

## Implications of EC Economic Integration for Agriculture, Agricultural Trade, and Trade Policy

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### Abstract

*Completion of the EC12 internal market will lead to industrial and agricultural restructuring. The short run adjustment costs in industry are likely to be worse for the southern EC countries, while adjustment pressures, due to agricultural liberalization will be most severe in the northern EC countries. Information on farm structures is used to argue that resistance to agricultural trade liberalization by the farmers of the EC north is due to their much larger relative vulnerability. Resistance to internal trade liberalization in turn might induce more invisible trade barriers, and the recent CAP reform is used to illustrate relevant tendencies.*

### I. Introduction

The Single European Act, which amended the Treaty of Rome, was ratified by all EC member countries in 1987. The completion of the internal market of the European Community (EC), a process through which barriers to good, service, and factor movements are eliminated between member countries of the EC, will create increased economic opportunities, but also increased internal adjustment strains on member countries. The Uruguay Round of Multilateral Trade Negotiations, has coincided with this process of internal adjustment, and furthermore, has coincided with the enormous economic transformations in East Europe. All three events are imposing

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severe adjustment pressures on the economies of the EC.

The purpose of this paper is to discuss the constraints that agricultural structures in the EC impose on the completion of the internal market, and further trade liberalization. It will be argued, that the difficulties in agriculture experienced in the GATT negotiations from the part of the EC, are related to the fact that adjustment pressure in agriculture will be stronger in the EC countries of the rich north, and weaker in the EC countries of the poorer south. On the other hand adjustment pressures in non-agriculture might be stronger in the south. The timing of the GATT negotiations, and in particular the fact that they coincided with the period of the completion of the internal market, has added additional strains to the negotiations.

Trade liberalization, despite the general economic gains that it entails under theoretical conditions of full-employment and optimal redistributive policies, in reality is often strongly resisted within any given country because of the short run adjustment costs involved. Agricultural trade liberalization is even more strongly resisted, because the policies which are the object of liberalization, are largely there because of the perceived social undesirability of rapid adjustments necessitated by the long run agricultural transformation. These problems are compounded within the EC, because adjustment will not involve factor reallocations only within one country, but also across countries.

Examining the process of the completion of the internal market can provide useful clues to EC behavior *vis-a-vis* third countries for another reason. It is to be expected that no EC member country would be willing to liberalize its market to non-EC trading partners more than to other EC partners. Hence internal EC trade policies provide a ceiling against which one can gauge the willingness of the EC as a whole to liberalize *vis-a-vis* the world.

The paper starts with a brief discussion of the likely economic effects of the completion of the internal market. It then discusses the likely effects on agriculture from EC freer internal movement of agricultural products. In section IV it discusses the impact of the recent CAP reforms on EC net trade. Section V gives a structural description of EC farms from a north-south perspective. Section VI analyzes adjustment pressures within the agriculture and suggests that the recent might be introducing some hidden taxes. Finally section VII gives an overall concluding assessment.

## II. Economic Effects of the Completion of the EC Internal Market

The rationale for creating a large internal market in the EC is that it will tend to improve European specialization and efficiency, and intensify competition. This will increase trade and economic welfare. The basic mechanisms through which these gains will be realized are described in the so-called *Emerson Study* (Commission of the EC [1988]) and involve cost reductions due to better realization of economies of scale, rationalization of industrial structures due to prices being closer to production costs, inter-industrial adjustments on the basis of a fuller play of comparative advantage, and enhanced flow of innovations and new products, stimulated by the dynamics of the internal market.

These processes will liberate resources (namely capital and labour) for alternative productive uses, which when utilized are supposed to result in higher overall income, consumption and investment in the economies of the EC. The initial empirical estimates in the *Emerson Study* suggested that for a group of seven EC countries for which complete micro and macro analysis was done (Belgium, France, Germany, Italy, Luxemburg, Netherlands, and United Kingdom) the potential medium run gains from the completion of the internal market would range from 2.5% to 6.5% of GDP, a sizeable gain. Albeit country level estimates were not done, so that the geographical distribution of these gains was not ascertained, the principal overall adjustment costs estimated were the increase in EC unemployment in the short run through the loss of about 1 million jobs, which would, however, be replaced in the medium run by an increase in overall employment from the *ceteris paribus* scenario, of as much as 5 million jobs. Agriculture was given only a minimal cursory treatment by reference to the abolition of the MCAs that is implied by the completion of the internal market. Adjustment problems were also not treated as they were assumed to be dealt with by increased use of structural funds.

The countries considered in the *Emerson Study* were mostly the *northern* ones, which are not only more developed than the poorer EC countries of the *south*, but also are rather similar in terms of industrial structure. Recent trade theory<sup>1</sup> suggests that similar countries would benefit from free trade

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1 For a survey see Krugman [1990] and Helpman and Krugman [1985].

in the presence of economies of scale and differentiated products, and the *Emerson Study* finds just that. However, the EC includes several countries that are quite dissimilar than the richer countries of the north, and this raises a host of other possibilities.

The long accepted presumptions of standard trade theory, namely that freer trade will lead to production specialization, and hence increasing production dissimilarity, while leading to convergence of living standards, needs to be substantially qualified in the presence of scale economies and imperfect competition. The possibility has been raised, in the context of completion of the EC internal market, that an enlarged market will exhibit strong centripetal tendencies, with the peripheral countries suffering an absolute decline in living standards (Krugman and Venables [1990]). These authors have shown that the lowering of trade barriers between two regions, one densely populated with high wages, and another with low wages and small internal market, under economies of scale in industry, could result in industry being initially pulled toward the center, and only when the barriers are very small, and wage differences large enough could industry start locating in the south. Thus wage levels could initially diverge while at a later more liberal state they could converge. The conclusion for the southern EC members, is that their convergence (in terms of living standards) with the richer countries of the north will depend on the degree to which they manage to help reduce not only the artificial but also the natural trade barriers with the north, basically by improving infrastructure.

