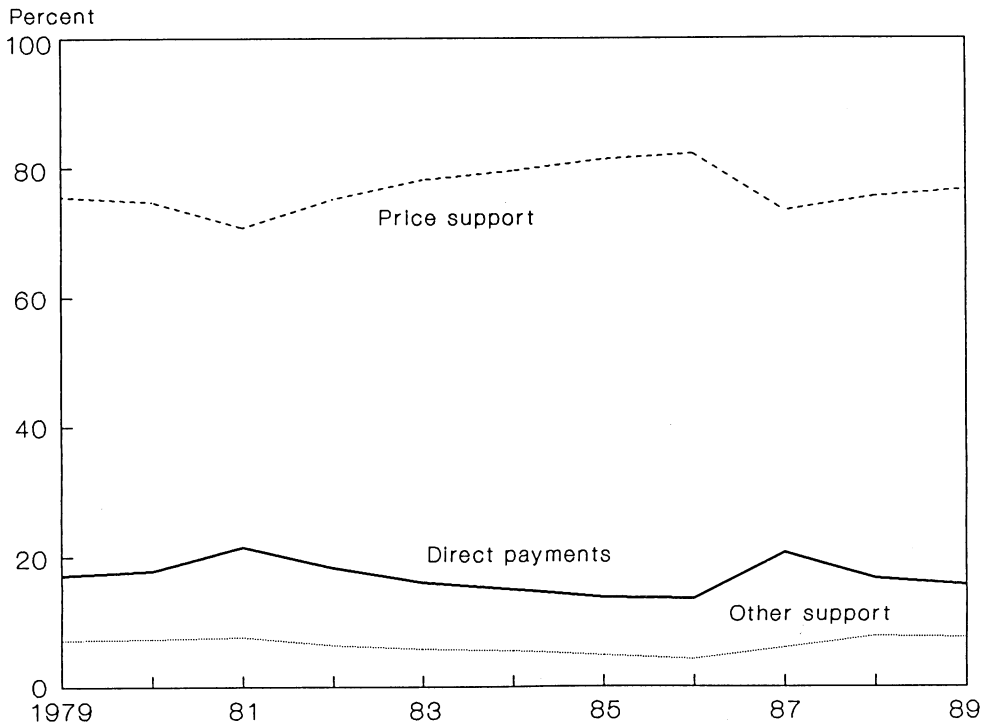
Source: Organization of Economic Cooperation and Development.

Figure 2
Austria: Aggregate producer subsidy equivalents (PSE's), by means of support



Source: Organization for Economic Cooperation and Development.

Figure 3
Finland: Aggregate producer subsidy equivalents (PSE's), by means of support



Source: Organization for Economic Cooperation and Development.

Norway

Norwegian agricultural policy places limits on farm sizes. Broiler production is limited to 30,000 per operation, and egg production to 2,500 layers. Dairy cow premiums are limited to the first 22 animals. Similar limits on hog operations have contributed to very high-cost pig production. Figure 4 shows components of Norway's agricultural exports.

In 1989, agricultural problems were discussed more frequently in Norway than ever before. There were two reasons for this: the possibility of new rules for trading agricultural products resulting from the Uruguay Round of the GATT, and the June 1989 GATT panel decision requiring Norway to bring its import measures for apples and pears into GATT compliance.

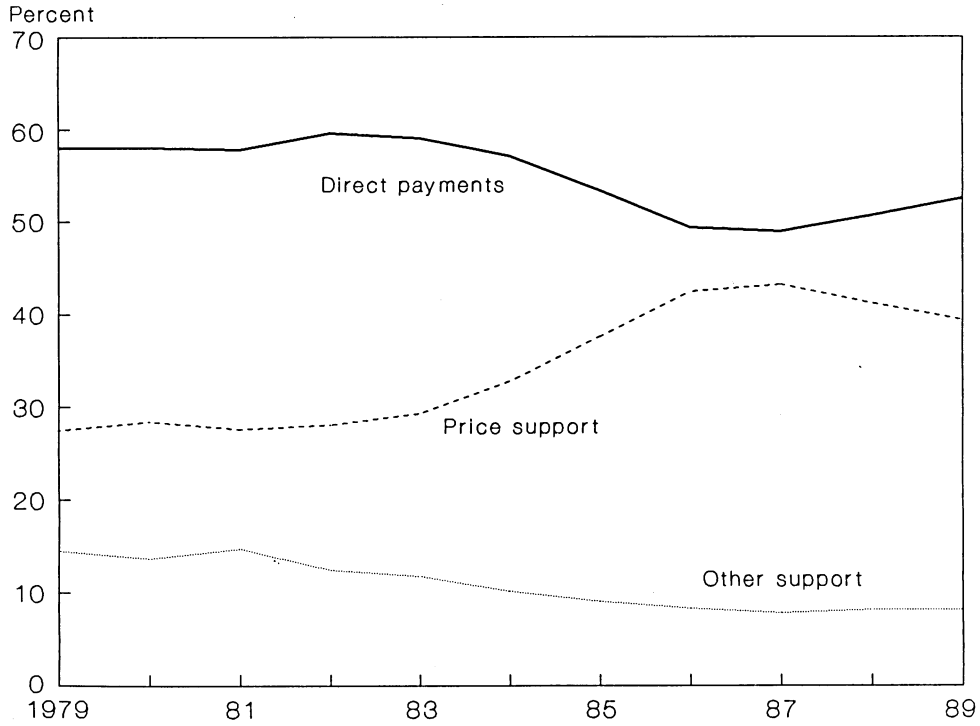
Some Norwegian agricultural groups considered the GATT ruling to be a serious challenge to their traditional protectionist agricultural policy, which has been in operation since the 1930's. In general, the domestic supply situation determines imports of agricultural products. Embargoes are placed on imports of agricultural products that are produced in the country, except when domestic supplies are inadequate or domestic prices rise above negotiated limits. Licenses are then issued or an import calendar is established. Surpluses are exported with the help of subsidies.

