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The Income Efficiency of Government Expenditure on Agricultural Policy

by Ulrich Koester and Ernst-August Nuppenau, Kiel*

Farming worldwide and national agricultural policies are in a profound crisis. Farmers everywhere are complaining about inadequate incomes. A large proportion of farms are threatened on both sides of the Atlantic, in the EC no less than in the USA. This situation has coincided with a period of intense state intervention in agriculture. Spending on agriculture has risen steeply both in the EC and in the USA. The question arises how much of this farm spending benefits farmers.

The countries that are the main protagonists in world agricultural markets direct their farm policies primarily towards solving domestic problems and put up with any consequential effects they may have in world markets. However, it is precisely these unintentional side-effects of national agricultural policies that intensify policy interdependence, can increase the inefficiency of national policies and cause trade disputes that must be resolved by means of costly compromises. Are these effects unavoidable? Must present policies be retained? The answer to these questions depends partly on the present and expected future income efficiency of government expenditure on agriculture.

Faced with shrinking or stagnating farm incomes but rising government spending, many farmers are now wondering whether present agricultural policies are really efficient, a question other taxpayers have been asking for a long time. One yardstick often used to measure the efficiency of government expenditure is that of income efficiency, in other words the ratio of farm incomes to government expenditure. Prima facie there is undoubtedly nothing wrong in establishing such a yardstick, since governments profess that the primary objective of agricultural policy is to safeguard farm incomes. It therefore seems appropriate to examine the relationship between the realisation of this objective and government expenditure. However, there are several reasons why this should not be the only yardstick by which agricultural policy is judged:

□ Farmers would have earned an income even without government intervention, so that the ratio between total

farm incomes and government expenditure overstates the income growth generated by such spending. If this yardstick is chosen nonetheless for practical reasons, it should always show total income from agriculture to be greater than government spending on the sector. If it does not, government policy would surely have to be regarded as inefficient in terms of the income criterion.

□ Agricultural policy also has other aims, the realisation of which may enhance or detract from the realisation of the income objective. With agricultural policies of the kind pursued hitherto, however, any additional effect is more likely to be negative. Excessively high official support prices not only raise production and thus lead to additional government expenditure, they can also have negative effects through their environmental impact and above all by provoking additional conflicts with trading partners.

□ Public expenditure is generally a poor indicator of the economic costs of government policy. A more decisive factor is the change in social welfare as a result of the policy.¹ The utility non-farmers have to forgo to the benefit of farmers must therefore be examined. It may be far higher than the public expenditure financed out of tax revenues, which must be funded primarily by tax-paying non-farmers. This is particularly true of the EC, where consumers must put up with higher food expenditure as a result of agricultural price support.

¹ A far-reaching synopsis of the methods of welfare-oriented policy assessment is to be found in R. Just, D. L. Hueth, A. Schmitz: *Applied Welfare Economics and Public Policy*, Englewood Cliff 1982. Such assessments have often been made for the farm sector; see for example T. Josling: *Agricultural Policies in Developed Countries: A Review*, in: *Journal of Agricultural Economics*, Vol. 25 (1974), No. 1, pp. 219-260.

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Despite such reservations about using it as the only indicator the yardstick of "income efficiency of public expenditure" can yield valuable information. Should it transpire that expenditure on agriculture has risen faster over time than incomes and that the cost of agricultural policy exceeds farm incomes, the irrationality of the present agricultural policy will have been exposed.² The development of the yardstick over time as it applies to the Federal Republic of Germany will therefore be examined below; the income efficiency of alternative measures will also be illustrated. The implications for future EC agricultural policy will be discussed on the basis of the findings.

Situation in the EC

Unfortunately, it is not possible to obtain complete statistics on farmers' incomes from agricultural and non-agricultural activities or even from the former alone. Of necessity, the net product of the agricultural sector is therefore used initially to depict incomes in the sector as a whole. In so doing, it should be borne in mind that farmers' incomes are not identical with the net product of the sector, which is generated by the totality of *all* factors deployed in agriculture. Part of this must be paid out in the form of rent and interest on external capital lent by non-farmers. It follows that farmers' incomes from

