CO-RESPONSIBILITY AND THE FUTURE OF IRISH AGRICULTURE

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INTRODUCTION

Since its institution the Common Agricultural Policy (CAP) has been under continuous attack (Fennell, 1973). In recent years the criticism has centred around the budgetary cost of the policy (Hayes, 1979). The cost was growing rapidly up to 1979 when it was threatening to reach the ceiling of the "own resources" system.[1] Associated with this rise in cost the volume of criticism grew amplified in particular by United Kingdom and West German interests. While many proposals for radical reform have been advanced over the years (see, for example, Fennell, 1973, Tracy and Hodac (eds), 1979, and EEC Commission (Com (80) 800), the Community has rejected the need for radical change and has decided to proceed by modifying the existing policy (EEC Commission COM (81) 300). The most important of these modifications are the pursuance of a prudent price policy which entails lowering real prices and the extension of co-responsibility or producer participation in the financing of the policy.

The growth of the co-responsibility idea is surveyed in Part 1 of this paper. It is demonstrated that budgetary circumstances are such within the EEC that expenditures have had to be curtailed in recent years and this curtailment is likely to continue. This may be done by various strategies and in Part II the implications of these possibilities are compared with the results of a policy of no restraint on the size of the budget. The three are quotas on individual producers, lowering real prices and extending co-responsibility levies. The analysis and the assessment as presented in Part III are made from an Irish point of view rather than from the perspective of the EEC as a whole.

PART I

CO-RESPONSIBILITY AND THE EEC BUDGET

The concept of co-responsibility has been part of the CAP since its beginning. The first sugar market regulation (No. 109/67/EEC) which came into operation in July 1968 provided for a tax or levy on Quota B production which was that production above a basic quota, Quota A, and below an upper ceiling at which level all support ceased. The levy was imposed on sugar manufacturers to make good the cost involved in disposing of Quota B production and they were free to pass it back to producers. This was the precursor of the present-day co-responsibility levy.

In 1973 the Commission had decided to extend this levy arrangement to dairying

[1]The "own resources" consist of customs duties, agricultural levies and VAT up to a limit of 1.0 per cent. These accounted for 33 per cent, 13 per cent and 54 per cent, respectively, of the budget's revenue in 1981. See *The European Community's Budget, 1981.*

(COM (73) 1860) but the Council of Ministers failed to agree to this until the 1977/78 price review when a levy of 1.5 per cent of the target price on all production was approved. This levy has continued since then at varying rates. By 1979 the Commission was convinced that this uniform levy on all milk production needed to be accompanied by a supplementary levy[2] which would fund the disposal of additional milk production beyond a certain basic quantity defined on a Community-wide basis (COM (79) 710). In the annual price review of 1980/81 the Council of Ministers rejected the supplementary levy though a decision was taken to introduce it the following year if production grew in 1980 by 1.5 per cent or more over 1979. In its reflections on the CAP at the end of 1980 the Commission extended the concept of co-responsibility and elevated it to the stature of a basic principle of the CAP side by side with the existing three principles of market unity, Community preference and financial solidarity (COM (80) 800). The principle was enunciated as follows: "any production above a certain volume to be fixed, taking into account the internal consumption of the Community and its external trade, must be charged fully or partially to the producers".

In line with this thinking the Commission advocated the introduction of co-responsibility for cereals in the 1981/82 price proposals. In addition, co-responsibility for sugar was to be broadened to make the sugar sector self-financing by including a levy on Quota A as well as Quota B sugar. The supplementary levy proposal for milk was revived and it was to be accompanied by a further special levy on intensive milk producers. The Council again balked at these proposals; in the case of milk, it decided to continue with the uniform levy alone despite its decision a year earlier to introduce the supplementary levy; for cereals it agreed in principle to the application of co-responsibility measures but postponed their application to the following marketing year; and for sugar it agreed the proposed levy extension.

In the "Mandate" review of the CAP (COM (81) 300) and in a subsequent memorandum to the Council (COM (81) 608) the Commission reaffirmed its commitment to the principle of co-responsibility. A slow-down in the rate of expansion of milk production in 1981 enabled the Commission to omit the supplementary levy from the 1982/83 price proposals, but it emphasised that it would request it or some other measures in 1983 if milk deliveries to dairies increased beyond a certain threshold.

The position in 1982/83 then is that co-responsibility levies apply on milk and sugar while there is agreement to reduce the intervention price of cereals in 1983/84 if production exceeds a certain threshold. The levy on milk is at a level of 2.0 per cent of the target price on all production except the first 60,000 kg per producer in the Disadvantaged Areas on which the rate is 1.5 per cent. The burden of co-responsibility on these producers is also being eased by the provision of a special lump sum of £4.5 million to be distributed among them. Further to these measures there is agreement that if deliveries of milk in the Community rise by more than 0.5 per cent in 1982 action will be taken to offset the cost involved.

In the case of sugar a levy of up to 2.0 per cent of the intervention price is charged on all Quota A and B production and if this is not sufficient to cover all the financial losses, a suplementary levy of up to 37.5 per cent of the intervention price is imposed on Quota B production. In fact a 2.0 per cent levy on Quota A and B and a further 30.0 per cent levy on Quota B apply in 1982 on the sugar from the 1981 sugar beet crop. For cereals no actual levy is in operation but it has been agreed that, if the average production of the three marketing years 1980/81 to 1982/83 exceeds a threshold of 119.5 million tonnes for the Community (excluding durum wheat), intervention prices in 1983/84 will be reduced. Co-responsibility is being implemented for other commod-

[2]This is also known as the *superlevy*.

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ities such as beef, tobacco, rapeseed oil and processed tomatoes by restricting the extent to which support measures apply rather than by imposing levies.

The major attraction of co-responsibility levies is that they provide a mechanism to contain budgetary expenditure within the own resources limit. This is an important aspect of the CAP given the state of political opinion about the budget: eight of the ten members states now support the view that the growth in Community spending on agriculture should not exceed that of own resources, Denmark and Ireland being the exceptions. In 1982 the VAT percentage expected to be absorbed by the budget is .92 which is close to the ceiling of 1 per cent. Buoyancy in real terms in the present system is restricted to actually reaching the 1 per cent limit along with some small real growth in revenue as real expenditure and the volume of trade grows in the Community. If expenditure growth exceeds this limit new revenues will be required. These could come from various sources (EEC Commission, COM (83) 10), but they are likely to include a continued expansion of co-responsibility levies while at the same time real prices received by farmers will be allowed to fall.

The factors which increase the demands on the budget are numerous. The major ones are: the level of prices prevailing in Third Country markets, the level of producer price increases agreed by the Community and the quantities of produce that must be sold to Third Countries. These quantities in turn depend on trends in EEC production and consumption and trends in substitute imports which increase total availability. Another important factor influencing expenditure in the past has been extension in the coverage of EEC policies including the CAP. While there is a strong lobby in the European Parliament and elsewhere for extending non-agricultural policies, it is likely that over the next decade the main extension in policies generally will be as a result of further EEC enlargement. Between 1978 and 1982 the Community succeeded in containing budgetary expansion within the limits of growth in own resources (EEC Commission, COM (81) 608, pars. 28–34). However, this was achieved by an improvement in circumstances that is not likely to be sustainable. These include relatively high world prices for cereals, sugar and milk products, a slow-down in the growth of milk production, favourable MCA movements, increased co-responsibility revenue, the prudent price policy adopted for farmers, improved market management by the Commission and accumulation of stocks in 1982 which will have to be disposed of in subsequent years. The prudent price policy is of particular significance. Real producer prices in the EEC-9 were relatively stable between 1970 and 1978 with a peak in 1973. From 1976 to 1981 they declined every year by an average annual rate of 2.7 per cent. This is how in Table 1 where nominal producer prices are deflated by a weighted index as explained in the footnote to the table to show the movement in the terms of trade of producers. In 1982 there is a temporary reversal of this decline which is attributable to a relatively generous annual price review made possible by the favourable budgetary position.

Even if events of the coming years were as favourable as those of the recent past, co-responsibility levies would have to continue their growth of those years, unless some other source of additional revenue were agreed, or unless real prices were reduced more rapidly. If, as many including the Commission believe (COM (81) 608), events will be less favourable, then, co-responsibility levies could grow much faster than in recent years, or real prices could be reduced faster, or a combination of both could be implemented. (See Josling and Pearson (1982) for a recent study of future outcomes under various sets of assumptions.)

Therefore, not only is coresponsibility likely to continue as a permanent feature of the CAP but its importance is likely to grow. The forms it will take are, however, much less easy to anticipate. Already two quite distinct forms are in operation, namely,

reduced intervention prices and levies. Reduced intervention prices mean reduced producer prices and this helps the budget by discouraging production, increasing demand and reducing the unit cost of disposal. Levies relieve the budget by both discouraging production and by generating extra revenue.

The extent to which production would be discouraged depends critically on the type of levy imposed. A uniform levy on all production may be presumed to have the same disincentive effect as an equivalent price reduction. The disincentive effect of the supplementary levy would depend on how it was implemented. The earliest version proposed was to operate at the level of the dairy: those dairies which experienced increased throughput would be required to pay a sum equivalent to the cost of disposing of that increased production (COM (79) 710, p. 3). The dairy in turn could pass on the levy to producers as it saw fit. If it chose to collect it as a uniform levy on all its supplies, it would have amounted to an average 3 per cent levy. The main difference between this form of supplementary levy and the global uniform levy is that the latter applies equally throughout the Community (with possible concessions as in Disadvantaged Areas) whereas the supplementary levy would be confined to locations of expansion. A variation of this form of supplementary levy, which has not been proposed by the Commission and which would be regarded by the Commission as being in violation of the principle of market unity, is a levy assessed nationally on national expansion. Again, if imposed on all production in a county, the size of levy would be relatively small and the disincentive effect modest.

The maximum production disincentive is achieved by a levy confined to those individual producers who expand production. The size of such a levy could be as high as the full cost of disposal of the extra production: with the usual level of Third Country prices, such a levy would exceed the marginal returns on that production and would therefore effectively be a producer quota. While early on, the Commission proposals would allow individual dairies to opt for this form of implementation if they wished, later the Commission actually recommended this form:

"The levy would be applied to dairies, which in turn would apply it to individual producers on the basis of their additional deliveries, according to guidelines to be fixed in Community regulations. The levy, which should be fixed at a level sufficient to cover the cost of disposal of milk in excess of the production objective, could be at a progressive rate, that is, at a higher rate for each successive tranche of additional milk delivered" (COM (81) 608, p. 34).