The Krugman-Venables article, which deals mostly with industrial reallocation, raises the real possibility that the short run unemployment predicted by the *Emerson Study* could affect disproportionately the EC countries of the south. Given the comparatively larger agricultural sectors in these countries, this development would impose added stains on their agricultural sectors to expand, or at least not contract in the short run. The question is whether this is likely in the context of a more integrated EC internal market.

### III. The CAP and the Completion of the Internal Market

An EC without borders has four major implications for EC food and agriculture (Kelch [1989]): 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 border taxes and subsidies, and, 4) the removal of quotas, variable premia, and national aids which are incompatible with the 1992 program. The objective is to bring about uniform prices for agricultural goods (except for transport costs) for consumers and producers throughout the EC.

It is well known that despite the long-standing CAP objective of common internal prices for agricultural products, there are significant differences in the market prices between member states, due to a complicated system of cross-border taxes and subsidies designed to prevent domestic market prices from responding to exchange rate changes. The agri-monetary system installed in the EC after the collapse of the fixed exchange rate system, by using different exchange rates for translating common ECU denominated agricultural prices, than market determined rates, has given an additional instrument through which domestic prices can diverge from common prices. The workings and impacts of the agri-monetary system have generally been recognized as distorting (Ritson and Tangermann [1979]). The resulting price dispersion is significant. In 1985, for instance, the ratio of the highest to the lowest national producer price of soft wheat in the EC, translated to ECUs at market exchange rates, was 2.44, and for barley it was 2.17, certainly much higher than could be justified by transport costs. In 1988 the same ratios were 1.98 and 2.06 respectively.

Interestingly, however, the price dispersion found among EC member countries in agricultural products is similar to the price dispersion in non-agricultural products. For instance in 1985 the coefficient of variation (CV) of producer prices of wheat across EC9 (when all prices are translated into ECU at market exchange rates) was 10.7%, while that of barley was 5.2%. For the same year the CVs in producer prices (excluding indirect taxes) of various consumer goods in EC9 as estimated in the *Emerson Study* ranged from 5.4% to 24.6% for food without excise duties, 10.8% to 24.9% for foods subject to excise duties (such as liquors, sugar, cigarettes *etc.*), 10.7% to 30.8% in textiles and footwear, 8.2% to 21.5% in durable consumer goods, and 5.5% to 48.6% in other consumer goods. For equipment goods the respective CVs ranged from 8.0% to 22.1%. When the EC12 is considered, the intercountry price dispersion becomes much larger for all goods. This implies that the



completion of the internal market requires considerable explicit and implicit trade liberalization within the EC.

The European Council has agreed to a gradual system of reduction of the Monetary Compensatory Amounts (MCAs). In general elimination of the MCAs would have the effect of lowering agricultural support prices in strong currency countries such as Germany and Netherlands, and increasing them in weaker currency countries such as France, Greece, Italy and the United Kingdom. The estimated price change range from 0% to 1% for strong currency countries, 1% to 5% in non-mediterranean weaker currency countries, and 5% to 15% in the weaker Mediterranean countries (Ingco and Mitchell [1992], Gleckler and Tweeten [1990]). Given that "northern countries produce the bulk of temperate agricultural products in the EC (cereals, oilseeds, livestock), Ingco and Mitchell estimate small overall changes in EC production, and hence net trade in cereals from complete elimination of the MCAs, compared to a non-elimination scenario. Similar results are found by Larson *et al.* [1991], while Gleckler and Tweeten find that EC production of various products can increase or decrease, depending on the level of common prices adopted after the abolition of the MCAs.

The basic reason for the above result is that apart from the relatively small price changes expected in the northern countries, the supply price elasticities for cereals in all EC countries are quite small, generally much smaller than 1. this implies that the bulk of the impact of harmonized internal EC prices will be born by producers' income. This, however, opens up the issue of the structure of producer incomes, and the differential ability of producers to withstand large price declines.

#### **IV. The Impact of the Recent CAP Reforms on EC Trade**

The May 1992 agreement by the EC Council of Ministers to reform the CAP contains several items that depart from previous EC practise. The main thrust of the reform is to reduce market support for cereals oilseed and protein crops (COP), which are the most important EC agricultural products, by 40% over a 3 year period, and replace it by a system of direct compensatory payments. This will increase domestic demand, especially demand for feed in the animal sector, and will reduce the growth of COP yields. This

along with set-aside requirements of 15% for large producers is expected to reduce production and excess supply. The reforms also involve some drastic non-compensated reduction in support for tobacco and sheepmeat, while mild reforms in support in the milk and beef sectors are largely resultant from the reforms in the COP sector.

The first point to note about the CAP reform is that while market support for cereals is reduced, the particular form of the compensatory payment implies that farmer net income per hectare cultivated with cereals will in fact increase, despite the fact that the yield will decline. This holds for both farmers that utilize set-asides and those that do not and is due to the fact that compensation is paid on the basis of historical yields (Sarris [1992]). Despite this consequence, total production of cereals should decline because of extensification (lower yields) as well as the set-asides.

The second point is that none of the existing institutional mechanisms of CAP price support is altered. This implies that the influences that maintained intra-EC agricultural price dispersion, as discussed earlier, are not likely to change. Hence, the recent CAP reform is not likely to contribute toward a freer internal EC market.

Two studies have recently analyzed the consequences of CAP reforms on EC agriculture and trade using different models (Guyomard and Mahé [1992] (herein GM), Folmer *et al.* [1992]). Both analyses predict that the largest impact of the reforms will be in grains where net exports will decline substantially, due to a reduction in production, while for other products the expected changes in net trade are not too large. The reductions in cereal prices result in greater use of cereals for feed, and this induces a projected reduction in net imports of protein feeds. However, the direction of change in beef production is ambiguous. Folmer *et al.* predict an increase, because of reallocation of resources, while GM predict a small decline, basically because of the small beef price decline envisioned under the CAP reforms.