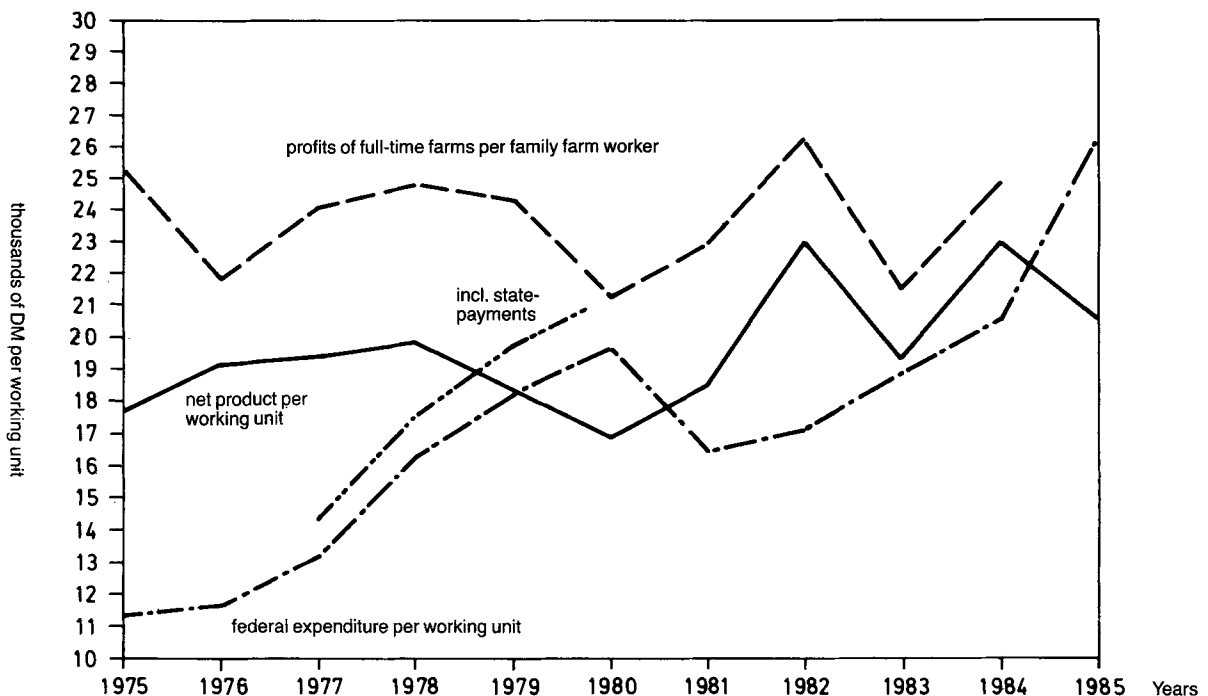
agricultural activities are less than the net product and have also risen by less over time, since rents and the cost of borrowed capital have increased more than proportionally. The average profit per working family member, obtained from a sample survey of farms operated on a full-time commercial basis, is another income variable that is often used. As might be expected, this income is higher than net product per worker, since farms run on a part-time basis are not considered.³ The income variable of profit per working family member is a well-documented measure of comparison, since it is the key yardstick for farmers' organisations in the farm policy debate.

Adequate statistics are not available on expenditure on the agricultural sector in the Federal Republic of Germany as a whole either. The figures used in this article relate only to Federal spending on the EC

² The relationship between expenditure and income has often been pointed out. See for example G. Schmitt, S. Tangermann: *Zur Auswirkung der Agrarpreisstützung auf das landwirtschaftliche Einkommen*, in W. Grosskopf, M. Köhne (eds.): *Einkommen in der Landwirtschaft – Entstehung, Verteilung, Verwendung und Beeinflussung*, Münster-Hiltrup 1984, pp. 759 ff.

³ The 1984-85 sample survey covered 9,516 farms operated on a full-time commercial basis and 686 run as a spare-time occupation; Bundesministerium für Ernährung, Landwirtschaft und Forsten (BMELF): *Agrarbericht 1986*, Bonn 1986, p. 186.

Figure 1
Expenditure and Net Product
per working units (in FR Germany 1975-85)



agricultural policy and Federal outlays on agriculture at a national level; they do not include payments by individual states, which rose steeply after the introduction of milk production quotas in 1984, nor the cost of the bureaucracy required for the administration of the market organisations.