This recommendation, like those for other forms of supplementary levy, has not as yet been acceptable to the Council of Ministers.

PART II

ANALYSIS OF ALTERNATIVE POLICIES

The analysis in this paper is performed within a framework which is greatly simplified by comparison with the complexity of the real world. It is however adequate to illustrate the approximate magnitudes under the various alternatives and assumptions. More important, it is adequate to establish the relative impacts of the different policies, namely, no restraint, quotas, price reduction and levy increases.

In the analysis, EEC agricultural production, which is covered by the CAP, is taken as a single aggregate and there is no provision for commodity substitution within the aggregate. Related to this abstraction, it is assumed that, whichever policy is being

Table 1. Real prices received by farmers in EC-9 Member States, 1970 to 1982[1]

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982[2]
Netherlands	100.0	98.4	101.0	99.9	88.1	92.2	94.8	88.5	84.7	81.5	79.2	79.7	77.6
Ireland	100.0	99.4	106.2	120.5	97.1	102.9	110.3	115.0	121.3	112.6	94.8	96.0	90.9
France	100.0	99.0	106.4	109.3	98.3	95.3	100.5	100.2	96.3	93.1	86.7	85.5	85.4
W.Germany	100.0	98.7	103.3	100.6	90.7	97.2	99.4	95.3	92.3	89.4	86.2	84.4	82.7
Italy	100.0	100.3	104.5	117.1	110.9	108.2	111.7	114.1	114.2	108.4	103.2	97.8	97.7
Belgium	100.0	101.1	106.6	110.6	96.1	100.1	106.0	97.1	92.9	88.9	86.3	87.0	87.5
Denmark	100.0	95.2	101.5	111.4	96.3	97.4	101.5	97.7	98.7	93.6	90.7	88.0	88.2
UK	100.0	97.6	96.7	104.4	96.0	100.8	107.5	96.1	93.5	91.5	84.3	84.5	83.6
Luxemburg	100.0	97.8	104.1	107.8	96.4	96.4	95.5	92.7	90.2	88.1	85.8	83.6	87.8
EC-9	100.0	98.7	102.7	110.1	99.1	101.0	105.7	103.4	101.3	98.2	93.3	92.0	93.0

1. Nominal prices deflated by a weighted deflator comprising the index of currently consumed inputs, the index of investment inputs and the consumer price index in the proportions in final production, respectively, of non-factor inputs, depreciation and net value added.

2. Provisional

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Table 2. EC and Irish data relating to agricultural commodities with a common market organisation for 1982 and for 1990 under alternative policies and assumptions

Policy and Assumptions	Benchmark 1982	No Restraint 1990		Quota 1990			
		A1	A2	B1	B2	B3	B4
World market	-	S	W	S	S	W	W
Supply response	-	-	-	0.3	0.6	0.3	0.6
Real prices, 1990 as % 1982	-	100.0	100.0	100.0	100.0	100.0	100.0
Levies as % total revenue	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Production volume,1990 as % 1982	-	117.2	117.2	107.0	107.0	103.0	103.0
Consumption Volume,1990 as % 1982	-	104.0	104.0	104.0	104.0	104.0	104.0
EC-10:							
Producer revenue, million ECU's [2]	135,000	158,220	158,220	144,450	144,450	139,050	139,050
Consumer expenditure, million ECU's [3]	107,500	111,800	111,800	111,800	111,800	111,800	111,800
Surplus. million ECU's	27,500	46,420	46,420	32,650	32,650	27,250	27,250
Unit loss on surplus [4]	50.0	50.0	73.8	50.0	50.0	59.8	59.8
Levy, million ECU's	1,200	1,408	1,408	1,286	1,286	1,236	1,238
Budget cost, million ECU's	12,550	21,802	32,850	15,039	15,039	15,057	15,057
Ireland, £ million:							
Producer revenue	2,100	2,461	2,461	2,247	2,247	2,163	2,163
Producer levy	19	22	22	20	20	19	19
Budget contribution, VAT basis	78	134	202	93	93	93	93
GAP basis	78	190	350	93	93	93	93
Change in Welfare in Ireland Compared with No Restraint, £ million:							
Producer surplus: Levy [5]	-	-	-	+2	+2	+3	+3
Other [5]	-	-	-	-31	-16	-60	-30
Consumer surplus [5]	-	-	-	0	0	0	0
Off-farm effects	-	-	-	-64	-64	-89	-89
Budget contribution,VAT basis	-	-	-	+41	+41	+109	+109
GAP basis	-	-	-	+97	+97	+257	+257
National welfare, VAT basis	-	-	-	-52	-37	-37	- 7
GAP basis	-	-	-	+ 4	+19	+111	+141

1. S = strong world markets; W = weak world markets as defined in text
2. 1EIR = 0.691011 ECU's
3. At producer prices before levy is deducted
4. Calculation for weak markets is shown in Appendix
5. Calculation shown in Appendix.

Table 2 cont.

Policy and Assumptions	Levy 1990				Price 1990			
	C1	C2	C3	C4	D1	D2	D3	D4
World market	S	S	W	W	S	S	W	W
Supply response	0.3	0.6	0.3	0.6	0.3	0.6	0.3	0.6
Real prices, 1990 as % 1982	100.0	100.0	100.0	100.0	91.1	93.1	83.2	88.0
Levies as % total revenue	4.65	4.24	9.62	8.08	0.89	0.89	0.89	0.89
Production volume,1990 as % 1982	115.9	114.8	114.1	112.2	114.0	112.3	111.3	108.8
Consumption Volume,1990 as % 1982	104.0	104.0	104.0	104.0	106.3	105.8	108.4	107.1
EC-10:								
Producer revenue, million ECU's [2]	156,465	154,980	154,035	151,470	140,203	141,144	125,012	129,254
Consumer expenditure, million ECU's [3]	111,800	111,800	111,800	111,800	104,102	105,887	96,953	101,317
Surplus million ECU's	44,665	43,180	42,235	39,670	36,101	35,257	28,059	27,937
Unit loss on surplus [4]	50.0	50.0	70.72	68.85	45.12	46.29	57.37	58.05
Levy, million ECU's	7,276	6,571	14,818	12,239	1,248	1,256	1,113	1,150
Budget cost, million ECU's	15,056	15,019	15,050	15,074	15,041	15,064	14,984	15,067
Ireland, £ million:								
Producer revenue	2,434	2,411	2,396	2,356	2,181	2,196	1,945	2,011
Producer levy	113	103	230	190	19	20	17	18
Budget contribution, VAT basis	93	93	93	93	93	93	93	93
GAP basis	93	93	93	93	93	93	93	93
Change in Welfare in Ireland Compared with No Restraint, £ million:								
Producer surplus: Levy	-91	-81	-208	-168	+ 3	+ 2	+ 5	+ 4
Other [5]	- 1	- 1	- 3	- 4	-216	-166	-403	-285
Consumer surplus [5]	0	0	0	0	+ 79	+ 61	+150	+106
Off-farm effects	-81	-80	-186	-166	-126	-110	-225	-181
Budget contribution,VAT basis	+41	+41	+109	+109	+ 41	+ 41	+109	+109
GAP basis	+97	+97	+257	+257	+ 97	+ 97	+257	+257
National welfare, VAT basis	-132	-121	-288	-229	-219	-172	-364	-247
GAP basis	- 76	-65	-140	- 81	-163	-116	-216	- 99

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pursued, is applied uniformly to all commodities. For example, "the no restraint policy" assumes that real prices of all commodities would be maintained over time and the price approach analysed assumes that real prices of all agricultural commodities under the CAP would be lowered proportionately.[3] This has been more or less the case under the prudent price policy pursued by the EEC in recent years which has been formulated against a background of self-sufficiency in all major commodities. Such uniformity of treatment minimises the price incentive to substitute commodities, either in production, or in consumption, through technological developments and changing preferences could still cause substitution which is not allowed for in the analysis. The uniformity of the levy and quota policies analysed are more difficult to defend than in the case of the price policy. Levies are now applied only to sugar and milk and, while their coverage may be extended, they are most unlikely to apply to all commodities. Similarly for the quota approach, quotas might be extended from their present application in the sugar market to such commodities as milk and cereals, but their extension to all commodities is not realistic.

Under each policy, the more favourable treatment of some commodities compared with others would enable some substitution either in production or consumption and this substitution would tend to lessen the adverse effects of these policies. The extent of this moderating effect cannot be known without an elaborate econometric model specifying the production and consumption inter-relationships between the various commodities.

The impacts of the price, levy and quota policies are assessed against a policy of no restraint which would hold real prices constant and allow production to grow freely regardless of the budget consequences. This process is allowed to operate up to 1990, so that comparisons of the different policies are made in a 1990 context. Before the 1990 position can be arrived at, the position in 1982 must be established. This is done in the first column of Table 2 both for the EEC as a whole and for Ireland. At EEC level the position of the budget is the focus of interest. An estimate of producers' revenue, before co-responsibility levies are deducted, is shown and total production is apportioned between consumption and surplus. The budget is attributed in aggregate to all agricultural surpluses. The surplus shown is calculated by assuming that the total budgetary cost was incurred through export refunds. In reality, of course, the EEC exports a great variety of commodities as shown in Table 3 and the export refunds vary from one to another. In addition budgetary cost is incurred in a variety of ways other than export refunds and, in particular, as consumption subsidies and intervention costs. But if these expenditures were withdrawn, export refunds would increase. The important issue for the analysis is not that the budget expenditure reflects the current practice, but that it is of the appropriate magnitude to reflect the consequences of increased surpluses.