The above studies also report the changes in net EC trade if the agricultural policies implied by the *Dunkel Compromise* in the GATT are accepted. These imply changes in net trade in the same overall direction as the CAP reforms but significantly smaller reduction in net exports of cereals. It thus appears that the CAP reforms have more biting implications for cereals production than the envisioned GATT compromise. GM in fact predict that

under the CAP reform, EC grains supply will decline by 3.7% by 1996 from a reference scenario with continuing and tightening CAP policies, while under the GATT scenario it will in fact increase by 8.4%.

The recent CAP reforms will result in some internal EC price reductions, which appear to be less than what has been demanded by other trading countries, especially the US. The envisioned equivalent internal price reductions relative to world prices as predicted by Folmer *et al.* are large for cereals and bovine meat (14% to 18%) because of reductions in feed costs but are minimal for the other products.

The CAP reform is not envisioned to slow down the overall decline in agricultural employment which Folmer *et al.* put at 2.5% annually for 1992-2002, compared to 2.8% in the period 1981-1991, a rather significant resource outflow. In fact value added in agriculture under the CAP reform is not envisioned to change, while it would have declined otherwise. The reason for this is largely that agricultural incomes are not significantly affected by the CAP reform because of the compensatory payments. Furthermore, the overall level of net EC agricultural imports is envisioned to increase by only 0.4%, despite the fact that non-agricultural net exports are projected to decline by 5.3%.

These results are based on the assumption, largely implicit in the CAP reform documents that compensatory payments would be coupled, in the sense that farmers would receive them only if they continued producing. Decoupling the compensatory payments, a condition desired by many non-EC trade partners, leads to a different resource allocation pattern with grains increasing in production because their net revenues albeit declining in absolute terms appear more attractive relative to those of oilseeds. This results in net exports of grains to decline much less. Agricultural employment under this scenario would decline faster at 2.8% annually, while internal prices would not change by much relative to the coupled reforms.

The CAP reforms appear to go only a small step in the direction of trade liberalization. There have been an extensive set of agricultural trade liberalization studies over the last ten years, a review of which is beyond the purpose of this paper.<sup>2</sup> All predict that a significant reduction in EC agricultural

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2 For illustrative analyses see Anderson and Tyers [1992] and Huff and Moerdru [1990].



**Table 1**  
**Evolution of Agricultural Labour Force**  
**in the EC Member Countries**

	Share of Agricultural Employment in Total Civilian Employment			Annual Rate of Change of Agricultural Employment
	1970	1980	1990	1980-90(%)
EUR 12	13.8	9.6	6.6	-3.3
Belgium	5.0	3.2	2.8	-1.3
Denmark	11.5	8.1	6.0	-2.3
Germany	8.6	5.3	3.4	-3.7
Greece	40.8	30.3	25.3	-0.9
Spain	29.5	19.3	11.0	-4.0
France	13.5	8.7	6.1	-3.3
Ireland	27.1	18.3	5.0	-2.2
Italy	20.2	14.3	9.0	-4.2
Luxembourg	9.4	5.4	3.3	-3.1
Netherlands	6.3	5.0	4.6	1.8
Portugal	30.0	28.6	17.8	-3.3
United Kingdom	3.2	2.6	2.2	-1.4

Source: EC Commission, *The Agricultural Situation in the Community*, Various Issues.

protection will lead to large production declines, even larger producer income declines, increased EC net imports, but improved overall welfare due to reductions in consumer and public spending. Clearly the objection to much of the push for EC trade liberalization is the substantial implied reduction in producer welfare which ranges from 20% to 50% in most simulations. This would clearly put substantial adjustment strain on EC farmers.

To obtain an idea of the type of resource adjustment that might be imposed on agriculture, Table 1 presents some statistics on agricultural labour force in the EC countries. It is quite obvious from the figures that, with the exception of the Netherlands, employment in agriculture has been declining at a very rapid rate in the last two decades, despite the extensive protection afforded. A more rapid resource outflow that would be implied by substantial trade liberalization could be sustained only by improved income and

employment opportunities in other sectors. If the completion of the internal market creates short term unemployment in the industrial and service sectors, and implied by the *Emerson Study*, then it is clear that any added pressure on the labour market arising from a faster reduction in agricultural employment due to trade liberalization will be strongly resisted.

## **V. A North-South Structural Perspective on EC Agriculture**

The analyses whose results were exhibited in the previous section were based on models that either did not differentiate by regions or excluded the three southern Mediterranean newer members of the EC. In this section we discuss structural issues within the agricultural sector of the EC, from a north-south and distributional perspective.

The first issue concerns size and technology differences between farms in the north and the south (defined to comprise Greece, Italy, Portugal and Spain). Table 2 presents some relevant structural statistics for the EC 12 and the north and south aggregates. In 1987, in the countries of the EC north there were 2467.6 thousand farms, while in the countries of the south there were 6126.1 thousand. In terms of average area and Standard Gross Margin (SGM), a measure of gross farm value added in constant prices, average farms in the north were substantially larger. Average utilized agricultural area (UAA) and SGM per farm in the north in 1987 was about four times that of the average south farm. The difference between the average farm sizes in the north and south of the EC, is due to the different distributions of farms among the size classes. For instance in the north only 35% of the farms have SGM below 6 ESU (European Size Units, one of which is equal to 1100 ECU of SGM at 1982 prices), while in the south 78.2% of all the farms are in that size class.

Notice, however, that in the south a much smaller proportion of the holders' or their families' time (40.7% and 56.4% respectively) is allocated on average to farm work compared to that in the north (70.3% and 79.7% respectively). This is due to the fact that in smaller farms the holder and his family allocate small portions of their time in farming. This holds true, in both the south and the north, albeit the shares are usually lower in the south. Since the south has many smaller farms, the result obtains.