Figure 1 shows that Federal expenditure per full-time worker in agriculture has risen sharply since 1977. In 1980 government expenditure exceeded the net product of the sector for the first time. After this the net product only significantly exceeded government expenditure in one year, 1982. The rapid increase in spending probably continued after 1985, whereas the net product tended to stagnate. A multitude of additional payment obligations have been introduced at national level – such as land set-aside schemes, extensification programmes and the designation of further areas as disadvantaged – and the waiver of revenue is also becoming increasingly common.⁴ In particular, the higher national expenditure promised to farmers in 1984 to compensate for measures taken at Community level entails longer-term payment commitments. For example, figures from the Federal Ministry of Agriculture show that the change in VAT regulations that was passed to favour agriculture will cost a total of DM 18 billion in lost revenue by the time the measure expires in 1991;⁵ the cost in 1987 is put at DM 2.8 billion.

Interpretation

In interpreting the developments portrayed in Figure 1 it should be borne in mind that farm incomes are lower than the net product of the agricultural sector, and that expenditure on agriculture as a whole is higher than shown. Furthermore, as a result of the policy of price support, the sector's net product is higher than it would be without state intervention. Part of the increase in net product is financed not by government spending but by consumers, who pay higher prices for the products they purchase. Hence along with government transfers there are also transfers of income from consumers, although these are not evident from the above calculation.

Figure 1 obviously reflects the average situation of agriculture in Germany and does not apply equally to all farmers, who benefit from government spending to differing degrees depending on their product pattern. The micro-economic portrayal in Table 1, which is based

on typical production procedures, gives an insight into the differences due to product specialisation. It examines the margin farmers earned on the production of various farm products. Only variable production costs were taken into account when calculating the margin. Expenditure specific to each product was determined on the assumption that lower production would give rise to lower surpluses and hence lower expenditure on export subsidies.

Absurdity of Subsidies

The calculations in Table 1 show that the proceeds of direct sales on world markets of the products in question were less than their variable production costs. It was assumed that these surplus products could only be valued at world market prices, since they had found no buyers in the home market. This means that expenditure on the consumption of the variable factors used in their production was already higher than the proceeds of world market sales. The fixed factors of production, such as land, labour and capital, contributed nothing to income; instead, they actually contributed to the wastage of macro-economic resources. It therefore emerges that government expenditure on marketing the products was higher than the income generated by the fixed factors of production (margin). Society would clearly have been better off if less of the products in question had been produced and the producers had been compensated for their loss of income by means of direct transfers. Moreover, these calculations only indicate the lower limit, since the high cost of storage was disregarded, as were the costs which accumulate as products lose value over larger periods of storage.

It should be noted that these calculations obviously represent the situation at a fictitious point in time. World market prices fluctuate substantially and may sometimes differ widely from those used. Output and variable specific costs also fluctuate considerably. Nevertheless, the calculations do illustrate the "absurdity of subsidies".⁶ If expenditure for those working in agriculture is unquestionably higher than incomes and if the proceeds of selling surpluses on the world market are not even enough to cover variable costs, the inefficiency of the common agricultural policy has reached a level that is no longer acceptable.

Price Increases

The calculations described so far portray the average ratio between income and expenditure for the sector as a whole or for particular products. The ratio between

⁴ See the Federal Government's reply to the question tabled by Members of the Deutscher Bundestag, in: Bundestagsdrucksache 10/6337, Entwicklung der EG-Finanzen durch die europäische Agrarpolitik, Bonn 15. 12. 1986, especially the information on reductions in tax receipts, pp. 16 f.

⁵ Cf. BMELF: Agrarbericht 1985, Bonn 1985, p. 84.

⁶ See H. Priebe: Die subventionierte Unvernunft, Landwirtschaft und Naturhaushalt, Berlin 1985, for example p. 148.

marginal changes in income and marginal changes in expenditure as a result of particular policy measures or changes may be of greater interest from the point of view of policy. This is particularly true of the marginal income efficiency of increases in the prices of various products.