Net budgetary cost to the EEC of each policy is calculated as a function of: (i) the quantity in surplus, (ii) the loss incurred in disposing of surpluses and (iii) the amount of co-responsibility levy collected. The quantity in surplus is the difference between production and consumption. The proportion of EEC production shown in surplus is a notional figure to give an estimate of toal budgetary cost corresponding with the actual 1982 position. The loss involved in disposing of the surplus is the expenditure per unit necessary to either, move produce out the the EEC, or to subsidise its utilisation within the EEC. These refunds vary from commodity to commodity and they fluctuate considerably over time. They were at relatively low levels between 1980 and

[3]It also ignores the complications of exchange rate movements and MCAs'which could contribute to differing outcomes among member states such as seen in Table 1.

Table 3: *Importance of production and trade in selected EEC commodities*

	Production of each commodity as % of EEC-10 total production, 1980	Exports of each commodity as % of its production 1980 or 1979/80	Exports of each commodity by EEC-9 as % of its world trade, "1979"
Beef and veal	15.8	8.4	12.4
Milk	19.2	—	—
Skim powder	—	28.8	⎰ 57.8
Whole powder	—	78.3	⎱
Butter	—	29.6	56.4
Cheese	—	8.6	41.2
Pigmeat	11.5	2.1	15.0
Poultrymeat	4.2	8.4	28.1
Eggs	3.4	1.8	14.7
Cereals	12.6	14.7	5.3
Sugar	2.7	31.5	14.0
Wine	4.8	4.5	33.9

SOURCE: *The Agricultural Situation in the Community,* 1981 Report, Commission of the European Communities and *Yearbook of Agricultural Statistics, 1982,* Eurostat.

1982, expecially for such key commodities as dairy products and cereals. The loss calcuated in the analysis as 50 per cent of the farm-gate value for 1982 corresponds with these low levels and, therefore, represents a relatively strong world market situation. The co-responsibility levies collected in 1983 were from milk and sugar, as earlier explained, but they are shown in Table 2 as a levy of 0.89 per cent on all production. These are deducted from the gross budget cost to give the net budget figure of 12,550 million ECU's.

The 1982 benchmark position in Ireland is shown in terms of the gross revenue received by producers, the co-responsibility levy paid by producers and the exchequer contribution to the EEC agricultural budget. This contribution was arrived at by first calculating the percentage of the total EEC budget allocated to the "guarantee", or market support aspects of the CAP, and then applying that percentage to the total Irish contribution to the EEC budget.

Alternative Policies and Assumptions

From the benchmark position in 1982 the impact of four policies is considered. First, a policy of no restraint is assumed to specify the position in 1990, if production were allowed to expand unrestricted. The policy involves maintaining constant real prices and the existing rate of co-responsibility levy. Since the "no restraint policy" will be seen to lead to an explosive budgetary situation, it is not a feasible option for the EEC. On the contrary limitation of budgetary expenditure is now central to the management of the CAP and the three other policies are defined to contain the budget within the present "own resources" limits: each restricts real expenditure, net of co-responsiblity levies, to 120 per cent of its 1982 level. The 20 per cent expansion in the budget is justified on two grounds: first, in 1982 only .92 of the 1 per cent VAT ceiling was used and, second, the real revenue from the present system would grow with economic growth over time. Even if new sources of funds are agreed as currently under consideration (EEC Commission (COM (83) 10), it is not likely that these will be available for

enlarged market support operations under the CAP.

The first of the three alternatives is a regime of quotas. The impact of two likely alternatives to quotas are then investigated. These are: a policy of raising the level of a uniform co-responsibility levy while real prices before the levy is deducted are held constant; and, alternatively, a policy of lowering real prices while holding the levy fixed at its 1982 rate. The EEC has in reality been pursuing a mixture of these two policies in recent years. For analytical purposes, however, it is revealing to isolate the two, as their respective implications are quite different.

The impact of each policy approach will depend on circumstances, such as, the strength of world markets, the degree of supply and demand response to prices and levies, the pace of agricultural expansion in Ireland relative to the EEC as a whole and the method of assessment of Ireland's contribution to the EEC budget. Each of these issues are discussed in turn below.

The strength of world markets has a major influence on the cost of the CAP. The so-called world market deals in marginal quantities of production which are usually surpluses from protected domestic markets. There is thus no direct link between world prices and national producers and consumers, since political decisions of governments intervene. Yet a substantial increase in EEC surpluses is likely to cause some fall in trade prices, which in turn is likely to induce some extra demand from importers and some reduction in supply from exporters. The extent of this inter-action would depend on, among other things, the prominence of EEC exports on those markets. From Table 3 it is evident that EEC exports account for a significant proportion of the total world market for a number of important commodities.

In this study two alternative assumptions are employed with respect to world markets. A strong market situation is defined as one where subsidisation is 50 per cent of the producer value and where there is no interaction between the volume of EEC surpluses and world prices. Clearly this is a very optimistic view implying a rapid expansion in world food demand. A less optimistic view is also taken and is specified to involve 60 per cent subsidisation with the 1982 volume of surpluses and an interaction between the volume of surpluses and prices, such that, each change of 1 per cent in the volume would cause an opposite movement of 0.5 per cent in prices.[4] This is termed the weak market situation.

The response within the EEC to changing prices and levies must also be specified. The price elasticity of demand assumed is $-.25$. While there is some consensus among economists regarding the magnitude of demand response, (as for example in Buckwell et al., (1982, p. 74) and Yeh et al. (1977, p. 40), the nature of aggregate supply response is still very poorly understood. It can be hypothesised to vary with such factors as the length of time available to producers to adjust and the technical ease of adjustment. But the empirical verification of such hypotheses is very weak. Tomek and Robinson, (1977 p. 362), were able to conclude after surveying the literature with respect to aggregate supply response that: "The results, in general, confirm the hypothesis outlined earlier, namely, that the elasticity of aggregate supply for the United States is positive but low, at least in the short-run and slightly greater during periods of rising prices than in periods of falling prices".

In the absence of a consensus, most agricultural economists use a range of responses to represent "high" and "low" levels, leaving to the reader the decision as to which to believe. Examples in recent years of assumed aggregate elasticities are: Buckwell et al. (1982), 0.53 in relation to EEC-9 output but 0.77 in relation to Irish output; Ritson and

[4]Lower world prices would help the budget through higher import levies but this effect is small and is ignored in the analysis.

Tangermann (1979), 0.7 and 0.35; Schmitz (1979), 0.4; and Koester and Tangermann (1977), 0.9.

Indeed, it is possible to find examples of assumed zero or near zero response, more often implicit than explicit. For example in a White Paper on EEC Accession, (1972), the Irish government claimed that by 1978 real agricultural prices would rise by one-third and income per capita in agriculture would increase by 150 per cent. Yet it projected gross output to continue a rate of growth of 3 per cent per year which was already being achieved pre-EEC in the face of falling real prices. Occasionally, the relationship of profits to performance is taken even a step further when it is suggested that there is a negative response to price. Crotty (1970) is an example. While there are undoubtedly examples at the micro level of this kind of perverse behaviour, its existence for farmers in general is unlikely. Heady (1952), considered the issue in some depth from the theoretical point of view and rejected it out of hand.

Thus the topic of supply response is one of some confusion. Much of the problem derives from failure to adequately specify the response. Textbooks distinguish between short-run response, where only a limited number of inputs can be varied and long-run response, where all inputs are variable. In a continuously changing world a particular price level is rarely maintained for long enough to achieve this long-run equilibrium, so in practice virtually all supply response is short-run.

In the present analysis the supply model assumed entails that where real prices are held constant over time supply would shift — or production would grow — at 2.0 per cent per annum due to technological and structural change. This corresponds with past trends in the EEC-9. In Table 1 it may be seen that prices were reasonably stable from the late sixties until the prudent price policy began to take effect in recent years. Between 1967 and 1980 the average growth rate of production derived from exponentially fitted curves was 1.9 per cent per annum.

As prices are reduced or levies raised this rate of expansion would be moderated. Since the price and levy changes envisaged are continuing over time the response involved cannot be long-run, in the textbook sense. Yet over time all inputs would be capable of adjustment. The substitution of capital for labour would continue but its rate would be moderated and, in association with this, the rate of technological adoption would be moderated. In general, resource adjustment would be constrained by the assumption that all product prices fall proportionately. It would also be constrained, in the case of product price reduction, by the parallel reduction in the prices of those inputs to farming which are also products of farms, namely, feed and seed.

In the analysis two alternative levels of response are assumed, namely, price elasticities of 0.3 and 0.6. If the response does in fact correspond with the low elasticity, the 2 per cent annual expansion discussed above could be halted by an annual price fall of 6.6 per cent. If on the other hand the elasticity is 0.6, expansion could be halted by an annual price decline of 3.3 per cent. The record of the past 20 years in Ireland would indicate a response closer to the low magnitude than to the high (Sheehy, 1980).

Whether the rate of expansion in production would be the same in Ireland as in the EEC as a whole is also debatable. There is a widespread belief in Ireland that Irish agriculture can grow rapidly, becasue of such factors as favourable climate and the low intensity of production now prevailing. But the most relevant evidence that can be adduced in this respect is past performance. In the period 1967 to 1980 the annual rate of growth in final production in the EEC-9 was 1.9 per cent compared with 3.0 per cent in Ireland. But in assessing this record it must be remembered that Irish farmers had very different price experiences from those of the EEC-9 as may be seen in Table 1. Up to 1978 real prices received by Irish farmers grew much more rapidly than for the EEC-9 and, since 1978, they have fallen much more rapidly. So price influence would have

enhanced agricultural growth in Ireland, up to 1978 and dampened it since 1978. The growth in the volume of Gross Agricultural Output has in fact been very little since 1978: it fell between 1978 and 1981 and recovered in 1982 but it was still 0.5 per cent below the 1978 level.[5]

The belief that Irish agriculture under the same economic circumstances will grow more rapidly than agriculture in the EEC-9, is not, therefore, warranted by the record of the past. It is assumed, in this study that the same rate of growth would apply in Ireland as in the EEC-9.

Consumption is assumed to grow at 0.5 per cent per annum which is in line with Commission expectations (COM (81) 608, Part II). There may be a case for a higher growth in demand in the Irish market than in the EEC as a whole because of a more rapidly rising population, but, on the other hand, the income experience may well be worse in Ireland than elsewhere in the EEC. Therefore, the same rate of expansion is assumed for Ireland and for the EEC as a whole.