Sweden

The Swedish Government has decided to phase out internal market support for agriculture over a 5-year period, beginning July 1, 1991. Guaranteed prices and government financing of exports of farm products will be eliminated, but border protection will remain, unless removed as part of international negotiations. Previously, the parliament decided farm price increases, and farmers received support from the high prices that consumers paid (fig. 5).

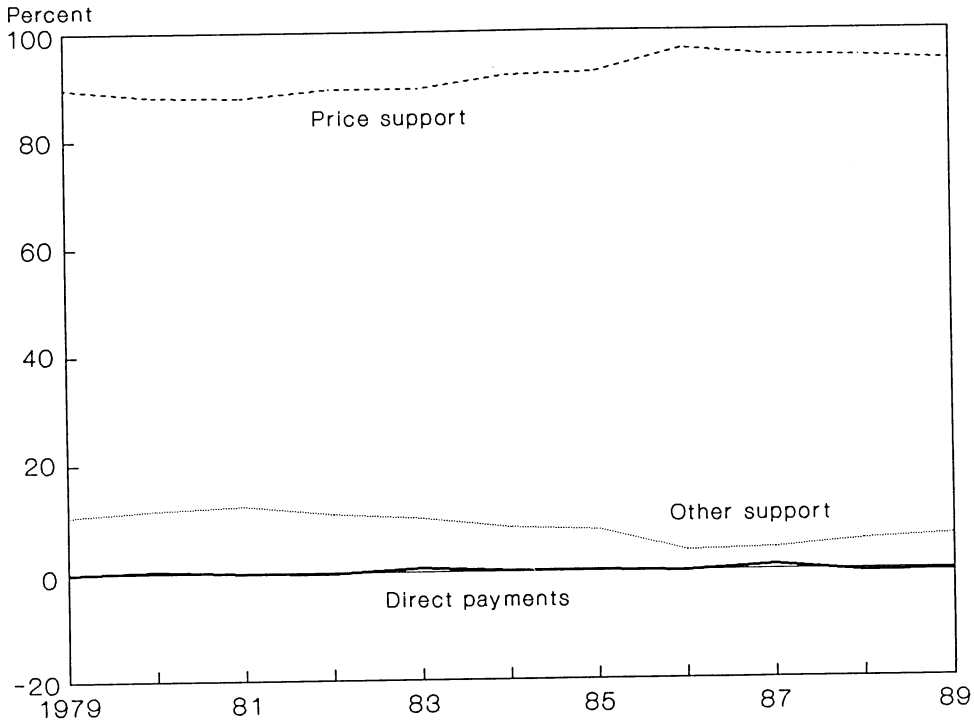
The new approach to farm support will include programs to help farmers adjust to the new policy, including retirement and set-aside payments, payments for dairy cow slaughter, and special programs for sparsely populated areas, especially in the north. This new approach will encourage farmers to dedicate their cropland to production of biomass crops and to adopt environmental protection measures.

Figure 4
Norway: Aggregate producer subsidy equivalents (PSE's), by means of support



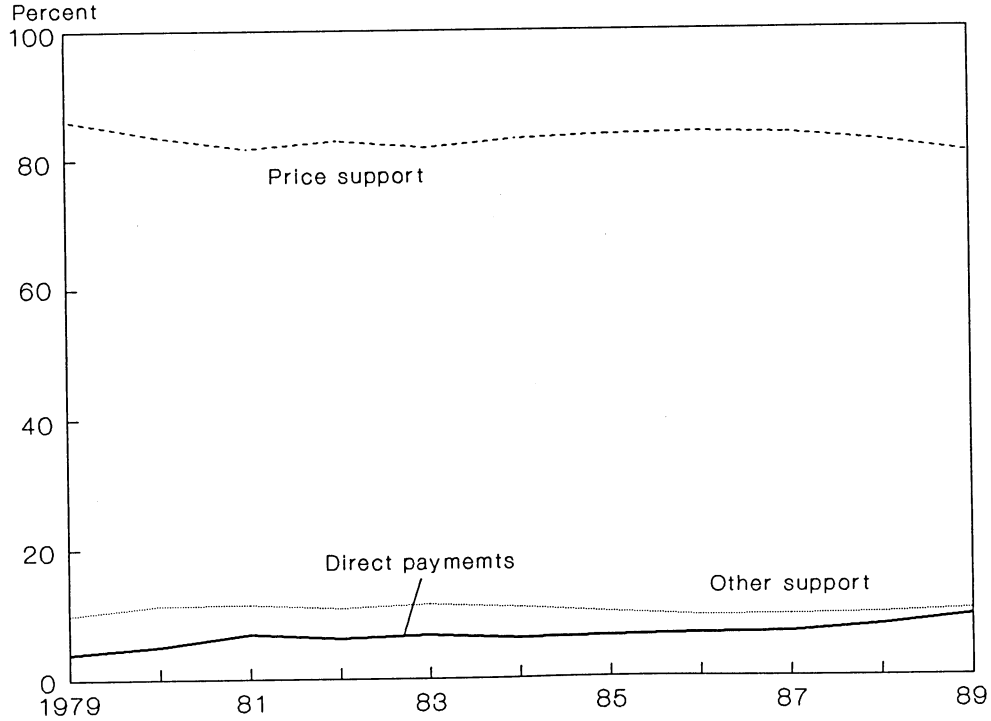
Source: Organization for Economic Cooperation and Development.