**Table 2**  
**Structural Features of EC 12 and North-South Farms, According to**  
**Economic Size Distributions for 1987**

	Number of Farms	UAA/ Farm (Ha)	SGM/ Farm (ESU)	Percent of Holder's Labour Utilized	Percent of all Family Labour Utilized	AWU/ Farm	UAA/ AWU	SGM/ AWU	Percent Farms with Cereals	Average Cereal Area per Cereal Growing Farm (10)	Percent of Total UAA of Class in Cereals	Percent of Farms with Bovine Animals (12)	Average Number of Bovine Animals per Bovine Farm (13)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	
ESU	EC12												
0-2	3415.1	2.28	0.91	25.3	36.2	0.46	4.99	2.00	34.89	1.15	17.61	12.46	3.45
2-4	1463.6	4.88	2.88	44.1	58.5	0.85	5.76	3.39	51.78	2.38	25.27	29.26	6.95
4-6	780.9	7.70	4.91	54.8	68.6	1.08	7.16	4.57	55.21	3.81	27.32	36.41	10.85
6-8	485.2	10.85	6.94	62.9	75.4	1.24	8.75	5.60	60.43	5.04	28.09	42.23	14.69
8-12	606.8	14.98	9.84	69.5	80.5	1.39	10.81	7.10	63.32	7.04	29.76	46.00	20.32
12-16	369.4	20.36	13.90	77.1	85.8	1.54	13.18	9.00	66.87	9.15	30.06	51.76	28.60
16-40	966.8	32.46	25.44	86.6	92.2	1.85	17.57	13.77	69.85	14.03	30.18	59.34	52.37
40-100	409.8	62.41	59.49	92.1	95.7	2.53	24.69	23.53	67.69	30.90	33.51	55.66	101.78
>100	96.1	161.30	194.26	85.5	92.4	6.26	25.76	31.03	67.01	95.07	39.50	36.42	224.65
ALL	8593.7	13.41	10.85	49.0	63.3	1.06	12.70	10.28	50.29	8.20	30.73	30.84	31.24
	EC South												
0-2	2980.3	1.81	0.91	24.7	36.1	0.46	3.93	1.98	36.10	1.15	23.03	9.93	2.28
2-4	1211.0	4.27	2.86	43.5	58.9	0.87	4.89	3.28	52.72	2.41	29.73	23.95	4.75
4-6	596.5	6.79	4.90	54.2	69.1	1.13	6.03	4.35	55.31	3.92	31.97	28.99	7.79
6-8	340.9	9.78	6.91	62.1	75.8	1.31	7.46	5.27	60.40	5.34	32.99	32.36	10.57
8-12	376.7	13.61	9.77	66.5	79.6	1.46	9.29	6.67	61.56	7.91	35.78	32.47	14.58
12-16	188.6	18.95	13.78	70.6	82.6	1.63	11.63	8.46	65.27	10.98	37.81	33.09	20.12
16-40	317.5	30.52	23.92	73.6	85.4	2.03	15.01	11.77	64.50	17.74	37.49	32.38	35.10
40-100	85.6	69.66	59.19	74.8	87.8	3.21	21.72	18.46	66.12	35.61	33.80	33.18	86.45
>100	29.0	176.01	203.67	69.5	84.5	7.43	23.67	27.40	61.38	87.69	30.58	27.93	328.75
ALL	6126.1	7.74	5.93	40.7	56.4	0.90	8.56	6.55	47.08	5.40	32.84	19.47	13.69
	EC North												
0-2	434.8	5.50	0.93	29.8	37.0	0.44	12.59	2.14	26.61	1.11	5.39	29.83	6.12
2-4	252.6	7.82	2.94	46.7	56.4	0.73	10.77	4.05	47.27	2.25	13.59	54.75	11.57
4-6	184.4	10.65	4.97	56.8	66.8	0.91	11.65	5.44	54.88	3.44	17.74	60.41	15.59
6-8	144.3	13.37	7.00	64.8	74.2	1.07	12.52	6.56	60.50	4.33	19.61	65.56	19.50
8-12	230.1	17.23	9.94	74.4	82.3	1.26	13.70	7.91	66.19	5.72	21.98	68.14	24.79
12-16	180.8	21.82	14.03	83.8	89.5	1.46	14.99	9.64	68.53	7.34	23.04	71.24	32.71
16-40	649.3	33.41	26.18	93.0	95.8	1.76	19.02	14.90	72.46	12.41	26.92	75.52	56.14
40-100	324.2	60.50	59.56	96.9	98.3	2.35	25.75	25.35	68.11	29.69	33.42	61.60	103.96
>100	67.1	154.94	190.20	92.9	96.2	5.75	26.93	33.05	69.45	97.88	43.87	40.09	193.31
ALL	2467.6	27.51	23.09	70.3	79.7	1.43	19.19	16.11	58.26	13.81	29.26	59.05	45.62

Legend: ESU – European Size Unit. UAA – Utilized Agricultural Area. SGM – Standard Gross Margin. AWU – Annual Work Unit.  
 Source: Computed from Commission of the EC, EUROSTAT: *Farm Structure 1987 Survey Main Results*.

Column 6 exhibits the average annual work units (1 AWU is equivalent to a year's worth of adult work) per farm in different size classes. What is revealed is first that the south is more labour intensive in all size classes, albeit when weighted by the number of farms in each size class, the north farms employ more labour per farm than in the south. The other observation is that larger farms employ more labour in both north and south, but except for the very largest farms in both regions, the amount of labour employed does not rise very rapidly with farm size. For instance while the ratio between the average SGMs in the 12-16 ESU size class and the smallest one is about 15, the ratio between the amounts of labour utilized is only about 3.

In column 8 of the table the SGM per annual work unit (AWU a measure of a full time employer) utilized on the farm (both family and hired) is shown for the different size classes. The results suggest first that within each size class this measure is slightly larger in the north but not by much (between 8-25%). Second it is quite obvious that larger farms in both the north and the south exhibit SGM per AWU substantially larger than smaller ones. This is due to the fact that larger farms are generally much more capital intensive than small ones irrespective of location (namely north or south).