The size of the CAP budget at EEC level has been discussed earlier. The Irish share of this budget will depend on the manner in which the budget cost is apportioned among member states. This issue is currently being debated by the EEC (COM (83) 10) and the outcome is not at all clear. Two alternatives are used to illustrate the difference between a "favourable" and "unfavourable" outcome, from the Irish point of view. The favourable apportionment, assumes that extra revenue required to finance the guarantee operations of the CAP, beyond the yields of the present "own resources" system, would be raised through the existing system of own resources by raising the present 1 per cent VAT ceiling. The Irish contribution on this basis in 1982 was .89 per cent of the total. The unfavourable apportionment assumes the extra revenue would be raised through a new instrument proportional to the Gross Agricultural Product of the EEC. Ireland's share in 1982 would be 2.09 per cent under this formula. The outcome to the present discussions will, probably, be somewhere between these two, but the results for the various policies will nevertheless illustrate the magnitudes behind the current negotiations.

The full list of alternatives analysed below is as follows:

(i) No restrain on expansion as represented by constant real prices;
(ii) A quota system to control supply and thus contain budgetary costs at 120 per cent of their 1982 level;
(iii) Increasing co-responsibility levies to contain budgetary costs at 120 per cent of their 1982 level, with real prices, before the levy is deducted, being held constant;
(iv) Falling real prices to contain budgetary costs at 120 per cent of their 1982 level.

Each policy is analysed assuming strong and weak world markets, using two supply response options where relevant and using two methods of budgetary incidence. There are of course an infinite number of paths along which the CAP may develop in the future, so the alternatives analysed are far from exhaustive. The policies selected are, however, to the forefront in the deliberations of the Community and therefore provide relevant and revealing results.

Criteria of Assessment

The primary impact in Ireland of alternative policies would be on farmers, on consumers and on the exchequer. Thus, reduced prices for farm products would

[5]Headage payments on livestock were increased in 1980 and 1981 and these should have partly offset the real price decline. The extent of the increase, however, was small relative to the price decline.

represent a loss to farmers, a gain to consumers and a gain to the exchequer by virtue of a reduced contribution to the EEC budget. Another impact of particular importance in an agricultural country like Ireland is the off-farm implications for input supply industries and for the broader economy of variation in the volume of farm production and in farmers' purchasing power as a result of different policies.

The impacts on farmers and on consumers are measured by changes in economic surplus; (see Currie *et al.* (1971) for a review of this concept). The surplus for a consumer is defined as "the excess of the price which he would be willing to pay rather than go without the thing over that which he actually does pay" (Marshall, 1969). It is approximated by the area under the demand curve which is measurable, once the demand curve is specified. The definition of producer-surplus is more difficult to inter-pret. It is akin to economic rent, which is the payment to a factor of production over and above the minimum necessary to retain it in its present occupation. It is approx-imated by the area above the supply curve. This surplus, or rent, arises from factor fixity in the production process, so its nature and magnitude depend on the specifica-tion of supply. For example, if the total factor input package remained constant, as prices fell or levies rose, the area measured as producer-surplus would coincide with the more concrete economic concepts of value added or economic product, all three concepts being defined as returns to factor inputs. This is assumed to be the case in this study so that on-farm change in producer surplus can be added to the multiplier effects off-farm.

The multiplier effects derive from two distinct sources, namely, differing volumes of output and differing levels of value per unit volume. The former effect is reflected largely in input supply and processing industries, the activity of which varies in relation to the volume of on-farm activity. The latter effect is reflected in the economy, generally, as the purchasing power of farmers and consumers varies.

Leontief type input-output analysis provides multipliers for those effects. Up-to-date figures indicate a GNP multiplier for the food sector of 0.9796 (Henry, 1983, p. 16). This coefficient relates to export value and when adjusted to farm-gate value as required in this study the multiplier becomes 1.3. So each £1 difference among the alternative policies in the volume of output at 1981 prices is reckoned to have a multiplier effect on the economy of 1.3. The difference between the respective policies analysed will be seen in all cases to be attributable much more to non-volume (price and levy) than to volume effects. Therefore, an appropriate multiplier has to be arrived at for these differences. This is the GNP multiplier for Households from the Henry study which is 1.8. This is applied to the sum of gains/losses in producer and consumer-surplus after adjusting for that portion of producer-surplus attributable to volume differences.

Results

Policy of No Restraint: The key element of this strategy is that real prices are held constant between 1982 and 1990. Given this relatively favourable position for producers, production is assumed to expand at 2 per cent per annum in the EEC and in Ireland. At the same time demand is assumed to grow at 0.5 per cent per annum. The consequences of these trends are shown in Table 2. Extra production in excess of demand has to be exported with the aid of a subsidy. The extent of the subsidy depends on the state of world markets. If these markets are strong, it is assumed that the per unit subsidy is 50 per cent of the farm-gate value and that extra volume can be exported with no adverse effects on world prices.The result, shown under option A1 in the table, is that the net budget requirement for subsidising agricultural exports in 1990, an increase in real terms of 73.7 per cent. The outcome is much worse when weak world

markets are assumed: the export subsidy per unit is now 60 per cent of farm-gate value if no extra volume is exported, but extra volume will further depress world prices so that the per unit subsidy grows as shown in the Appendix calcualtion. Under option A2 the export subsidy reaches 73.8 per cent of farm-gate value and the budget requirement grows to 2.6 times the level of 1982.

While this latter rate of budget growth of 17.4 per cent per annum would be less than the 18.4 per cent, annual growth, experienced between 1975 and 1979, would be utterly unacceptable to most EEC governments. Even for Ireland the balance would depend on circumstances including the formula used to calculate the Irish share of the budget. If the escalating budget were financed by raising the VAT ceiling, the Irish contribution by 1990 would grow to £134 million with favourable world markets or £202 million with unfavourable markets. If, on the other hand, the budget beyond 120 per cent of its 1982 level were financed by a GAP related impost, the Irish contribution would be £190 million or £350 million depending on the world market situation. While Irish producers would still gain under these circumstances and off-farm activity would be enhanced, the net national gain considering all aspects including the extra levy and budgetary contribution would not necessarily be positive.[6]

Whatever the outcome for Ireland of the "no restraint policy", its attainment is not feasible. It is for this reason that other policies must be anticipated. The first of these to be considered is supply control via quotas.

Quota Policy: To successfully control supply a quota regime would have to apply at the individual producer level. This could be effected for one commodity such as milk by a supplementary levy equal to, or greater than, the marginal revenue from extra milk and applied at farm level. However, if the levy applied only to milk, then producers could switch the resources which would have been employed in expanding milk production to other enterprises. If these were supported by the CAP budget, then their expansion would tend to create budgetary pressure unless profitable markets were available for them. To counteract this pressure, it would be necessary to extend the quota system to these competing enterprises. This might be administratively difficult or impossible, in the case of some important commodities such as beef. In practice, what might happen is that curtailed dairy cow expansion would lead to compensatory expansion in non-quota areas like the beef herd. This might not be of sufficient consequence for the budget to provoke policy retaliation in forms such as levies or reduced prices and in that event producers and the economy generally would regain from this swing to non-quota commodities some of the loss caused by the imposition of quotas. In support of this view, it could be argued, that, if quotas applied to milk and cereals in addition to sugar, the Community would have control over items now accounting for about half of the agricultural budget and consequently it would be able to contain the budget within tolerable limits at least for a number of years. Furthermore, there might be repercussions on real prices or on levies for non-quota commodities which could partly, or totally, offset the gain from substitution.

Quotas could be made saleable among producers, as operated for Dublin milk producers and this would reduce the rigidity of control (Hathaway, 1963). Neverthe-

[6]For example, under the worst outcome, the 1990 position compared with the 1982 position would be as follows; producers' revenue + £361 million, off-farm multiplier effect at .3 of this sum + £108 million, budgetary contribution + £272 million, and co-responsibility levy + £3 million. If, therefore the value added component of the increased producer revenue were less than 46 per cent of the revenue, the positive contribution to the national economy of increased producer and off-farm value added would be less than the negative impact of the higher levy and budgetary contribution.

less, the regimentation involved in such a comprehensive scheme of supply control would obviously be distasteful to farmers. How distasteful it would be, would depend on the profitability of production within the quotas and under the alternatives to quotas. In the analysis here, it is assumed that within the quota real prices would be maintained at their 1982 level.

The quota can be increased over time because consumption is increasing and the budget is allowed to grow by 20 per cent. The extent to which the quota can grow, while remaining within the budgetary constraint, is shown in Table 2 under options B1, B2, B3 and B4. The 1990 quota is illustrated as OG in Figure 1. With such a quota, producer revenue would be OFAG which is considerably less than the OADE of the non resistant policy. (The area ABCD represents the existing co-responsibility levy of 0.89 per cent.) Since costs would be saved by the reduced production, the fall in producer surplus is much less than the revenue fall: it would be FDZ. The area of FDZ, the calculation of which is shown in the Appendix, depends on the price elasticity of supply assumed. With strong world markets (B1 and B2) it ranges from £16 million with an elasticity of 0.6 to £31 million with an elasticity of 0.3. With weak markets (B3 and B4) the fall is greater because the quota has to be reduced to contain cost. Producers would have some small compensation for these losses through a reduced levy payment arising from the reduced production imposed by the quota.

The impact of quotas on consumers, on off-farm activity and on the Irish budgetary contribution is shown in Table 2. Since real prices are being held constant within the

Figure 1. Diagram illustrating the gains and losses from different policies.