Figure 5
Sweden: Aggregate producer subsidy equivalents (PSE's), by means of support



Source: Organization for Economic Cooperation and Development.

Figure 6
Switzerland: Aggregate producer subsidy equivalents (PSE's), by means of support



Source: Organization for Economic Cooperation and Development.

High consumer costs, the burden of surplus disposal, and concern about the environmental effects of farming influenced the decision to change the system of support for farming. Sweden is also considering submitting an application for membership in the EC, and, like Austria, sees the benefits of reforming its domestic agricultural policy before accession negotiations begin.

Switzerland

Like Austria, Switzerland is concerned about liberalizing agricultural trade as stipulated in the GATT goal. Despite the need to support farming in Alpine and other difficult zones, the direction of Swiss agricultural policy will likely be away from reliance on the price mechanism for supporting farm income, and toward direct payments aimed at promoting ecological farming. This will permit Switzerland to respond, at least in a limited way, to the demands of agricultural exporting countries for trade liberalization (fig. 6).

Economic Ties Between the EC and the EFTA

Economic cooperation between the EC and the EFTA countries predates the Treaty of Rome. The original six EC member states, the current six EFTA states, as well as other Western European countries, were members of the Organization for European Economic Cooperation, whose goal was to promote the economic rebuilding of Europe. When the EC was formed in 1958, the original seven EFTA states decided that they did not want to join an organization that had far-reaching goals of political and monetary union, or that required the transfer of sovereignty to supranational institutions.

This arrangement of Europe into groups of six and seven temporarily took the process of European integration in two paths, but these paths reconverged before long. When the United Kingdom, Denmark, and Norway decided to seek EC membership, the remaining EFTA partners decided to deepen their economic relationships with the EC through a series of bilateral free trade agreements. Over time, the FTA's have been modified to accomodate accession to the EC, sometimes of EFTA members.

With the Luxembourg Declaration in 1984, the EC and EFTA launched negotiations for a European Economic Space (EES), designed to create a dynamic economic area in the territories of the two trading blocs (fig. 7). With the appearance of the EC's White Paper and the birth of the EC 1992 program, the EFTA countries' interest in the EES negotiations sharpened. Formal negotiations began in June 1990.

The EC 1992 program has conjured up images of a Fortress Europe in the minds of many business people and politicians all over the world. In the EFTA countries, however, the fear is not of a higher protective wall being erected around the market of the EC, because for industrial products, at least, EFTA is safely within the Fortress. The fear among EFTA countries is that they would be left far behind in the economic transformation that liberalization would produce in the EC.

The EFTA countries are all small, trade-dependent countries that, over time, have grown increasingly dependent on trade with the EC. The EC is the most important export market for the EFTA countries (not including Iceland), accounting for as much as 64 percent of total exports (table 2). Imports from the EC play as great a role in the total imports of EFTA members. In agricultural trade, the EFTA countries are net importers. Agricultural imports have a greater share of total trade (ranging from 6.2 percent in Norway to 8 percent in Switzerland) than do exports (ranging from 2.1 percent in Sweden to 3.7 percent in Austria). Each of the EFTA countries is likewise a net importer of food and agricultural products from the EC.

The FTA's established essentially free trade in industrial goods between the EC and individual EFTA countries, but, as is the case within the EC, numerous barriers to trade persisted. The EC 1992 program will replace the current free trade in industrial goods with a situation in which EC nations will have better access to EC markets than will the EFTA countries.

Liberalization in the EC market will allow EC companies to take advantage of increased scale economies, lowering production costs and giving them a competitive advantage over EFTA companies. This advantage will extend to the EFTA markets. Producers in the EFTA countries will have to compete for EC markets through lower production costs.

The EFTA countries need to be a part of the EC 1992 program. The EES negotiations are the EFTA countries' principal method of participating in EC 1992. Within the EES, the four freedoms--free movement of goods, capital, services, and labor--will apply in the territories of the 18 EC and EFTA nations. The EES has far greater potential for maintaining and expanding trade than did the earlier bilateral FTA's.