Table 2 shows the effect of increases in the prices of various agricultural products from the point of view of income efficiency. It can be seen that in general the income efficiency of price increases is relatively small, that it is still highest in the case of milk and lowest in that

of oilseeds and proteins. The findings come as no surprise; price increases in the milk market are relatively income efficient because quotas prevent them causing any increase in production. Increases in oilseed prices, on the other hand, are relatively inefficient since there is no tariff protection and the increase must be financed entirely from budget resources and not partly through higher private expenditure on purchases of agricultural products, as in the case of milk. In the case of wheat, budget expenditure nevertheless rises faster than

Table 1
Comparison of Income and Expenditure for Various Agricultural Products
in the Federal Republic of Germany

I Arable production (3.29 workers per 100 hectares ¹)					II Milk production (6.07 workers/100 hectares) (0.89 cows/hectare ¹)	
	Wheat	Maize ³	Barley	Rape	a) Specific costs ² , DM/cow	
a) Specific costs ² , DM/ha						
Seed	182.-	235.-	162.-	50.-	Animal losses	55.-
Commercial fertiliser	369.-	443.-	369.-	382.-	Vet. medicaments	80.-
Control of pests & diseases	380.-	60.-	290.-	370.-	Insemination	40.-
Drying	150.-	540.-	130.-	116.-	Milk testing	30.-
Proportional machinery costs	340.-	210.-	340.-	350.-	Proportional machinery costs	55.-
Contract threshing		350.-			Water and power	22.-
Interest on working capital	70.-	45.-	57.-	58.-	Animal feed	570.-
					General costs	22.-
					Interest	146.-
	1491.-	1883.-	1348.-	1326.-		1020.-
					Cost of the cow ⁹	170.-
						1246.-
b) Proportional specific payments, August 1986 ⁴					b) Proportional specific payments	
Price, DM/100 kg, incl. 13% VAT	43.17	42.14	39.32	104.20	Milk price, Pf/litre, incl. 13% VAT	70.9
Harvest: 100 kg/ha	64.4	70.3	51.6	31.8	Milk yield/cow in litres	4824.-
Proportional specific payments in DM/ha	2763.-	2962.-	2029.-	3314.-	Milk in DM/cow	3424.-
					Calving in DM/cow	306.-
					Proportional specific payments in DM/cow	3726.-
c) Margin in DM/ha	1272.-	1079.-	681.-	1988.-	c) Margin in DM/cow	2480.-
d) Subsidies for current world market price in DM/100 kg	12.8 ⁵	14.6 ⁶	16.1 ⁷	25.2 ⁸	d) Subsidies	
					Current world market price ¹⁰	
					in Pf/litre	20.8
					Current Argentine beef price ¹¹	
					in US\$/t	383.-
					Expenditure on milk	2417.-
					Expenditure on beef ¹²	262.-
					Expenditure on veal ¹³	183.-
Subsidy in DM/ha	1977.-	1936.-	1198.-	2512.-	Subsidy, DM/cow	2862.-
e) Proceeds at world market prices, DM/ha	819.-	1026.-	831.-	802.-	e) Proceeds at world market prices, DM/cow	864.-
f) Income efficiency ratio	0.64	0.56	0.57	0.79	f) Income efficiency ratio	0.87

¹ BMELF: Agrarbericht 1986, Bonn 1986, accounting figures. ² From documents of the Institute for Agricultural Management at the Christian-Albrechts University, Kiel, winter term 1986-87. ³ Including contract sowing in the case of maize. ⁴ From BMELF: Statistischer Monatsbericht, No. 12, 1986; maize producer price for September 1986 calculated from ratio of feed barley producer price to farmers' buying price for August 1986 as only buying prices are recorded; rape price, for July 1986, calculated from the price index by comparison with the rape price in BMELF: Agrarstatistisches Jahrbuch 1986, Bonn 1986. ⁵ Current world market price for wheat from "Antwort auf BICEP-Programm, Weizenersatzung auf 145,5 ECU/t", in: Ernährungsdienst, Vol. 42, No. 135, 22.11.86. ⁶ Rotterdam cif price from Ernährungsdienst, Vol. 42, No. 1, p. 3, 8.1.87. ⁷ Calculated on the basis of the subsidy rate for barley from Ernährungsdienst, Vol. 42, No. 1, 8.1.87, and intervention prices from Toepfer International: Die Getreidemarktordnung der EG 1986/87, Hamburg 1986, p. 33 and "Reports", p. 36. ⁸ Calculated from rape intervention prices in BMELF: Agrarstatistisches Jahrbuch 1986, Bonn 1986, p. 270, less assistance for the fourth month after October from Ernährungsdienst, Vol. 41, No. 115, p. 2. ⁹ Heifer (500 kg) = DM 1,667 less old cow (500 kg) at DM 1,103, assuming useful life of four years and discount rate of 0.08%; prices for November 1986 (heifer A or old cow C) from BMELF: Statistischer Monatsbericht, op. cit. ¹⁰ Current world market price of milk calculated from world market price of butter (US\$ 1,134 per tonne) and skimmed milk (US\$ 673 per tonne) on the basis of 22 litres of milk per kg of butter and 11.7 litres of milk per kg of skimmed milk powder; prices from P. S a l a m o n: Die Märkte für Milch und Fleisch, in: Agrarwirtschaft, Vol. 35, No. 12, Hannover 1986. ¹¹ From "Slight Rise in World Beef Prices", in: Agrar-Europe, No. 1216, 2nd January 1987. ¹² Assuming the cow to live for 7 years. ¹³ The beef price has been substituted for the veal price.