PRICE

QUANTITY

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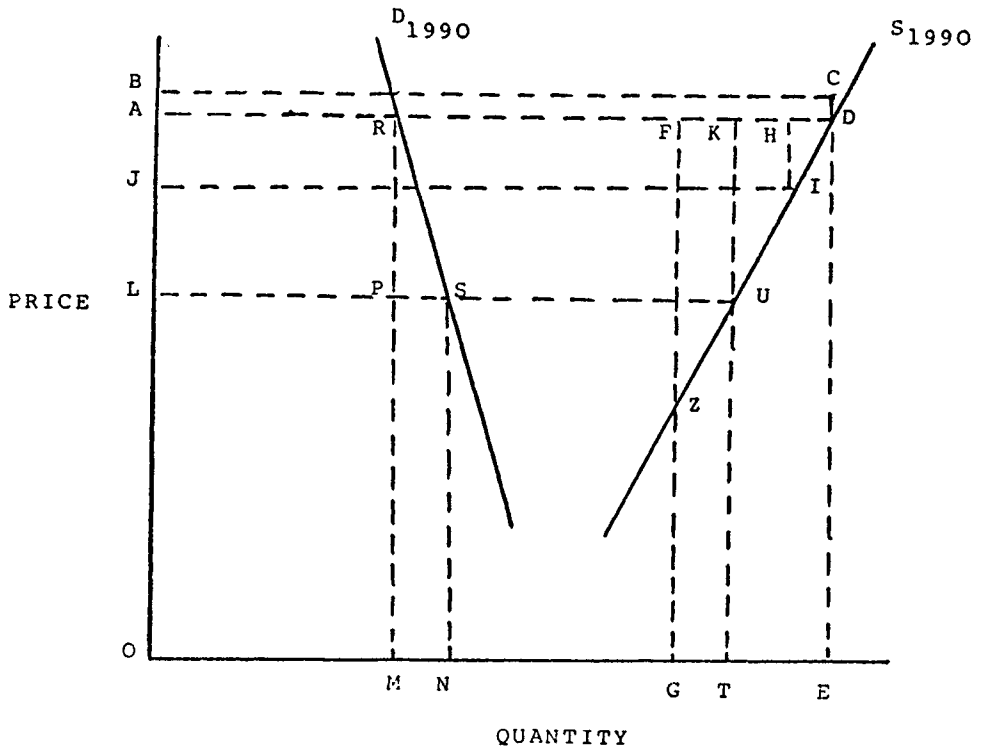
quotas, there is no change in consumer surplus, compared with the quotas, there is no change in consumer surplus, compared with the "no restraint" situation. Off-farm value added is reduced by .3 times the change in producer revenue, which amounts to £64 million with strong markets and £89 million with weak markets. The Irish budgetary contribution under quotas would be made through the present own resources system since the quotas are designed to contain the budget within those limits. But the saving in the budget cost compared with the "no restraint" situation depends on which contributory system is assumed under no restraint. The saving under a VAT related system would range from £41 million with strong markets to £109 million with weak markets while under a CAP related system it would range from £97 million to £257 million depending on the market situation.

The national welfare is determined by summing the producer, consumer, off-farm and budgetary, gains and losses. If the budget under the "no restraint policy" were funded on the VAT basis there would be some national loss by the alternative of quotas under all market and supply response assumptions. If, however, budgetary funding on a CAP basis is considered, the results show a gain from quotas which increases, the higher the supply response and the weaker the world market. Therefore under the assumptions of this study that a quota regime may not reduce national welfare by comparison with the relatively favourable "no restraint policy", though it would adversely affect producers as well as off-farm activity, especially, the industries supplying inputs to farmers and processing their output.

Levy Policy: This involves raising the size of a uniform co-responsibility levy on production so as to stabilise the budgetary cost of agricultural supports at 120 per cent of the 1982 level. It is assumed that real prices, before the levy is deducted, are held constant. The assumptions are, therefore, at variance with the EEC practice of recent years which involved both a real price fall and a levy increase. By how much the levy requires to be raised depends on the assumptions about production and world prices. Demand does not change since consumer prices are not influenced by the levy. The price elasticity of supply is taken alternatively at 0.3 and 0.6, with respect to the levy and the assumptions about would price levels are as already used for the quota analysis.

The incidence of the levy is illustrated in Figure 1. The levy is represented by area AHIJ while the reduction in producer surplus is shown by the area ADIJ. The magnitude of the levy required to contain the budget under the alternative world market and supply response assumptions is shown in Table 2 under options C1 to C4. The levy would have to rise from the present level of 0.89 per cent on all production to levels between 4.24 per cent and 9.62 per cent depending on circumstances. The higher levies would curtail production both in the EEC and in Ireland in accordance with the supply response assumed.

The change in welfare in Ireland compared with the "no restraint policy" involves a reduction in producer surplus which is largely attributable to the higher levy paid (see the Appendix for the calculations), a reduction in off-farm activity and a saving in the Irish contribution to the EEC budget. When these changes are combined it can be seen that there is a net loss under all situations which is much greater than under a quota system.

Price Policy: A strategy of reducing real prices would relieve budgetary pressure in two ways: it would reduce the unit loss incurred in disposing of surplus production and it should curtail expansion and enhance consumption thereby reducing the surplus to

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be disposed of.[7] The magnitude of the latter effect depends on the relationship of demand and supply to price changes. In terms of Figure 1, if it is assumed that prices must be lowered to contain the budget from their 1982 level of OA to OL by 1990, demand will be increased in 1990 from OM to ON as a result of the price fall and supply will be reduced from OE to OT. Compared with the no restraint position in 1990, producer surplus would be reduced by the area ADUL and consumer surplus would be increased by ARSL. However, there would be some compensation for the producer in so far as the levy payment would be less because of reduced revenue.[8]

The measurements are presented under options D1 to D4 in Table 2. Under D1 with strong world markets and a price elasticity of supply of 0.3, a drop in real prices of 8.9 per cent would be necessary to contain net budgetary expenditure to 120 per cent of its 1982 level. With the higher supply response assumed under D2, a smaller price cut will achieve this result. However, the poorer the world markets, the greater the price cut required, as may be seen by comparing D1 and D2 with D3 and D4, respectively.

The impact of the price policy on Irish producers, off-farm value added and the Irish budget contribution are calculated as for other policies but in addition there is a consumer gain in this instance by virtue of Irish consumers getting cheaper food. The measurement of this gain requires the sepecification of the Irish demand curve in 1990. This is done by taking the quantity of output consumed on the home market in 1982 as 40 per cent of the total, by expanding this to 1990 by 4 per cent and by assuming a price elasticity of demand of –0.25. The calculations are shown in the Appendix.

The impact of price policy, compared with a "no restraint" situation, can be seen to be particularly severe on Irish producers and on the off-farm economy. These effects are offset to varying degrees by consumer gains and by reduced budget liability, but the national welfare is still reduced under all assuumptions and it is reduced more than under a levy policy and considerably more than under quotas.

PART III

RESULTS AND IRISH ATTITUDES

The welfare results in Table 2 are reproduced in Table 4. The position of consumers would change only under the price policy. To contain the size of the budget within the own resources, limits prices would have to fall more with low than strong world markets. Consequently, consumers would gain more the lower the supply response and the weaker the markets.

The position of the producer is of greater consequence than that of the consumer in an agricultural exporting country like Ireland. Producers lose under all policies by comparison with the "no restraint" policy. The extent to which they lose differs considerably between the three restraining polıcies. Under all assumptions, they are seen to lose least under a quota policy, next less under a levy policy and by far the most under a price policy. Obviously, producers would lose more if world markets were weak than if they were strong, but — what may not be so obvious — the differential between the three policies widens as world markets weaken. The quota policy is relatıvely immune to world markets, the levy policy less so and the price policy is

[7]There would also be some reduction in the import levy receipts of the budget but this effect would be small and is ignored.
[8]The price of feed and seed which originate in agriculture would also fall proportionately, with the decline in output prices, but this has already been allowed for in the specification of the supply response.

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especially sensitive.

The change in off-farm value added is attributable to both volume differences and to non-volume differences as explained earlier. Of the policies analysed, quotas have the severest effect on volume but this is more than offset by non-volume effects, so that quotas have the least adverse off-farm effects overall. The ranking and sensitivity of the three policies, with respect to off-farm effects, is similar to those outlined with respect to producer effects.

While the restraining policies would reduce the welfare of producers and associated off-farm activity, there would be a saving to the national exchequer in its EEC budgetary contribution. How large the saving would be depends on how the escalating EEC budget, under the "no restraint policy", would be funded. The two alternatives, assumed in this study, show widely different results. With a CAP based contribution, the charge to Ireland would be very much greater than with the present VAT based contribution and this contribution would grow as the EEC budget grew. Therefore, when the EEC budget is restricted by the restraining policies, the savings would be greatest under the GAP based contribution and weak world markets.

Table 4. Changes in welfare in Ireland in 1990 as between a policy of no restraint and alternative restraining policies. £ million

| | Consumer | Producer | Off-farm | Budget | | National | |
				VAT	GAP	VAT	GAP
	Strong World Markets, Low Supply Response						
Quota	0	−29	−64	+41	+97	−52	+4
Levy	0	−92	−81	+41	+97	−132	−.76
Price	+79	−213	−126	+41	+97	−219	−163
	Strong World Markets, High Supply Response						
Quota	0	−14	−64	+41	+97	−37	+19
Levy	0	−82	−80	+41	+97	−121	−65
Price	+61	−164	−110	+41	+97	−172	−116
	Weak World Markets, Low Supply Response						
Quota	0	−57	−89	+109	+257	−37	+111
Levy	0	−211	−186	+109	+257	−288	−140
Price	+150	−398	−225	+109	+257	−364	−216
	Weak World Markets, High Supply Response						
Quota	0	−27	−89	+109	+257	−7	+141
Levy	0	−172	−166	+109	+257	−229	−81
Price	+106	−281	−181	+109	+257	−247	−99

The change in national welfare is calculated as the sum of the producer and off-farm losses, the gains to consumers and the savings under the budget. Comparing the results for the three restraining policies it can be concluded that a quota policy would be at least damaging, under all assumptions and a price policy would be most damaging. In fact, the budget saving would be so great under a GAP based contribution that the national welfare would be increased under quotas.

If instead of viewing the "pure" policies of quotas, levies and prices, as here to fore, one considers mixtures of these policies, then the results will be intermediate between those in Table 4. It may be recalled that real prices are assumed to be maintained over time with both the quota and the levy policy. If real prices were lowered, while also operating a quota or levy policy, the results would be intermediate between the quota and price result, on the one hand, and the levy and price results, on the other. The ranking of the quota and levy policy would not however be changed, if the price fall were the same for both. The levy policy could conceivably be better than quotas, if the level of real prices actually set with a levy system exceeded the level set under quotas. This, however, would appear to be an unlikely outcome.