Figure 7
European Economic Space (EES) negotiations

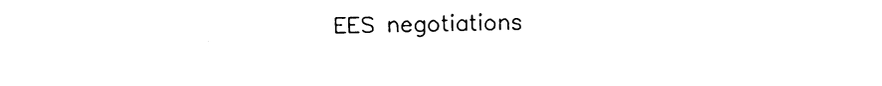


Table 2--Trade with EC as percentage of total trade, 1987

Country	Imports from EC	Agricultural imports from EC	Exports to EC	Agricultural exports to EC
		Percent		
Finland	43.2	37.2	43.1	31.5
Norway	49.6	49.7	64.4	39.9
Australia	68.1	52.6	63.4	58.5
Sweden	57.3	51.3	51.0	39.5
Switzerland	72.2	64.2	54.8	56.4

Agriculture in the EC-EFTA Negotiations

The EES negotiations between the EC and the EFTA countries include two areas of concern for agriculture: trade in processed agricultural products, and increased access to the EC market for fish and fish products.

Protocol 2: The Luxembourg Declaration

Under both the Stockholm Convention and the FTA's, protection of unprocessed agricultural goods is permitted, but protection of the value added by processing them is not. Thus, each EFTA country and the EC is free to set different levels of protection for domestic production of unprocessed agricultural goods, and to operate different agricultural support regimes.

The second protocol to the FTA's contains trade concessions granted by both parties for a number of agricultural and food products. Current proposals on agriculture between the EFTA and EC countries are to increase the number of items covered under Protocol 2.

The EC and the EFTA countries would remain free to operate their own protection systems against third countries, and to maintain their own domestic support programs.

The EC wants to link an increase in the number of items contained in Protocol 2 with a proposal to trade raw agricultural products within the free trade areas at European prices (the price levels prevailing in the EC and in each of the six EFTA countries) rather than at world price levels. The effect of this policy change would be that the export subsidies/import levies would be calculated against a higher price level, and would therefore be smaller. As the net importing partners in the area, the EFTA countries would receive less in import levies, while the EC would save money on export subsidies.

Because only the base price on which import duties and export subsidies are calculated would change, patterns of agricultural trade between the EC and the EFTA countries would not be altered. Thus, there could be no efficiency gains expected; only budget savings for the EC and losses for the EFTA countries.

Fisheries in EFTA and EC Relations

Fish and fish products play an important role in the economies of at least two EFTA members, Iceland and Norway. For Iceland, fish and fish products made up 76 percent of total merchandise exports in 1987 (table 3), or 16.5 percent of total gross national product (GNP). Fishing is important to the other Nordic EFTA members (Sweden and Finland), and the Alpine members have domestic fresh-water fishing industries, although on a far smaller scale. Despite its importance among the exports of Iceland and Norway, fish and fish products were not traded freely within EFTA until March 1989.

As part of the EES negotiations, Iceland would like to increase access for its fish and fish products to the EC market. The problem is that Iceland is not willing, or perhaps not politically able, to provide the equivalent concession that the EC has asked for, namely increased EC access to Icelandic fishing waters. Norway and Sweden both share their fishing rights with the EC and, therefore, receive preferential treatment for their fish exports.

The Future of EC-EFTA Relations

A number of key problems face the EC-EFTA negotiations on the EES. The different natures of the EC and EFTA proved difficult early in the process. Where the EC Commission negotiates for the EC, and the member states must accept the Commission's position, each of the EFTA countries speaks for itself. So far, none of the EFTA countries is willing to create an EFTA institution similar to the EC Commission.

To advance the negotiations, the EC and the EFTA established a high-level negotiating group, and five issue-specific negotiating groups to handle the free movement of goods, the movement of services and capital, the movement of persons, flanking and horizontal policies covering research and development, the environment and other special issues, and legal and institutional questions (fig. 7). Successful negotiations will probably require the creation of an EFTA legal institution, similar to the EC's Court of Justice, which can ensure that all EFTA countries adopt the necessary legal changes.

The EC has stated that it will allow EFTA input into its decision-shaping, but that it cannot permit EFTA to share in decisionmaking by the EC Commission. This is because the EFTA countries do not belong to the EC, and do not have voting rights or any other say in the adoption of EC legislation. The EFTA countries, which envision adopting their own domestic legislation along the lines of the EC's 1992 laws, seek a more substantial input into the process, rather than merely accepting EC decisions.

The question of exceptions to some of the EC 1992 legislation is another hurdle in the EES negotiations. While the EFTA countries definitely want to participate in parts of the EC 1992 program, they are not enthusiastic about adopting all of it. They want to negotiate exceptions, which would exempt them from adopting certain EC regulations. The issue is complicated by the fact that different EFTA countries want different exemptions: the Swiss are reluctant to allow increased freedom for immigration and establishment of foreigners, while the Austrians have concerns about truck transport. The exceptions that the EFTA countries have suggested range from regulations governing the right to buy private, commercial, and financial property to fishing rights. Agriculture is possibly the largest exception of all, because the free movement of goods between the EC and EFTA countries will not extend to agricultural products, and agricultural policy differences among them will remain.