receipts, since additional EC wheat surpluses cause world market prices to fall.

It can be deduced from Table 2 that the present degree of income inefficiency of government expenditure on agriculture in the EC is not solely a consequence of the policy of price support; the plethora of special measures introduced to administer individual agricultural markets also contributes greatly to inefficiency. Here are just a few examples:

□ The organisation representing pig farmers in the district of Lüneburg wrote an open letter to the Chairman of the Farmers' Association of Lower Saxony complaining that for several years the use of skimmed milk as an animal feed had been promoted more strongly through subsidies on skimmed milk powder than subsidies on liquid skimmed milk. As they point out, drying skimmed milk powder costs DM 650 a tonne, far more than the feed value of skimmed milk, given soya

prices currently between DM 40 and 43 per 100 kg. It is therefore clear that the production of milk powder will always be a waste of economic resources – and government funds – if there is the alternative of using skimmed milk in liquid form as a feedstuff. This example also shows that government spending on agriculture can generate increases in income outside the sector rather than within it, for no firm would invest in a milk drying plant if there were no profit to be made; in addition, staff must be taken on and paid.

□ According to the EC Commission, the cost of storing butter is currently ECU 370 a tonne. Butter that has been stored for more than three years cannot be sold as normal butter, so that its price is similar to that for vegetable and animal oils and fats. The Commission therefore sells three-year-old butter to the Soviet Union or to EC animal feed producers at a price well below three years' worth of annual storage costs.⁷ Money could therefore have been saved if the butter had not been stored for a second or third year but had been marketed on special terms in the first or second year.

□ The export of agricultural products is a serious economic headache for the EC. Studies on the grain export market have shown that the present system offers grain exporters no incentive to export at the time of year when world grain prices are high.⁸ Here too, government funds are squandered and high economic costs incurred.

Table 2
Effect of a 1% Price Increase on
EC Expenditure and Farm Incomes

	Wheat	Barley	Maize	Oilseeds (rape)	Milk
Expenditure growth in DM millions	281	149	56 (waiver of revenue)	76	255
Income growth in DM millions	259	149	88	39	767
Income growth per hectare in DM	22	17	29	31	32 (per cow)
Income efficiency quotient = income growth expenditure growth	0.92	1.01	1.57	0.51	3.01

Notes on the basis of calculation:

General: A demand elasticity of -0.2 and a supply elasticity of 1 in the home market and in third countries have been used. It has been assumed that there is no expansion in the area of land under cultivation. Income has been calculated in the form of producer's rent.

^a Wheat, barley and maize are eligible for export subsidies; EC maize production still cannot meet demand, so that the waiver of EC receipts has been calculated as expenditure. Prices are derived from Table 1 (q.v. for sources) and volumes from Commission of the European Communities: The Agricultural Situation in the Community, 1985 Report, Luxembourg 1986; figures on world trade volumes are from US Department of Agriculture: Background for 1985 Farm Legislation, Nos. 467 (wheat), 477 (barley) and 471 (corn).

^b Oilseeds: deficiency payment system; rape prices from Commission of the European Communities, op. cit., and world market price as in Table 1 (q.v.); volumes from Statistical Office of the European Communities: Crop Production, No. 4, 1985.