About 47% of all farms in the south grow cereals, and 19.5% own bovine animals, compared to 58.3% and 59.1% in the north. Notice, however, that within each size class the average areas grown to cereals by cereal growing farms are not much different between north and south, while in general the number of bovine animals per bovine animal owning farm is larger in the north, except for the largest size class.

The above results illustrate first that cereal producers constitute a large proportion of the farmers in all the EC countries. Second the beef and dairy sector is relatively much more important in the north than in the south. Third, albeit the south of the EC is characterized by many more small producers, they also spend a smaller proportion of their time in farm work, compared to northern farmers. Finally it was shown that the value added generated per AWU is not much different within each size class between the north and the south of the EC, although there is wide difference between large and small farms. This difference between large and small farms is

compounded by the age structure of farmers. Owners of the smallest size farms are on average 7-10 years older than owners of the largest farms, with average age diminishing monotonically from smaller to larger farms.

Despite the large number of cereal producers in the EC, fewer than 10% of all farmers specialize in cereals (defined as having more than 75% of their SGM from cereals). The proportions are 6.3% in the north, and 9.2% in the south. Farmers, on the other hand that specialize in dairying, cattle rearing and fattening, or both, constitute 33% of all north farmers, but only 5-6% of south farmers.

It was seen above that the large numbers of very small farms in the south countries of the EC, employ very little labour, and generate little income. In an annual survey the EC commission concentrates on the so-called commercial farms, namely those that by some criterion generate significant production. The so-called farm accountancy data network (FADN), covers about half the EC producers but in terms of volume of production much larger shares of total production of most products (typically 85-95%). The boundary lines for classifying a farm as a commercial one differ among member states, generally being lower for the poorer countries of the south (for Portugal the boundary is 1 ESU, for Greece, Italy, Spain and Ireland it is 2 ESU, and for the other EC countries it ranges from 4 to 16 ESU). Table 3 illustrates some general characteristics of FADN farms for the EC 12, the north and the south part of the Community. It can be seen that commercial farms in the north are a larger percentage of all farms, are larger, have more area, more livestock and more capital in general compared to farms in the south. However, notice that they do not employ but only slightly more labour compared to farms in the south. They are thus more capital intensive compared to farms in the south, and particularly so in terms for non-land capital. Farms in the north are also more variable input intensive (as measured by the ratio of the value of intermediate inputs to total gross value of production). Notice, however, that average family farm income (FFI) per family work unit (FWU) is not that much lower in the south than in the north. Comparing in fact the average FFI per FWU to the GNP per capita for the two regions, it can be seen that south commercial farmers are relatively better off than northern farmers, relative to the average income in the corresponding region. When broken down by country this comparison



**Table 3**  
**Structural Characteristics of Commercial in the EC (1986/87)**

	Number of Commercial Farms (1,000)	Percent of all Farms	Average Size of Commercial Farms (ESU)	Average UAA per Farm (Ha)	AWU per Farm (1,000)	Number of Livestock Units per Farm	Input Intensity (ESU)	FFI/FWU (ECU)	Ratio of FFI/FWU to GNP/CAP	Ratio of FFI/FWU to GNP/WM	Fixed Capital per Farm (1,000 ECU)	Land Capital per Farm as Percent of Total Capital	Other Fixed Capital per Farm as Percent of Total Capital
EUR12*	3984	46.1	21.5	24.2	1.57	22.4	0.51	7741	0.67	0.39	120.3	60.9	39.1
South*	2483	40.3	11.3	14.9	1.52	7.3	0.42	6578	0.79	0.47	78.1	74.3	25.7
Greece	528	55.4	7.9	6.3	1.30	4.1	0.32	5009	1.23	0.72	48.9	81.2	18.8
Italy	1108	39.8	14.5	10.5	16.0	6.9	0.41	7637	0.68	0.41	109.5	72.3	27.7
Portugal	262	41.1	8.4	17.0	2.10	8.6	0.49	2670	0.86	0.50	45.8	74.8	25.2
Spain	585	32.7	9.4	30.1	1.29	10.2	0.50	7736	1.18	0.69	59.4	76.1	23.9
North*	1501	60.5	38.5	39.5	1.67	47.4	0.55	9452	0.71	0.43	190.0	51.8	48.2
Belgium	55	59.3	43.2	24.2	1.66	59.6	0.54	18361	1.50	0.92	130.0	38.7	61.3
Denmark	85	98.2	37.2	32.7	1.11	48.9	0.62	6035	0.39	0.23	219.2	21.8	78.2
Germany	374	53.1	33.6	27.9	1.68	43.1	0.61	8712	0.56	0.35	201.6	55.6	44.4
France	596	60.7	32.4	38.5	1.59	33.9	0.51	8112	0.60	0.35	119.4	46.3	53.7
Ireland	145	66.9	14.5	35.2	1.27	39.2	0.51	6020	0.92	0.50	141.7	77.0	23.0
Luxembourg	2	61.3	34.6	47.2	1.73	74.3	0.53	13092	0.69	0.42	195.8	36.1	63.9
Netherlands	95	72.1	70.9	21.4	1.91	79.1	0.56	19918	1.62	1.01	368.5	53.4	46.6
United Kingdom	147	56.5	77.7	98.4	2.54	95.1	0.56	11961	1.10	0.65	384.9	55.5	44.5

Legend: FFI-Farm Family Income, FWU-Family Work Unit, GNP/WM-Gross National Product per Working Member of Population.

Note: \*The weights used for the averages are the number of FADN farms.

Source: Computed from Commission of the EC [1990].

reveals that in Greece, Spain, Belgium, Netherlands, and the United Kingdom, the average commercial farmer earns more from farming than a typical member of the population of his country. On the contrary in the other countries, and especially some of the rich ones, such as Denmark, Germany, and France, commercial farmers are earning much less than the typical members of the populations of their respective countries.