Conclusions

The EC 1992 program has forced the EFTA countries to confront a number of important economic issues, and the EFTA countries have begun to prepare themselves

Table 3--Iceland's merchandise exports

Year	Marine products	Agricultural products	Manufactures and others
		Percent of total exports	
1984	67.2	1.7	31.0
1985	76.8	1.5	23.8
1986	77.0	1.3	21.7
1987	76.0	1.3	22.6

Source: Abrams, and others, "The Impact of the EC's Internal Market on Nonmember Countries: the Case of EFTA," IMF Working Paper, Wash., DC, International Monetary Fund, Aug. 1990.

for the economic environment that the EC 1992 program will create. While EFTA countries have considered or decided to undertake their own programs of economic liberalization, the agricultural sectors in these countries (with the exception of Sweden), have largely escaped reform.

The EES negotiations must produce an outcome before January 1, 1993, when the single European market is slated to be completed. Even as the negotiations continue, some EFTA countries are pursuing other courses. Austria has already applied for membership to the EC, although its application will not be considered until 1993. The Swedish Parliament has given its Government a mandate to apply for EC membership. In Norway, a recent poll showed that a majority of citizens now favors EC membership, in sharp contrast to the bitter and divisive 1972 referendum when EC membership was rejected. However, the fall of the Norwegian Government at the end of October 1990, when the farm-oriented Center Party refused to support the coalition government on the issues of trade liberalization and EC membership, indicates that the application for membership will not be made immediately.

The applications and moves toward application being made by many of the EFTA countries change the role that the EES negotiations play in the process of European integration. The importance of the EES may lie in its role of facilitating the accession of the EFTA countries into the EC, rather than in extending the liberalizing effects of EC 1992 to the six European countries outside the EC. Accession of EFTA members to the EC would have a significantly greater effect on agricultural policy and trade.

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Summary
and
Post-Conference Update

David R. Kelch, volume editor

Summary and Post-Conference Update

Summary

The plan of the European Community (EC) to eliminate all impediments to the free movement of goods, people, capital, and services by the end of 1992 will affect the production, consumption, and net trade of EC food and agricultural products. Agriculture will be affected both directly, by some of the 282 directives implementing the EC 1992 program, and indirectly, because establishing the single market envisaged in EC 1992 will require changes in the EC's Common Agricultural Policy (CAP). Directives to harmonize EC-wide sanitary and phytosanitary regulations (plant health, animal health, and food safety) will affect the processed-food industry. Changes in the production, consumption, and trade of EC agricultural and processed-food products will affect the net trade position of non-EC countries.

Effects on EC Agriculture

Based on customs-union theory and empirical evidence, Raney (Chapter 7) concludes that intra-EC trade will grow at the expense of third-country exporters. If it followed historical trends, the share of intra-EC trade of food and agricultural goods would rise to 67 percent by 1992 (compared with 50 percent in 1978-80 and 59 percent in 1985-87). According to theory, this trend should accelerate as the result of deeper economic integration in the EC.

However, as discussed by Kelch in the Introduction, some factors inherent in the EC 1992 program will act as countervailing forces to the accelerated expansion of intra-EC trade in agricultural and processed-food products. The political priority of the wide range of the EC 1992 program dilutes the Common Agricultural Policy's (CAP) formerly unique contribution to European economic unity and diminishes EC farmers' claims to special treatment. Also, some trade creation of third-country imports into the EC could result if non-EC countries have to meet only 1 standard instead of 12 national standards (Kelch and Elleson, Chapter 2). In some instances, national standards in some EC countries exclude imports from some non-EC countries that EC-wide standards would allow. While the intra-EC share of trade in agricultural and processed food products is almost certain to be higher after 1992 than at present, the degree to which the growth rate of the trade share will accelerate is unclear.

EC 1992 will also affect the way prices are formed in the CAP. At present, agricultural exchange rates differ from official exchange rates. Hence, border taxes and subsidies are required to balance agricultural prices between member states. This agrimonetary system will have to be modified or eliminated because of EC 1992. Josling and Gardiner (Chapter 1) trace the historical development of the agrimonetary system of the CAP, and estimate the effects of its phased elimination combined with movement to a single EC currency by 1996.

For the 1995-2000 period, assuming the elimination of the agrimonetary policy without an ECU price increase to offset the price decline in national currencies, the authors estimate that annual EC net exports will diminish by around 400,000-500,000 metric tons of wheat, 800,000-1.2 million metric tons of corn, 750,000 metric tons of beef, and 80,000-135,000 metric tons of butter. These effects result from lower EC producer and consumer prices. On the other hand, net exports of barley are projected to increase by around 200,000 metric tons, because of the unique agrimonetary position of the UK and its barley production potential. While the results are hypothetical, the study indicates the direction and magnitude of the effects of abolishing the agrimonetary system.

Larson and others (Chapter 4) simulated what would have happened without green rates (that is, the agrimonetary system) for cereals, sugar, and oilseeds in West Germany for the 1980-81 to 1985-86 periods. The estimated price effects ranged from -9 percent to -10 percent for rapeseed and from -9 to -12 percent for cereals. The authors estimated that the production effects would have been negative but small, so farm incomes would have declined despite reduced input use.

EC 1992 is also expected to have macroeconomic effects, including higher incomes and lower prices averaged over the entire EC economy. Raney (Chapter 7) cites a study by Sheldon that estimated the increase in EC food demand, as a result of GDP growth, to be between $8.5 billion and $53.5 billion. No estimates have been made on the effects of lower post-1992 food prices on EC consumption.