^c Milk: compliance with EC quota of 102.8 million tonnes is assumed. Figures from M. Kelle: Aktion Kälberbutter. Ein neuer Versuch zum Überschubabbau, in: Agra-Europe, Vol. 41, No. 48, 1.12.86, Dokumentation, p. 2; world market share from Bureau of Agricultural Economics (BAE): Agriculture policy in the European Community, their origin, nature and effect on production and trade, policy monograph No. 2, Canberra 1985, p. 230; Australian milk price of 18.7 Australian cents per litre used as the world market price, from BAE: Quarterly Review of Agricultural Economics, Vol. 8, No. 1, February 1986, p. 102; the mathematical procedure is that described in C.-H. Hanf, U. Koester: Milchpreissenkung und Einkommensübertragung, Schriftenreihe des Bundesministers für Ernährung, Landwirtschaft und Forsten, Landwirtschaft-Angewandte Wissenschaften, No. 236, Münster-Hiltrup 1980, pp. 172 ff., except that the quota prevents any change in volume.

Situation in the USA

It is not only in the EC and the Federal Republic of Germany but also in the USA that the income efficiency of government expenditure on agriculture has declined over the years. Figure 2 shows that the trend of net farm incomes in the USA has ceased to rise in the eighties, but that government farm expenditure has soared. However, this alone does not indicate whether agricultural policy has actually become less efficient; this can be determined only by comparing the behaviour of expenditure and income under the present policy and under an alternative policy. Such a comparison has been carried out by the US Department of Agriculture, postulating a policy without commodity programmes as an alternative to the policy pursued until 1985. The results of the comparison are summarised in Table 3. Farm incomes would probably have been lower without

⁷ With regard to the problems this causes in the markets, see P. Salamon: Die Märkte für Milch und Fette, in: Agrarwirtschaft, Vol. 35, No. 12, Hanover 1986, pp. 408-425.

⁸ See U. Koester: Policy Options for the Grain Economy of the European Community: Implications for Developing Countries, IFPRI Report No. 35, Washington 1982, especially pp. 38 ff.

commodity programmes, but the income growth attributable to the programmes is less than government expenditure. The policy can therefore be described conclusively as being inefficient from the point of view of income.

The increasing income inefficiency of government expenditure on agriculture is evident not only in the EC and the USA; similar developments are also suspected in other industrialised economies. Some of the reasons are applicable generally, but others are specific to the EC or to the USA.

Causes Specific to the EC

The income inefficiency of government expenditure indicates that there is seepage in the transfer of income from non-farmers to farmers. The extent of the seepage obviously depends on the transfer mechanisms used. It will be demonstrated that the instruments of agricultural policy used hitherto are characterised by a high level of seepage and are therefore increasingly inappropriate as a means of increasing the income of the majority of farmers. Since the Common Agricultural Policy has concentrated so far mainly on supporting farm prices within the Community, it will be shown above all that the system of price support has become less and less income efficient. The following have been contributory factors:

□ Since the increase in domestic production has been far in excess of the rise in domestic demand in nearly all markets, the EC has become an important exporter of most agricultural products. However, the present organisation of the agricultural markets was designed for a Community that needed to import most foodstuffs, so that the use of the instruments in the changed supply situation has led to increasing government expenditure. The income effect of price support is not affected by this, however. At the same time, the enlargement of the Community from the original six members to twelve today helped change the Community's role in world agricultural markets. Growing EC exports are now depressing world market prices and thus placing additional strain on the Community's finances.

□ It is widely recognised that EC expenditure has also been swollen by the so-called open flank of the Common Agricultural Policy. Differences between the protection given to temperate products, most of which can be produced in the EC, and that given to imported products that compete with these temperate products have meant that imports of oilseeds and tapioca have

increased substantially, displacing home-produced animal feeds.

□ The preferential trade agreements concluded by the EC have contributed substantially to the increase in government expenditure on agriculture and hence to its declining efficiency from the point of view of income. Primarily on political grounds, the EC felt obliged to conclude preferential trade agreements with various countries, especially the ACP states.⁹ Under these agreements the countries in question can export certain agricultural products to the EC at reduced rates of customs duty or duty-free. For example, the EC is obliged to import 1.3 million tonnes of white sugar and substantial quantities of beef and butter, even though the Community already produces large surpluses of these products. These imports naturally push up expenditure on storage and export subsidies.