The next column in the table makes the country comparison according to the ratio of FFI/FWU to GNP per working member of the overall population. It can be seen that this produces, as expected, much lower comparative parity indicators than those of the previous column, albeit the overall ranking discussed above does not change. Of course neither indicator is accurate as a comparative measure of parity income since farmers also have non-farm income, and sometimes they employ family labour with low opportunity cost.

Interestingly, it is only in the Netherlands where the income generated per family full time worker in agriculture is similar to that in other sectors. This is in accordance with the data of Table 1 which showed that it was only in the Netherlands where agricultural employment grew over the last decade. The other country with relatively high parity is Belgium, and again Table 1 reveals that it has had a very slow rate of labour outflow from agriculture.

Table 4 contrasts the structural characteristics of North and South FADN farms according to size distributions. Albeit on average, farms in the south have fewer resources, such as land and capital, it is interesting to note that within each size class, farms in the south seem to have structure not much different than that in the north. For instance while the amount of labour utilized per farm, both family and total, is higher in the south for every size class, the difference is not large. For the smaller size classes the farm net value added per AWU, and fixed capital per AWU are larger in the south than those of the north farms, while the opposite holds for the larger size classes. The last column of Table 4 reports the input intensities of different farm size classes in the south and in the north. In all farm size class, the south farms utilize fewer intermediate inputs compared to the farms of the north. However, note that while in the south larger farms are more input intensive than small ones, the opposite holds for commercial farms of the

**Table 4**  
**Structural Characteristics of North and South Commercial Farms**  
**According to Economic Size**

Economic Size (ESU)	Number of Farms (1,000)	Average Size (ESU)	AWU/ Farm	FWU/ Farm	UAA/ Farm (Ha)	Farm Net Value Added per AWU (1,000 ECU)	FFI/FWU (1,000 ECU)	Net Worth (1,000 ECU)	Fixed Capital/ AWU (1,000 ECU)	Non-land Capital per AWU	Intermediate Input Intensity (Percent of Final Value)
EC 12											
All Farms	3984.1	21.6	1.57	1.32	24.18	9.43	7.73	126.8	77.7	50.3	0.52
< 4	944.0	3.2	1.14	1.05	6.70	3.37	3.24	45.0	33.9	16.8	0.38
4-8	817.3	6.4	1.33	1.20	11.20	4.64	4.44	68.2	43.5	23.1	0.41
8-16	817.8	12.6	1.49	1.35	18.90	6.21	5.50	100.2	60.1	37.7	0.49
16-40	935.3	29.1	1.75	1.50	33.50	11.13	9.28	165.3	90.6	65.9	0.53
40-100	399.9	64.9	2.25	1.61	59.70	18.21	15.54	298.2	135.4	97.8	0.55
> 100	69.8	202.5	5.01	1.75	146.00	23.60	31.77	733.4	146.9	86.2	0.52
South											
All Farms	2483.2	11.3	1.51	1.28	14.91	6.66	6.53	95.7	53.6	29.9	0.42
< 4	906.1	3.2	1.14	1.05	6.23	3.43	3.30	44.3	33.5	16.9	0.38
4-8	741.7	6.3	1.37	1.22	10.01	4.77	4.65	66.4	41.1	22.1	0.39
8-16	483.9	12.3	1.64	1.43	17.21	6.71	6.59	106.9	53.9	31.0	0.41
16-40	265.3	26.4	2.19	1.70	33.59	10.12	10.74	198.1	73.4	43.9	0.43
40-100	70.4	64.5	3.33	2.03	73.77	14.86	18.57	444.3	105.8	66.5	0.47
> 100	15.8	183.8	6.01	2.46	95.97	20.08	35.40	806.3	99.5	71.6	0.49
North											
All Farms	1500.9	38.6	1.68	1.37	39.52	13.56	9.59	178.3	111.8	80.6	0.56
< 4	37.9	4.2	1.04	0.99	17.89	1.98	1.88	63.2	44.4	14.5	0.64
4-8	75.6	7.0	0.99	1.01	22.91	2.89	1.92	86.5	75.2	37.6	0.66
8-16	333.8	13.1	1.28	1.23	21.35	5.29	3.64	90.4	71.7	50.3	0.60
16-40	670.0	30.2	1.57	1.42	33.46	11.68	8.60	152.3	100.2	78.0	0.57
40-100	329.5	65.0	2.02	1.52	56.69	19.40	14.68	267.0	145.7	108.9	0.57
> 100	54.0	208.0	4.72	1.54	160.62	24.91	30.08	712.1	165.2	91.7	0.53

Source: Computed from Commission of the EC, *Economic Results of Agricultural Holdings*, FADN No. 5, 1986/87.

north. Most interestingly note that within each size class the family farm income (FFI) per family work unit (FWU) is higher in the south than in the north. Clearly then it appears that the problems of southern EC agriculture are not ones of inadequate income per farm or inadequate capital per farm, but simply of larger numbers of small farms relatively to the north. This in turn might be due on the one hand to land constraints coupled with the history of land tenure systems, as well as to the overall lower level of development and hence lower overall level of capital.

The next issue concerns the distributional pattern of CAP support, namely the degree to which current CAP policies impinge differently on large and small farms, as well as different countries and products. A detailed analysis of this for the EC 10 countries, and using 1984/85 and 1985/86 FADN results has been done by Brown [1989]. His results reveal that the CAP tends to increase gross farm revenue by 8-30%, but in terms of net farm revenue the increase is much larger, up to 91% for dairying, and 77% for cereals. The nominal rate of protection (proxied by the CAP gains as a percent of gross farm value) is not different between north and south countries, but the effective CAP protection (proxied by the proportion of CAP benefits in net farm value added) is larger for countries of the north, compared to southern EC countries. This is because, as illustrated in Tables 1-4, the input intensity is much higher in the north compared to the south, and hence a given rate of nominal EC protection results in higher rates of effective protection for northern farmers.