Elimination of internal EC borders will also improve competition in the farm supply industries, according to Henry (Chapter 2). The author estimates that the likely

effects of these factors on EC farm income and agricultural production are only marginal. The fertilizer and farm machinery industries are already over capacity, and EC 1992 will hasten the exit of weaker firms, with little effect on farm cost. The EC's transportation system will undergo a revolutionary change, which will help to lower transportation costs considerably, when backhauling, which is now prohibited in many EC states, is permitted. However, deregulation of the trucking industry will be phased in slowly after 1992 because of the pervasive nature of current regulations. The EC's energy sector is under a thorough review to create an EC-wide energy policy, but details are sketchy and implementation will not take place for possibly a decade.

Guyomard and Mahé (Chapter 1) point out that the current indirect tax regimes in the EC distort the farm input mix, input-output price ratios, farm incomes, and consumption patterns. Harmonization of the value-added tax (VAT) is one of the most vexing problems for the EC and is not likely to be resolved by the end of 1992. For agriculture, most EC countries allow farmers a flat-rate rebate as reimbursement for the VAT they pay on inputs. German, Italian, and Dutch farmers are the main beneficiaries of this system. The authors expected that after the harmonization of agricultural VAT rates, only German farmers would continue to benefit from the flat-rate option. However, the reduction of the German flat-rate rebate to 8 percent in 1992, announced after the paper was written, will bring this option approximately to the neutral point, as estimated by the authors, annulling the benefit to the German farmers. Proposed harmonization of excise taxes across the EC would lower taxes on wine in northern EC member states, while increasing taxes on alcoholic beverages in southern member states.

Increased competition in the sugar and dairy industries will likely result after 1992 when borders are eliminated, according to a study by Neff, Leuck, and Josling (Chapter 5). Nationally-based sugar and dairy quotas currently restrict the transfer of sugar and milk quotas across national boundaries. Pressure for the transfer of quotas will come from countries that are least-cost producers, such as Ireland and the Netherlands for milk, and France for sugar. Processors searching for low-cost raw materials will also push for quota sales across EC borders. Such a restructuring would allow the EC to lower policy prices for sugar beets and milk, thereby lowering CAP budget costs and making EC dairy and sugar processors more competitive on world markets.

The competitiveness and technical efficiency of EC agriculture will be enhanced by EC 1992 and those countries with a comparative advantage in agricultural production will benefit. Historical measures of technical efficiency show that the EC countries with large agricultural sectors (France, the Netherlands, and Ireland) have a technical advantage in production according to calculations by Ball, Lee, and Somwaru (Chapter 5). However, evidence indicates that allocative inefficiencies are also present in some of the countries, and further research is needed before definitive conclusions can be made about the true comparative advantage of EC member states in agricultural production.

Tobey and Ervin (Chapter 4) write that EC 1992 legislation directed at the environment will affect agricultural production through a nitrate directive and through the establishment of the European Environmental Agency, among other initiatives. Countries already affected by domestic environmental legislation include the Netherlands and Denmark, where pork production costs have been adversely affected. Data collection and monitoring by an EC environmental agency could result in stricter legislation for other EC countries. Such an agency might also impose restrictions on EC imports. In particular, potential legislation regarding animal rights could complicate the status of imports of animal products.

The Effects on the EC's Food and Drink Industry

The elimination of internal EC borders will require the harmonization of plant health, animal health, and food safety regulations at the EC level. Handy and Henderson (Chapter 3) report that the EC will become more competitive internally and internationally in processed foods as EC food companies expand beyond local and national markets. Realization of scale economies will be the main factor enabling the emergence of more-competitive EC food companies, as pointed out by Handy and Henderson and by Sheldon and von Witzke (Chapter 3). Sheldon and von Witzke also estimate that the benefits derived from restructuring in the EC food sector are likely to be considerably larger than trade-creation benefits.

Intra-EC trade in food and beverages will increase as borders are abolished, eliminating significant administrative costs and lowering transport costs. The EC's adoption of mutual recognition will allow free circulation of any product legally manufactured in the EC where no EC-wide standard applies. Burns and Swinbank (Chapter 3) point out that food manufacturers from non-EC countries may not realize these benefits if they are not granted the principle of mutual recognition of standards. The authors also state that more EC legislation on EC-wide standards is likely to be enacted

after 1992, because some producers in member states with high production standards (and costs) will have to compete against producers in other EC countries that have lower, but mutually recognized, production standards.

EC consumer markets will remain fragmented, because national and local taste preferences will remain. Handy and Henderson state that U.S. food companies will fare well in such an environment, because they are accustomed to the U.S. market, which also is regionally fragmented. Handy and Henderson show that U.S. food companies are also more efficient than EC food companies, and that U.S. companies operating in the EC have had a pan-European approach to marketing and production compared with the more nationally oriented EC food manufacturers.

The overall effects of EC harmonization of plant and animal health and food safety standards for third-country exporters to the EC may be mixed. EC health and safety standards will become more stringent than previously. This will aid EC companies' access to third-country markets while making it harder for third-country exporters to meet EC standards, according to Forsythe and others (Chapter 2). For example, the EC is working to be declared free of foot-and-mouth disease (FMD), which would give the EC more access to world markets, including the United States. Meanwhile, some countries that now export live cattle or beef to the EC, and are not FMD-free, will be unable to continue. According to U.S. regulations, Ireland is the only FMD-free EC country.