A mixture of falling real prices and rising levies has already been operated by the EEC in recent years. If the EEC remains on this course in the years ahead, the results would be obviously more damaging to Ireland than a pure levy approach, as it would produce results intermediate between those shown in Table 4 for the levy and price policy. Such results would be very much worse than quotas for producers under all circumstances and they would be worse for the nation under most circumstances.

The uncertainty about the magnitude of supply responses was highlighted earlier. It is therefore interesting to consider in Table 4 the implications of alternative magnitudes of response. Price policy is the most sensitive to price response especially at low levels of that response. With low responses prices would have to fall by a very large amount to contain the budget within its limits. If therefore the price elasticity of supply approaches zero, as widely assumed among Irish agriculturalists, then a price policy is to be especially feared. Response differences are of much less consequence under a levy policy, because the magnitude of the levy increases necessary to contain the budget is very much less than the magnitude of the price decreases. The effects of a quota policy are also relatively independent of supply response.

CONCLUSIONS

While the analysis in this paper is relatively simple, it is adequate to demonstrate that EEC farmers, including those in Ireland, are on a treadmill under the present CAP policy of prudent nominal price increases and growing co-responsibiity levies. Within this framework profitable expansion is still rational for the individual farmer because his production is too small to affect the overall budgetary cost. Profitable expansion is also rational for Ireland as a Member State for the same reason. However, when all the expansion is aggregated it has a significant effect on the budget, leading to further real price reductions or levy increases. These adversities could be avoided by a quota regime on individual producers which would be more beneficial to producers, in particular, but to the nation also.

Despite these results favouring a quota approach. Irish farmers and governments may continue to reject them. For farmers, there would be serious distributional issues relating to allocation of quotas, as between large and small producers and newly developing and developed farmers, though the saleability of quotas would lessen these problems. At EEC level agreement on quotas may not be feasible regardless of Irish attitudes.

If for these or other reasons a quota policy is not implemented, the choice still remains between rising levies and falling prices. Rising levies are clearly preferable for Ireland to the alternative of falling prices.

There are ways of escaping from these difficult choices, but none of them appear very promising. Budgetary pressures could be less than envisaged in this paper, if the growth in EEC production turns out to be less than projected, or if demand either within the EEC, or on international markets, grows faster than allowed for. Few European agricultural economists expect this, but there has been a viewpoint along these lines among some United States agricultural economists, (Paarlberg, 1982). The budget could also be relieved, at least for a while, if Community preference were strengthened to discourage or even prohibit competing imports such as cereal substitues and fats, but the powers ranged against such a move are intimidating.

Ireland could seek and gain preferential treatment within the CAP, such as exemption from levies or increased direct payments and these would improve the outcome in Ireland. Ireland has already sought and gained some concessions, but their magnitude has not been sufficient to provide much hope for the future. Perhaps the Irish government might intervene to assist farmers with national aids; its scope both financially and legally is limited and its assistance of recent years, though significant, was small relative to the size of the farm income problem it was aimed at. The Irish price experience could deviate favourably from the average EEC experience as it deviated unfavourably in 1979 and 1980. For this to happen the Irish inflation rate would have to fall below the EEC average with a fixed exchange rate, or an £IR devaluation would have to occur with little or no domestic inflationary consequences. Again these are possibilities with low probabilities.

Unless some of these unlikely events materialise, the CAP will have to evolve within tight budgetary constraints. If it continues to respond with prudent prices and rising co-responsibility levies, EEC farmers face the prospect of declining real incomes over time. The historical response to such a situation was for labour to leave agriculture thus enabling those remaining to increase their per capita income. Perhaps the labour exodus might accelerate in the future, but, against the difficult employment prospects outside of agriculture, this does not seem likely.

Falling farm incomes will produce growing pressure for a reversion to national aids to supplement EEC policy. There is little consolation for either Irish farmers or the Irish nation in this scenario.This is the essential reason why other alternatives such as quotas should be considered.

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APPENDIX

Export loss per Unit Exported onto Weak World Markets

Unit loss $= \dfrac{P_1 - P_w (1.0 - \Delta Q_E \times .5)}{P_1}$

where P_1 = internal EC price with 1982 = 100

P_w = world price with 1982 = 40

ΔQ_E = the decimal change in the volume of exports

A2 : $\dfrac{100.0 - 40.0(1.0 - .6880 \times .5)}{100.0}$ = .7376

B3 & B4 : $\dfrac{100.0 - 40.0(1.0 + .0091 \times .5)}{100.0}$ = .5980

C3 : $\dfrac{100.0 - 40.0(1.0 - .5358 \times .5)}{100.0}$ = .7072

C4 : $\dfrac{100.0 - 40.0(1.0 - .4425 \times .5)}{100.0}$ = .6885

D3 : $\dfrac{83.2 - 40.0(1.0 - .2264 \times .5)}{83.2}$ = .5737

D4 : $\dfrac{88.0 - 40.0(1.0 - .1544 \times .5)}{88.0}$ = .5805

Decline in Producer Surplus other than Levy
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Under Quota Policy, area FDZ in Figure 1 = FD x FZ x .5
B1 : (2461 - 2247) x .290 x .5 = 31.0
B2 : (2461 - 2247) x .145 x .5 = 15.5
B3 : (2461 - 2163) x .404 x .5 = 60.2
B4 : (2461 - 2163) x .202 x .5 = 30.1

Under Levy Policy, area HID in Figure 1 = HD x HI x .5
C1 : (2461 - 2434) x .037 x .5 = 0.5
C2 : (2461 - 2411) x .034 x .5 = 0.9
C3 : (2461 - 2396) x .088 x .5 = 2.9
C4 : (2461 - 2356) x .071 x .5 = 3.7

Under Price Policy, area ADUL = AKUL + KDU = AK x KU+KD x KU x .5
D1 : 2394 x .089 + (2461 - 2394) x .0890 x .5 = 216.1
D2 : 2358 x .069 + (2461 - 2358) x .0690 x .5 = 166.3
D3 : 2337 x .168 + (2461 - 2337) x .1680 x .5 = 403.0
D4 : 2285 x .120 + (2461 - 2285) x .1200 x .5 = 284.8

Increase in Consumer Surplus under Price Policy
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Area ARSL in Figure 1 = ARPL + RPS = AR X RP + RP x PS x .5
D1 : 873.6 x .089 + .089(.089 x .25 x 873.6) x .5 = 78.7
D2 : 873.6 x .069 + .069(.069 x .25 x 873.6) x .5 = 60.8
D3 : 873.6 x .168 + .168(.168 x .25 x 873.6) x .5 =149.9
D4 : 873.6 x .120 + .120(.120 x .25 x 873.6) x .5 =106.4

DISCUSSION

A. MATTHEWS: It is with great pleasure that I accept the Society's invitation to propose the vote of thanks to Professor Sheehy for the paper we have just heard. The paper is a significant one; it is important in its subject matter, coherent in its conceptual framework, elegant in its methodology, and controversial in its findings. On the domestic front, it represents a considerable reappraisal of Irish attitudes to the CAP. With respect to the international literature, there are some significant innovations in approach and methodology. I would like to draw your attention to three issues in particular.

In the first place, the paper introduces into full public debate a perspective which has heretofore been advanced by only a small minority of agricultural economists and by no-one in policy circles, namely, that policy towards the CAP must shift from attempting to achieve "the best of all possible worlds" towards a perspective which seeks to minimise the damage of unavoidable policy options. Previously, Ministers for Agriculture could go to Brussels seeking the maximum possible price increases and resisting any and all restraints and levies on increased production. This paper shows clearly that this must now be termed the ostrich attitude in that it ignores the realities of the CAP's finances at the present time.

The paper shows that, with constant prices and autonomous growth in production of 2 per cent per annum due to technological and structural change, the budget required for the agricultural Guarantee Fund would have to grow by between three-quarters and 2.6 times its present size in real terms by 1990 depending on how world prices behave. Nor do these figures take any account of the likely extra costs due to the enlargement of the Community to include Portugal and Spain which on balance still looks possible by the mid-1990s.

The stock response among agriculturalists is to demand an increase in the budget ceiling to meet these trends. Apart from the important fact that this looks a non-starter at present, it ignores the consequences for international trade relations if EEC over-supply were to increase by a further 70 per cent as projected in the paper. It is to be expected that trade partners such as the U.S., Australia and Canada, already angry at the existing extent of EEC net exports, would resist such an increase very forcefully indeed. One can only agree with the paper's conclusion that changes in the CAP are inevitable. The question then is whether Irish policy-makers have any preference between the various reform options now available.

In passing, it is worth noting that the Commission's proposal of co-responsibilty is not a new phenomenon to Irish farmers. We lived with coresponsibility here for most products during the late 1950s and 1960s, and in historical perspective the period of open-ended guarantees for unlimited production during the 1970s may appear rather abnormal.

The second innovation in the paper concerns the way the problem has been set up. Agricultural economists have given a lot of attention to trying to measure the costs and transfers of alternative farm policies and the CAP itself during the past decade. Studies by the Cambridge Economic Policy Group, Koester, Rollo and Warwick, Morris and Atwood might be mentioned here. In general, these studies have tried to measure the costs of the CAP as a whole, in comparison to either a regime of national farm policies with the same price levels, or a regime of no farm price support at all. Where these studies have tried to compare the effects of marginal changes in the farm policy, the assumption has been that the policy makers' objective function is to maximise the simple sum of producers' and consumers' surplus which, given the standard assumptions, implies that the less interventionist policies will always rank as preferable. Or, as

in the recent work by the Newcastle group, the consequences of alternative policies are simply noted. In the former case, the assumption regarding policy makers' objectives is clearly unrealistic. In the latter case, there is no criterion by which the alternative policies can be made commensurable. A 2 per cent co-responsibility levy may have less detrimental effects on farm income than a 1 per cent cut in prices, but how do we know whether we should be comparing the price cut with the consequences of a 2 per cent levy, or a 4 per cent or a 6 per cent one?

This paper represents a new departure in that the constraint of constant budget costs has been explicitly introduced as the bench-mark against which to compare alternative policies. This was not the only possible constraint; policies might have been ranked under the constraint that they held EEC production to a fixed amount. Given the decision-making framework of the EEC, I find the budget constraint an eminently reasonable assumption, though I will return later to express the belief that there may also be a need to control the quantity of EEC production.