Brown also analyses the regressive nature of CAP benefits. Benefits per farm are for all farm types proportional to the size of farm. This, of course is to be expected as CAP benefits are proportional to the volume of production. The range of benefits for each farm type and each size class are not much different among the different countries and the north versus the south. However, as was illustrated in Table 4, the input intensity is larger in the north for every size class. This implies that in every size class the effective protection is larger for farms of the north.

Since the amount of family labour per farm does not vary much by size, and as illustrated in Table 4 the family farm income per family work unit is progressively larger on larger farms, then the fact that the CAP confers large absolute benefits on larger farms implies that richer farmers are bene-

fitting in an absolute sense much more than poorer ones. It can be estimated that the 11.2% of commercial farmers, namely those in the top two size classes capture 43.9% of all CAP benefits that accrue to all commercial farmers, while the top three size classes that constitute 35% of commercial farmers capture 78% of the benefits. If we included the smaller farmers in the calculus, the skewness of the benefits would be much more extreme. Clearly this is at odds with social equity.

## VI. Farm Adjustment Pressures in the EC

The adoption of the CAP reform in May 1992, mild as it seems in terms of the implications for farmer income and production of most products, and despite the fact that it leaves intact the overall structure of the protective mechanism of the CAP, nevertheless, entails one major shift that has implications about the future of the CAP. This is the improved transparency of the hitherto largely implicit transfers to farmers. While these have been known for a long time, their shift from consumers to tax-payers will bring into renewed prominence the issue of state aids to agriculture *vis-a-vis* industry within constrained budgets.

Industrial subsidies albeit not as prominent as those of agriculture are nevertheless quite substantial. A recent OECD paper (OECD [1992]) reports that the net government cost of some of the major industrial subsidies in OECD countries is 53 billion US\$ per annum. This, of course, must be regarded as an underestimate, but there are estimates of subsidies to industrial sectors in some EC countries that suggest that for instance in France they account for about 6% of industrial value added, while in other EC countries they range from 2% to 15% (Pelkmans [1987]). These, of course, imply protection rates that are smaller than agricultural PSEs which in the EC in 1990 ranged between 40% and 90%.

Given the program for completion of the internal market, and the continuing pressures for overall agricultural liberalization in the EC it is interesting to try to gage the pressures for resisting liberalization, or equivalently the pressures for enacting national direct supports in case trade liberalization is adopted. Table 5 attempts to do this by exhibiting some presumed indicators of vulnerability to CAP liberalization.



**Table 5**  
**Indicators of Vulnerability to CAP Liberalization (1986/87)**

	FFI/Gross Output	Gross Farm Income/Gross Output	Liabilities/Total Assets	Liabilities/Gross Farm Income
EUR 12	25.7%	48.8%	15.3%	118.8%
South	41.9%	59.3%	2.4%	18.0%
Greece	51.5%	70.5%	4.5%	28.3%
Italy	44.3%	60.0%	1.5%	13.7%
Portugal	29.2%	51.2%	3.9%	31.5%
Spain	34.3%	51.6%	1.4%	10.6%
North	19.2%	44.5%	24.8%	178.0%
Belgium	33.0%	48.3%	25.9%	104.2%
Denmark	6.1%	38.0%	44.3%	375.8%
Germany	17.0%	42.4%	23.0%	184.5%
France	20.8%	46.7%	29.2%	183.7%
Ireland	25.5%	44.2%	5.9%	79.8%
Luxembourg	28.0%	48.7%	17.0%	120.2%
Netherlands	19.9%	42.5%	33.4%	234.8%
United Kingdom	13.7%	45.1%	13.5%	112.6%

Source: Computed from Commission of the EC [1990].

It can be seen from the table that farm family income is a much larger share of gross farm output in the poorer countries of the south, implying that an equal reduction in price support will have a larger absolute effect on family income for the northern farms. Given that northern farmers seem to be on average at worst parity *vis-a-vis* non-farmers than farmers in the south, it appears that they are more vulnerable to liberalization.

The second column of Table 5 exhibits the share of gross farm income to gross output. This is much larger in the south reflecting lower input intensity there. The third and fourth columns show a striking regional difference in the financial exposure of farms. Liabilities of southern commercial farms generally constitute a very small portion of their total assets (generally less than 5%), while in the north they reach as high as 44%. Similarly the ratio of total liabilities to gross farm output is much larger in the north, implying

**Table 6**  
**Structural Aspects of Agricultural Employment in the EC Countries**

	Share of Time Devoted to Agriculture by Those Employed in Agriculture 1987	Share of Farmers (%) Devoting in Agriculture		
		100% of Labour Time	50-100% of Labour Time	Less than 50% of Labour Time
EUR 12		27.9	16.5	55.6
South		17.5	17.8	64.7
Greece	0.41	9.3	21.4	69.2
Italy	0.41 <sup>a</sup>	12.7	17.9	69.3
Portugal	0.56	29.1	24.1	47.0
Spain	0.41	26.1	13.0	60.9
North		54.1	13.2	32.7
Belgium	0.68	65.2	6.5	28.3
Denmark <sup>b</sup>	0.77	62.6	16.5	20.9
Germany	0.52	44.1	8.4	47.5
France	0.73	57.8	14.3	27.8
Ireland	0.64	43.3	24.3	32.4
Luxembourg	0.69	50.0	25.0	25.0
Netherlands	0.80	74.4	14.0	11.6
United Kingdom	0.73	60.5	13.2	25.9

Notes: a. 1985.

b. 1985.

Source: EC Commission, *Agricultural Situation in the Community 1991*.

severe strains that would be put in these farms under any price declines.

Table 6 expands on the above argument by exhibiting the shares of time devoted by farmers to farming in the EC countries, as well as the proportions of farmers who devote 100, 50-100 and less than 50% in farming. There is again a very distinct pattern of labour use between north and south. In the south, farmers on average devote less than half of their labour time in agriculture (41-56%), while in the north the same share is much larger (52-80%). In the south only 28% of farmers devote 100% of their labour time in agriculture, while in the north 54% do so. On the contrary 56% of farmers in

the south devote less than 50% of their labour time in farming compared to 33% in the north.