Regional Trade Effects

Koopman and Cochrane (Chapter 6) and Madell (Chapter 7) state that EC 1992 has accelerated non-EC European countries' plans to apply for EC membership. Three of the six countries of the European Free Trade Association (Austria, Sweden, and Norway) and three of the six Eastern European countries (Hungary, Poland, and the Czech and Slovak Republic) have either applied for EC membership or have signaled their intention to do so. Many companies headquartered outside the EC have used joint ventures with EC companies to insure access to the EC's single market.

The EC's harmonization program is particularly important to exporters because non-EC European countries may adopt EC rules and regulations, both to enhance their access to the EC market and to increase the likelihood of gaining membership in the EC. The EC is effectively setting standards for a community of nearly 500 million consumers (Kelch and Elleson, Chapter 2).

Economic reforms in Eastern Europe will probably increase grain production, according to Koopman and Cochrane (Chapter 6). Their estimates show that Eastern Europe as a region may become a net exporter of 5-6 million tons of non-subsidized grains by the end of this decade. Such a development would overwhelm the effects of EC 1992 on world grain markets.

Henrichsmeyer (Chapter 4) reaches a similar conclusion about the effects of German unification on world markets. East Germany has been given until the end of 1992 to adopt the EC's animal health, plant health, and food safety standards. The enhanced supply effects of a restructured East German farm sector are expected to be more important than the effects of EC 1992 on EC production and trade of agricultural and food products.

However, the EC's harmonization program may eliminate some Eastern European exports to the EC. An example is Yugoslavian baby beef, because that country uses a vaccination program to eradicate FMD.

Raney and Neff (Chapter 6) conclude that completion of the EC's internal market could negatively affect some countries in the developing world. The most obvious effect involves banana exports from the Caribbean region. These bananas receive preferential treatment by some EC countries under the Lomé Convention, which is an agreement between the EC and 68 African, Caribbean, and Pacific (ACP) countries. Beef exports of 39,000 tons may also be at risk if the harmonized EC rules are sufficiently strict to limit market access. ACP economic rents from sugar quotas that the EC granted will be lowered if the EC reduces its sugar prices. Countries without EC quotas could benefit from higher world prices if EC sugar production falls as a result of CAP reform.

The EC's share of processed food exports to East Asia increased in the 1980's. Its share can be expected to increase further as the EC becomes more competitive, according to analysis by the Agriculture and Trade Analysis Division of the Economic Research Service (Chapter 7). The EC's average export share of processed foods to Japan rose from 9 percent in the 1970's to nearly 11 percent in the 1980's. Over the same period, the EC's export share nearly tripled in Korea, reaching nearly 10 percent. Because EC food processors are familiar with customized food trade within the EC, they should fare well in East Asia where consumers demand high-quality, well-packaged food products. Handy and Henderson (Chapter 3) emphasize that competition in all regional markets will become more intense. Large multinational food companies will dominate trade, including some from the EC after 1992.

Canada, Australia, and New Zealand will benefit from EC 1992 to the extent that EC 1992 results in CAP reform. All of these countries have lost markets, not only within the EC, but also in third countries, because of EC-subsidized exports.

Trade Effects for U.S. Food and Agriculture

The agricultural and processed food sectors in the United States should benefit from the completion of the EC's single market in three areas: (1) lower EC agricultural production and higher food consumption will reduce the EC's net exports of temperate-zone products; (2) U.S. food companies with subsidiaries now operating in the EC are well-placed and structured to take advantage of a borderless EC; and (3) U.S. food exporters will benefit from facing fewer import restrictions from EC member states.

On the other hand, U.S. food companies will face more-competitive EC food companies in world markets, as EC food companies expand to take advantage of a larger EC market and gain economies of scale, which will enable them to compete better on international markets. Some EC-wide directives will also create problems for exporters to the EC. The EC's ban on meat derived from animals treated with hormones is the most obvious example to date. Intra-EC trade creation will displace some exports to the EC from the rest of the world. Some exporters whose trade is diverted from the EC market may turn to the U.S. market as an alternative client.

McDowell (Chapter 7) estimates the hypothetical repercussions of EC 1992 on U.S. farm exports, prices, incomes, and the Federal budget. The changes in net EC exports trigger the changes in U.S. trade. These changes result from the price effects of eliminating the agrimonetary system, which will reduce EC supply and increase demand (as reported by Josling and Gardiner in Chapter 1), combined with the effect of higher EC income on food demand. McDowell simulates both a minimum scenario, which assumes the United States captures its historical share of the world market, and a maximum scenario, which assumes that the United States captures all of the EC's net export changes. The effects of EC 1992 would be small under the minimum scenario, but under the maximum scenario, U.S. net farm income would increase by an annual average of 6 percent from 1993 through 2000.

The most pronounced effect under either scenario, according to McDowell, concerns U.S. Government expenditures on agricultural programs. Even under the minimum scenario, U.S. budget outlays would be reduced by an annual average of 8 percent for dairy products, and by an annual average of 6 percent for program crops. Under the maximum scenario, annual reductions in government expenditures would be 12 percent for dairy products and 30 percent for program crops.