The third innovation concerns the methodology for calculating the welfare changes resulting from alternative policies. Here Professor Sheehy includes the consequences for value added in the form processing and supply industries arising from changes in farm output, and this later plays an important role in the ranking of alternative policies. In particular, the results are sensitive to the assumption of a coefficient of 0.4 as the appropriate ratio of the change in off-farm value added in both input and processing industries to the change in farm output. Support for a higher value would be obtained from Henry's 1976 input-output table which shows that every unit of final demand in the food industry is associated with between 0.7 and 0.85 units of primary inputs. On the other hand, the validity of including off-farm value added in the calculation of changes in national welfare depends on the assumption that these primary factors have no social opportunity cost, i.e., no alternative employment. Whatever the case for valuing labour at zero opportunity cost given high unemployment, the same argument is unlikely to extend to capital. On balance, the figure of 0.4 may represent a reasonable compromise.

The significance of including changes in off-farm value added is clearly shown by considering the quota alternative. It is shown in Table 2 that, under all assumptions, the gain to producers from the unrestrained expansion option is outweighed by the higher budgetary costs which Ireland would have to pay. In other words, if the off-farm effects could be ignored, the quota option would not just be the second-best option for Irish policy makers, but the absolutely best one. I merely note that I find this conclusion quite an extraordinary one. It is true that, under the assumptions of GAP-related budget payments and weak world markets all of the restrictive policies turn out to be more favourable than unrestrained expansion, but it can reasonably be argued that this budget assumption is a rather extreme one.

We now turn to look at the findings of the analysis which are summerised in Table 4. I will focus on the objective of minimising the national welfare loss from more restrictive policies.In this case the policies are ranked in the order quotas, levies and price reductions under most assumptions. This ordering basically follows from the close assocation between Ireland's national interest and producer interests. It is well known that, faced with an inelastic demand curve, supply restriction can raise total revenue, so the superiority of quotas over price cuts is easy to rationilise. The levy is better than the price cut because, paying to dispose of the surplus turns out to be a better alternative from a producer point of view than being discouraged from producing it by lower prices.

If we accept these rankings, the question arises what policy makers should do in the light of this information. Here it is important, in addition to the information on the

effects on Ireland of the alternative policy options, to have a judgement on the likely alternative to gain acceptance in staving off the worst possible option. In concrete terms, the choice facing policy makers in Ireland is whether to opt for quotas or levies as the alternative to price reductions. Although the paper implies that quotas are likely to be less damaging to Ireland, it is also important to consider the issue from an EEC point of view.

There are strong arguments in principle against quotas. They would hamper adjustment in European agriculture. If they are administratively feasible at all, they would require enormous bureaucratic control. It is questionable if member states would agree to accept the present distribution on production (in part the outcome of grave distortions in the common price policy) as the basis for quotas for the foreseeable future. Once quotas are introduced, getting rid of them becomes an enormously costly task because the high level of farm prices will be built in to the farmers' expectations and land values. Also, the levy approach is the favoured solution of the powerful Commission, and so on.

On the other hand whether, in the long run, co-responsibility as a permanent feature of the CAP is a desirable thing, remains to be debated. One real problem is that it envisages a very substantial increase in EEC net exports by 1990 of between 45 and 62 per cent depending on the assumptions used. It is possible that the EEC will have difficulty in finding markets at any price for this extra produce, and it is certain that the EEC's trading partners will not take kindly to the thought. The levy approach also retains all the familiar disadvantages of trying to cope with the problem of excess resources in the agricultural sector through action on market prices.

It is therefore a pity that a fifth option, that of direct payments, linked to price reductions, was not considered in the paper. The reason for this may have been that the introduction of direct payments would almost certainly require increased budget resources in the short run. To overcome this, and to keep within the budget constraint, would require a renationalisation of at least part of the direct payments. This alternative has been strenuously opposed within Ireland, but it would not be impossible to design a transfer system under which Ireland would receive the same net benefits as under the present CAP. I was struck by the size of the absolute values of the national welfare losses shown in Table 4. Under the worst scenario, a real income loss to the country as a whole (in 1982 prices) of £160m is associated with a fall in farm prices of approximately 17 per cent in real terms over the next eight years. This is not an unduly large figure, and would not require massive direct transfers to make up. The producer loss would of course be much greater, but some form of transitional aid from the now better off consumers might be instituted to cushion the switch from the high-price policy. I feel the implications of this alternative might be pursued at some later date.

Whichever option is preferred the Society, the farming sector and the country must thank Professor Sheehy for raising the issue in so clear and forthright a manner. I have great pleasure is proposing a vote of thanks.

S. C. O'Shea: It gives me great pleasure to second the motion by Dr. Matthews proposing a vote of thanks to Dr.Sheehy. Dr. Sheehy's paper is very welcome coming as it does at a time when Irish agriculture having come through the difficult times of the past three years now seems set again to continue forward progress. Dr.Sheehy has started a discussion which will be taken up by farmers, politicians, civil servants, financial institutions and all others who are connected with the business of farming. Dr. Sheehy follows a line of agrument which differs very sharply from received opinion; he has issued a challenge to the upholders of received opinion to state their

case again, to examine their case critically and to make up their minds as to the way ahead which we should follow.

Dr. Sheehy clearly sets out the situation facing the Common Agriculture Policy. With the growing pressure on the budget and the 1 per cent limit on the VAT contribution of Members States a very serious problem is arising for that Agriculture Policy. This problem is very acutely concerned with surplus milk. Dr. Sheehy rightly argued that the Council of Agriculture Ministers will have to control the surplus — and finance its disposal.

He then sets out various systems to deal with this problem. His central argument is that of the various possible control methods the one that would suit Ireland best is a system of quotas. Why this startling contradiction of what has been the policy of successive Irish Ministers for Agriculture for many years? Dr. Sheehy's argument is that the belief that Irish agriculture has the potential for increases in its volume of production is a chimera which has drawn us into an intransigent opposition to the super levy which is in effect a quota. We have been besotted by a belief in our potential but there is no proof Dr. Sheehy argues that this potential will be realised. So he argues that with quotas we will have assurances as regards quantity and income, because with quotas we may expect that real prices will be maintained.

I should say at this stage that the views which I give here are entirely my own personal views although I would hope that any Irish official line would be fairly close to what I am saying. I will deal first with the situation which confronted Ireland when the "super levy" proposal was first made by the Commission in 1980. A certain price increase was proposed for milk and along with it there was a proposal that additional quantities over and above production in a base year would be subjected at the level of the creamery to a very severe additional levy, a levy so high that it would meet entirely the cost of disposal of the surplus production on world markets. This Ireland resisted and Dr.Sheehy quotes in his paper the very clear statement of our position then made by the Minister for Agriculture, Mr.MacSharry. Contrary to what Dr. Sheehy says we did not have on offer to use the alternative of a quota (super-levy) with guarantees as regards the maintenance of real prices. No price incentive whatsoever was being offered in return for acceptance of the super levy. The objections of Ireland and some other Members States expecially Germany resulted in the super-levy not being part of the final argument. So much for what happened in 1980, the super levy was not a serious matter of debate in 1981 and 1982. Now as to the future; there is of course a theoretical choice between a system of quotas and protecting real prices on the one hand and on the other hand unrestrained production coupled with low real prices and/or higher levies. This choice does not exist in practice. A 1 per cent increase in the price of milk would cost, at present, the Community budget about 90 m ECU allowing for no deterioration in world markets. The Community is about 20 per cent more than self-sufficient in milk. The budget is under strain and therefore there is no guanantee whatsoever that even with quotas real prices would be maintained. The only way forward for Irish milk production is to concentrate on maintenance and improvement of income through higher production.

This brings up the second arm of Dr. Sheehy's argument. He discounts the possiblity of higher production especially production at a level of increase that will more than match that of other Members States. We have had some good years in the past; increases in milk in the years 1972 to 1979 averaged about 6.5 per cent a year. We have had of course the bad experience of the last three years but these years were especially difficult becasue of the increasing cost of inputs and very unfavourable weather. I think it would be reasonable to assume future increases somewhere in the region of 3 per cent to 4 per cent a year and this increase should make a price and levy arrangement more

favourable than quotas. A proportion of our dairy farmers, (unfortunately as yet much too small a proportion) are capable of much higher milk outputs than the low national average. The thousand and the thousand plus gallon cow is quite attainable. Quotas apart from all the difficulties of administration and the stultifying rigidity which they bring would be a guillotine on the necks of progressive dairy farmers. If the advance of these progressive people is stopped short then what hope have we of improving the others. No, I am afraid we must persist in our belief that our "potential hypotheses" does in fact exist and that our best plan is to continue to resist quotas.

Two final points. First, accepting that the milk surplus and the budgetary situations calls for through special measures then Irish milk producers lose less, as Dr. Sheehy says:

(i) An increased levy applying across the board to all milk producers in the Community coupled with some restraint in prices than they would lose through
(ii) a lesser general levy but greater restraint in prices.

In brief, an increased general levy suits us better than a price cut.

Second — and here I wish to make clear that this thought is entirely my own — would Irish milk producers and the whole Irish milk processing industry in a better ordered Community system not in the long-run gain much more were there to be more drastic pruning of prices in order to deal with surpluses.

I imagine a situation where there is no milk surplus because mainland producers would reduce production and we, with greatly increased volume, would have all the benefits of increased through-put and a market not weighed down by surpluses. Perhaps such a situation demands too many changes and, perhaps, the long-run may be too long, but I would like to put the idea on record. I think it is an idea in the minds of a good many people in different parts of the milk industry, including some producers, but there is a great unwillingness to debate the idea publicly.

C. Lucey: Seamus Sheehy's paper must be welcomed particularly because it quantifies the effects of a number of policy options. Quantification is all too rare these days even by those in the economics profession.

In reaching the conclusions which Dr. Sheehy reached, the state of the domestic economic environment is very important. If farmers in Ireland have the same conditions for the next four years, as prevailed over the past four years, i.e. high domestic inflation without compensating green currency changes, then the prospects of Ireland increasing its share of the EEC food market are very poor, and in that situation quotas may well be the best option. A different economic environment i.e. where price increases match cost increases, might give a different result.