The suggestion from the table is that the share of total income of farmers (both farm and non-farm) that is due to agriculture is smaller in the south compared to the north. While no analysis of the structure of incomes of all EC farmers was done, analysis of the structure of total incomes of poor, middle and rich agricultural households in Greece based on analyses of national household budget surveys, revealed that while in 1981/1982 income from agriculture constituted about 51-59% of total household income, by 1987/88 the share had declined for all types of households to 42-54%, with the largest decline being observed for richer agricultural households (Sarris and Zografakis [1992]). Interestingly it is only rich farm households that have experienced a significant real income decline while poor and middle income farm households have experienced slight increase.

The point is that agricultural income in countries of the south like Greece, is becoming a smaller portion of total household income. This reinforces the point that on the one hand agricultural households there will suffer proportionately less than northern farmers from agricultural trade liberalization, and on the other that they will experience smaller adjustment strain from the completion of the internal market. The above argument, coupled with the parity analysis of Table 3, to some extent explains the strong opposition of northern farmers to any trade liberalization.

It is interesting to speculate whether there will be any attempt to introduce implicit non-transparent support measures or taxes given these strains. The management and control aspects of the recent CAP reforms seem to be doing just that. It has already been mentioned earlier that one of the key thrusts of the reforms is to alter the mechanism of transferring resources to farmers from one based on direct support to production, to one based on direct support to farmers through more quantitative controls. The key management aspect of the reforms in this context is that the Commission will set the rules, and that it will be the member states' responsibility to implement them. However, since the new rules involve dealing directly with farmers, while the current ones involve dealing with the volume of production, it is clear that the cost of administering the new rules will depend on the number of farms and not on the total amount of production. Also the

**Table 7**  
**Index of Administrative Cost Bias of the CAP Reform**

		South	North	Ratio South/North
Number of Holdings Producing or Having (Figures in 1,000) <sup>a</sup>	Cereals	2884.4	1437.6	2.01
	Bovine Animals	1193.3	1456.7	0.82
	Dairy Cows	758.9	880.6	0.86
	Sheep	642.2	335.8	1.80
Production of (1,000 tons) <sup>b</sup>	Cereals	45528.0	148272.0	0.31
	Beef	1806.0	5655.0	0.32
	Milk	18606.0	90476.0	0.21
	Sheepmeat	434.0	653.0	0.66
Administrative Bias Index <sup>c</sup>	Cereals	6.50		
	Beef	2.57		
	Milk	4.19		
	Sheepmeat	2.72		

Notes: a. 1987 Figures.

b. 1989 Figures.

c. Ratio of South/North ratio of number of holding to South/North ratio of production.

Source: Computed from figures in Commission of the EC, *Farm Structure 1987 Survey; Main Results*.

cost of a policy that is based on quantities produced can be reduced by economies of scale in handling large amounts of product. For instance a producer cooperative could build a large storage silo. However, the cost of administering a program based on farm level quotas, flocks, or areas planted, will probably necessitate on-farm inspection and hence might not be subject to similar economies of scale.

To obtain an idea of the bias this imposes on the countries of the south Table 7 presents an index that computes the ratio between the relative numbers of holding producing a given product under CAP reform in the south versus the north, and the ratio between the total 1989 production of the relevant product in the south and the north. A value of this index of *administrative bias* of the CAP reform proposals will be equal to one when the ratio

between the number of producers in the south and the north of the EC is equal to the ratio between the respective volumes of production. A value greater than one suggests an administrative cost bias against the south.

It is quite apparent from the results that the magnitude of this index is well above 1 for all products under CAP reform. Albeit the number of holdings with tobacco for all EC countries was not available to the author, the small size of tobacco holdings in the south should almost certainly imply a value of this index greater than one as well. It therefore, seems that this bias is bound to increase administrative cost substantially more in the EC countries of the south compared to those of the north, who in any case have rather efficient bureaucracies to administer the reforms. If these countries choose to subtract this cost from the overall funds given to them to be distributed to farmers, then this could amount to an invisible tax, which could operate like the MCAs. Clearly assessing the trade impact of such a measure would not be easy, but the mere possibility illustrates the fact that agricultural market integration will not be an easy task.

## VII. Conclusions

The points that have been made in this paper can be summarized as follows. First the completion of the EC internal market appears to be a process that will have rather stronger implications for industrial and service restructuring in the EC than for agriculture. This implies that with the short run additional strains placed on non-agricultural employment due to the process of restructuring, any additional strains imposed on the EC economies by agricultural trade liberalization will be strongly resisted in the short run but will be easier to implement after the shock of the completion of the internal market is absorbed.

The second point made was that the recently adopted CAP reforms will have some implications for restructuring of agricultural production and trade, but smaller than what would be implied by partial or total agricultural trade liberalization. Given the internal strains in the EC, this might be the most that can be absorbed in the short run.

Finally it was suggested that despite the differences in farm structures, farmers in the north are overall more vulnerable to agricultural price



declines, than farmers in the south. This is due on the one hand to the larger degrees of financial exposure, coupled with the larger shares of time devoted to agriculture by farmers in the north. It was suggested that some of the implicit and innocent looking measures of the recent CAP reforms might be imposing hidden trade related intra EC costs, similar to the MCAs that are being abolished.

The overall tentative conclusion that emerges from the analysis is that the 1990s are bound to be a period of increased economic restructuring within the EC, due largely to the completion of the internal market. Existing agricultural policy in the EC as well as the recent reforms seem to be trying to moderate the strains imposed on the labour markets. The long delays experienced in concluding the current GATT round of trade negotiations, largely due to delays in agreements on agricultural trade liberalization, might be just one expression of the general underlying concern in the EC about the rapid pace of restructuring.

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