The United States should fare well in the EC's food and drink markets after 1992 because its standards are generally equal to those of the EC. U.S. food companies operating in the EC are also more efficient than EC food companies, as measured by Handy and Henderson (Chapter 3). However, according to Kelch and Elleson (Chapter 2) some of the proposed labelling directives seem to give advantage to EC producers. Other proposals and directives also might constrain U.S. exports to the EC. Kelch and Elleson also point out that EC acceptance of non-EC testing and certification procedures is a crucial issue that remains to be settled. Because various EC member states have received temporary derogations from EC rules and regulations, some of which will be in effect until 1995, third-country exporters will continue to face up to 12 sets of national standards for some products during the transition period. Implementation and application of EC directives at national levels could also cause problems for exporters.

Although the history of the CAP and EC protectionism does not encourage optimism, completion of the internal market is making the EC more competitive internally and internationally. When combined with the forces impelling CAP reform, such as CAP budget pressures (in part motivated by EC 1992), economic reform in Eastern Europe, and the current Uruguay Round of GATT negotiations on agriculture, the effects of EC 1992 could plausibly lead to the results cited above. It does seem clear that EC 1992 will affect farm input and output, which will change net farm incomes, the bottom line of the CAP. The most important effect of EC 1992 on EC agriculture will be the lower political profile accorded to agriculture on the EC agenda, as broader economic and political goals dominate the effort to forge a more united Europe.

Post-conference Update

Only 69 of the 282 proposed directives had not been implemented as of September 1, 1991. However, member states continue to request and receive derogations, which will delay implementation of some regulations by a few years. The long-run effects of EC 1992 still seem to be beneficial for trade, both within the EC and for most non-EC exporters.

The events of the first 8 months of 1991 in the Soviet Union and in Eastern Europe have not deterred the EC from its commitment to create a single market on schedule. The EC appears determined to ensure that the entire EC 1992 program is implemented as soon as possible. All EC 1992 legislation will then apply to those countries wishing to become EC members. Therefore, these countries are likely to adopt EC regulations to enhance their prospects for admission to the EC. For this reason, the EC 1992 legislative process should be viewed to a great extent as a European process.

The failure to complete the GATT negotiations in December of 1990 has not overtly affected EC 1992. However, the EC's progress in accepting international standards, which Kelch and Elleson (Chapter 2) expected would follow a GATT agreement, has certainly not accelerated in its absence.

Some recent EC directives that seek to enhance farm income could pose problems for imports. Examples include the proposed directive "Geographical Indications and Designations of Origin," and the proposed directive "Specific Character for Foodstuffs." Other environmentally-oriented directives, such as the Eco-label directive and the directive on organic farming, could cause problems for some third-country exporters. These proposed directives complement the CAP reforms that Ray McSharry, EC Commissioner of Agriculture, proposed 1/, and form part of the panoply of measures that will constitute CAP reform in the long term.

U.S. Department of Agriculture agencies such as the Foreign Agricultural Service (FAS), the Animal, Plant, and Health Inspection Service (APHIS), and the Food Safety and Inspection Service (FSIS), have monitored and analyzed EC 1992 directives as they have been made available. The U.S. Department of Commerce, the office of the U.S. Special Trade Representative, the U.S. Department of State, and the Food and Drug Administration coordinate their efforts to represent U.S. concerns to the EC Commission.

The Department of Commerce released a very useful chronological summary of EC 1992 directives in July of 1991 that is available to the public 2/. The FAS has identified some new proposals, amendments to proposals, and directives that may restrict U.S. trade, but their analysis is too preliminary to publish at this time 3/. The EC also provides information on the Single Market 4/.

The general areas of concern to the United States are animal health, animal feedstuffs, plant health, and food law. As EC 1992 evolves and more specific legislation is proposed, additional problems could emerge for third-country exporters.

The EC's two intergovernmental conferences (IGC) on economic and monetary union (EMU) and on political union have convened periodically since December 1990. The EC will convene at a summit conference in Maastricht, the Netherlands, in December 1991, with the goals of agreeing on a timetable and conditions for EMU, and agreeing, in principle, on the depth of political union. Hence, in early 1992, we should have a clearer idea of the nature and speed of the evolution toward a common currency, a common foreign policy, and a common security. The most important of these developments for trade in agricultural and food products is the development of a common currency. This would eliminate the farm price increases that manipulation of the agrimonetary system of the CAP engineered. Recent indications are that the elimination of the agrimonetary system will be complete by the end of 1992 as a part of CAP reform (Agra Europe, September 6, 1991).

The EC is under heavy pressure to address many issues of great importance to its own future as well as to the future of the European continent. Negotiations with the EFTA countries and association agreements with Eastern European countries should also be concluded in the next few months. Thus, over the next several months, the EC will determine to a great extent the degree of difficulty of the many countries pressing for EC membership. The evolution of the single market and the outcome of the intergovernmental conferences on economic and monetary union and political union will play principal roles in this determination. The evolution of the EC, as well as the long-awaited reform of the CAP, will likely accelerate as a consequence of these forces, thus influencing future world trade patterns of agricultural and processed-food products.

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