A particular disadvantage of a quota system, from the EEC producers viewpoint, is that it could be seen by consumers and taxpayers as a means of propping up inefficient production. Therefore, there might still be pressure for a "prudent" price policy, even with quotas.

While the results of Dr. Sheehy's paper should be given serious consideration particularly in the context of the weak supply response to declining prices, we may not yet have reached the stage where a final decision must be taken at E.E.C. level. There still are a number of peripheral problems which need to be tackled; e.g. cereal substitue imports, and the taxation of vegetable oils and fats.

E.P. Cunningham: I would like to join the proposer and seconder in complimenting Prof. Sheehy on the quality of his paper, and on the clarity of his analysis. In this

country, we have benefitted from and suffered under the CAP for many years without making much contribution to its evolution, and I hope this paper, with its clear and critical analyses, will form the beginning of a constructive Irish contribution to the debate on European Agricultural Policy.

I do not like Prof. Sheehy's main conclusion. A quota system stops growth. The potential for growth in Irish agriculture is well documented. It is not perhaps equally appreciated how critically important the realisation of this growth is to the future economy of the country, and therefore, how uniquely among our European partners we depend on a favourable CAP. Past experience indicates that, through time, this potential can be developed. It is common with the hindsight of the last two or three years to disparage the technical performance of Irish agriculture. However, if we look back over the last two decades, we find that the growth in net output has been higher in Ireland than in any other European country except the Netherlands. Even there, the comparison shows Ireland in a favourable light since the great uniformity of Dutch agriculture means that practically all farmers contributed to national growth, whereas in Ireland, we have clearly had a two-speed industry, in which one segment accounted for all the increase in output, while a large sector has not changed productivity. By any standards, therefore, the progressive sector in Irish agriculture has out-performed all European competition in the recent past.

Prof. Sheehy has very explicitly outlined the framework for his analysis. It has two quite rigid elements. One is the budgetary limit of "own resources". The other is that since all of agriculture is aggregated together, differential performance for the different commodities, and for the different regions, is not taken into account.

I would like to suggest that if we look at the problem in a different framework, other solutions become possible, and among them there is one which I particularly like. The overall problem is fundementally one of mismatched supply and demand. In the last few decades European agriculture has had a phase of unprecedentd growth in output of all the major commodities. This has been a response to a rapidly growing market, which in turn was due to the growing population and the gradual increase in individual consumption patterns. Both of these elements of growth in the market are now levelling off, and the prospect for the future is for a much more modest growth, and for some commodities, perhaps, even a decline in overall demand. In the meantime, for all of the commodities produced in northern Europe, the Community has an actual or potential excess of production.

As Prof. Sheehy points out, all of these problems become concentrated in financial terms in the single problem of disposing of surpluses outside the Community. The potential growth in demand for export refunds dwarfs all other financial considerations. I would like to suggest that since the EEC is in systemic surplus, it should, as a matter of policy, decide to arrange its affairs so that these surpluses were largely in the form of cereals. This could perhaps be done by maintaining a high producer price for cereals in the Community. This would have multiple effects: (i) promote the transfer of land from animal production to cereal production, thus easing the supply position on animal products; (ii) discouraging excess milk production by reducing the profitability of feeding concentrates to dairy cows; (iii) increase the price of pork and chicken relative to beef and lamb, thus making these latter two meats more competitive; (iv) enhance the value of the grass and forage producing areas of Europe for animal production relative to industrialised cereal-based animal production, thus preserving the demographic structure of European agriculture, and in particular favouring its maritime fringe; and (v) switch the surplus disposal problem from one based on animal products to one based on cereals.

This last point should perhaps be seen in a wider and longer term context. As we move towards the end of this century, the world population will increase dramatically in the poorest countries. Europe's surplus food producing capacity now serves to supply Eastern Europe, the USSR and the rich oil states with animal products at less than cost of production. This external use of Europe's productive resources is difficult to defend to tax payers in the EEC, and will become progressively more difficult to defend on moral grounds in the face of real needs elsewhere in the world. However, the poor countries neither need, nor can afford, the kind of animal products we produce. Grain, on the other hand, is universally useful, either for direct consumption, or for conversion into animal products in the receiving country. As a long term policy, directed not just to the needs of its own agriculture, but also as a response to the real and growing needs of the poorest countries in the world, the EEC should consider systematically exploiting its productive capacity to establish a major food aid programme on a scale, and with a degree of commitment, that has not been considered before.

J. Smith: Like the previous speakers, I would like to congratulate Professor Sheehy on the analysis he has carried out, even if I cannot agree with the conclusions arrived at.

Professor Sheehy based his analysis primarily on the budget problem of the Community and its implications for future price decisions. However the budget situation is not quite as gloomy as that portrayed. While the VAT rate used by the 1982 budget did amount to 0.92, the draft budget for 1983 would, if adopted, use a VAT rate of only 0.75. Furthermore, expenditure on EAGGF in 1982 was much lower than originally forecast. Consequently, while the budget problem continues to be important it will not be the critical factor in the near future when discussing farm price increases. Another important point is that the coresponsibility measures which have been introduced were not just aimed at providing additional funds for the EEC budget — they are also aimed at slowing down the rate of production increases within the EEC.

Some of the member states in the Community, particularly those considered to be anti-CAP, would gladly accept a quota system as a means of curtailing increases in production and cutting back expenditure on the CAP. Such member states would welcome an Irish Minister for Agriculture who advocated a quota system.

Problems between supply and demand will continue to exist for several agricultural products within the Community and further efforts will be made to bring about a better balance. Against this background, the Irish Minister for Agriculture should aim at having measures introduced which would encourage an increase in production in Ireland while at the same time discouraging production increases in other countries. A devaluation of the Irish currency in EMS would encourage farmers in Ireland to expand production while the intensive levy idea put forward by the Commission in October 1981 would discourage certain producers in the EEC, particularly those in Holland, Northern Belgium and Northern Germany. Much can also be done to have a greater application of the principle of Community preference — the New Zealand butter quota should be reduced, cereal substitutes should be taxed in line with their feed value and a tax should be applied to oils and fats which are in direct competition with butter.

The quota system advocated by Professor Sheehy would be the appropriate system for an Irish Minister to pursue if we accept that the cost increases for Irish farmers in future years are to continue at a higher level than in other EEC member states without having compensation in the form of green £ devaluations and special measures negotiated in Brussels. Indeed such an approach would be logical if production increases in Ireland continue to be less than in other members states, particularly when

world market prices are weak. Nevertheless, I feel it would be wrong for an Irish Minister for Agriculture to adopt such an approach in forthcoming negotiations. Instead, I think it would be better for the Irish Minister to seek to have proper compensation given to Irish farmers for their cost increases and at the same time seek to have the intensive levy idea adopted by the Council of Ministers. In the meantime, a flat rate levy system could be considered as an insurance premium and is likely to be less damaging than a quota system which would freeze our production at its existing level. Immediate efforts should also be undertaken to have the present 1 per cent VAT ceiling on the Community budget removed.

B. Riordan: I join in thanking Professor Sheehy for his explicit analysis of possible developments in the working of the E.C. Common Agricultural Policy. One development I would have liked him to consider was the use of money from levies on farm products to increase consumer demand for these products. In Professor Sheehy's analysis the Commission is in the position of a monopolist in the markets for farm products and so he reaches the kinds of conclusions a monopolist would reach on restricting supplies and discriminating between markets. However, would not a real world monopolist also seek to strengthen demand for his products? Indeed there seems to be great scope for defending and extending the markets for meat and milk products and making them more attractive to shoppers. There is also scope for promotion and more efficient organisation of the handling of meat from farm to shopper. Such a programme of action on the demand for farm products funded by levies would be not more than an appropriate response to the aggressive marketing policies of major companies competing for a share of shoppers' spending.

A second advantage of the levy system would be to counter the adverse effects on equity of regional income distribution that has already been caused by the Common Agricultural Policy.

Thus the levy policy could be used to increase the social welfare of both consumers and Irish farmers and that could well make levies as attractive a policy as quotas for Ireland.

J. Durkan: I have just two points to make on the paper presented. First, given the way the supply curve is defined it is not surprising that the results would favour quotas. It is well known that a monopolist can maximise profits by keeping output below that realised under perfect competition. The assumption inbuilt into Professor Sheehy's analysis is that the elasticity of supply across countries with respect to price is equal. If elasticities differ, then Professor Sheehy's results are simply a starting point at a theoretical level. It is necessary to consider different outcomes based on differences in the elasticity of supply between countries at the theoretical level. The next stage is one of applied research where attempts are made to discover differences between countries. If the problem is approached in this way I would not be convinced that the results would be the same for Ireland given that supply conditions differ so markedly between countries for different products and that there would be an advantage to some producers in reducing prices. Second, I am unhappy about the notion of "real" prices as used viz a weighted average of input and consumer prices. The weighted index is trying to do too much — to take account of a terms of trade loss or gain by agriculture and to trap some notion of a terms of trade loss by farmers as consumers. The simplest way to resolve this is not to seek an all embracing index but to look at the terms of trade of agriculture as an industry, the net income of farming, and the income of farmers as consumers relative to consumer prices.

Reply by S. J. Sheehy: The dislike of quotas expressed by the respondents is shared by the author. The author is not "advocating" quotas — the analysis is showing their advantage.

O'Shea and Lucy made the point that real prices might not be maintained within a quota system as assumed in the analysis. This may well be the case but the conclusion is not that a quota system as analysed would then be unattractive but rather that it would be unattainable. A quota system with falling real prices in terms of the analysis would be a mixture of the quota and price approach and would clearly be worse than the "pure" quota approach studied. It would, however, be still better than a price or levy policy without any quotas because the quotas would reduce pressure on the budget and thereby keep prices from falling or levies from rising as much as they would in the absence of quotas.

The belief of O'Shea and Cunningham that Irish agriculture will grow sufficiently faster than EEC agriculture in a common economic environment to make a quota policy less favourable than price or levy policies is typical of Irish thinking but is very much open to question. The fact emphasised by Cunningham that a sub-sector of the Irish industry was dynamic under the favourable conditions of EEC accession is not relevant to the question at issue. No evidence is advanced that future performances will deviate from those of the past.