□ Expenditure has also become more inefficient as a result of greater government intervention in the agricultural markets, however. Additional market organisations have been created and policies have been established that have very low income efficiencies, for example the organisation of the sheepmeat market,

Table 3
USA: Selected Government Expenditure and Farm Income under Permanent Legislation and No-support Scenarios
(in US\$ billions)

	1985	1986	1987	1988	1989	1990
A: Permanent legislation						
- Expenditure incl. accumulated interest costs	9.0	21.00	23.65	30.10	39.10	50.80
Change from previous year		12.00	2.65	6.45	1.0	11.7
- Net farm income	26.7	27.8	28.1	29.2	30.7	32.8
Change		1.1	0.3	1.1	1.5	2.1
B: No-support						
- Storage costs		0.77	0.74	0.71	0.64	0.49
- Returns on sales (negative costs)		0.00	-0.30	-0.36	-0.87	-1.71
- Accumulated interest costs		0.05	0.13	0.17	0.19	0.90
- Total expenditure (negative = revenue)	9.0	0.82	0.57	0.52	-0.04	-1.14
Change from previous year		-8.18	-0.25	-0.05	-0.56	-1.10
- Net farm income	26.6	15.2	15.1	17.8	16.1	16.8
Change from previous year		-11.4	-0.1	2.7	-1.7	0.7
C: Difference in change of expenditure (A versus B)		20.2	2.9	6.5	1.6	12.9
D: Difference in change of income (A versus B)		12.5	0.4	-1.6	3.2	1.4
E: Coefficient of change (C/D)		1.62	7.25	5.1	0.5	9.2

Source: Based on US Department of Agriculture: Possible Economic Consequences of Reverting to Permanent Legislation or Eliminating Price and Income Supports, Agricultural Economic Report No. 526, Washington 1985, pp. 41 and 66.

⁹ That is to say the signatories to the Lomé Convention.

and the protein and oilseed policies. Even the introduction of milk quotas, which was supposed to help reduce expenditure, has, at least to date, led to an increase in spending. Substantial sums have been spent at national level alleviating the hardship caused by the imposition of quotas.

Causes Specific to the USA

The factors that have contributed to the substantial increase in US expenditure on agriculture in the eighties are partly the outcome of the situation prevailing during this period, and hence temporary in nature, but they also partly reflect a trend.

- The high dollar exchange rate greatly raised the cost of US grain market policies. The loan rate for cereals in the USA should be regarded as the minimum price for farmers participating in land set-aside programmes. The high dollar increased this price for foreign buyers of grain, with the result that the government's stockpiles of grain mounted.
- Overflowing government stockpiles and a contraction in the US share of the world cereals market prompted the Administration to implement special export promotion programmes which have proved very costly. Of every \$ 10 spent in export subsidies, \$ 4 go to the foreign consumer and only \$ 6 to the domestic producer.¹⁰ It would therefore be far cheaper to aid the producer by means of direct transfer payments.
- The drastic deterioration in the incomes of American farmers and the poor sales prospects in world markets

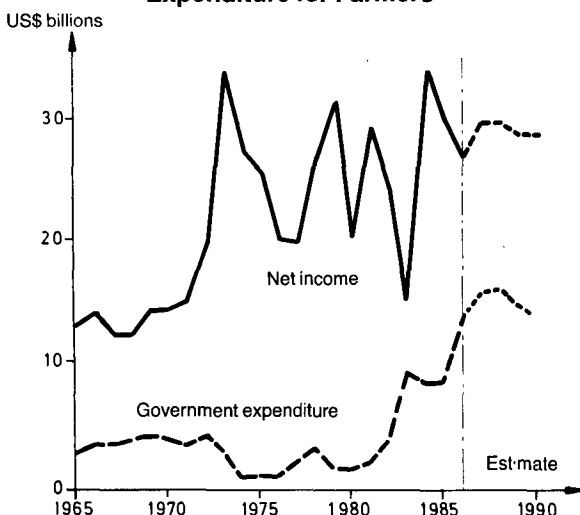
have led the Administration to curb the production of grain (wheat and maize) and milk.

General Causes

Agricultural policymakers in both the EC and the USA are confident that farm incomes can be raised in both the short and the long run by means of official price support. However, it can be shown that price support policies lead to decreasing income efficiency over time, for the following reasons:

- It is often overlooked that production conditions in agriculture have changed radically. Agriculture is becoming increasingly integrated into the economy. More than 50 % of every Mark that German farmers receive from the sale of their products is already spent on intermediate inputs, and this proportion is still rising. For example, if the constraints on the substitution of intermediate goods for the sector's own production factors, in particular land and labour, ease as a result of improved techniques, in other words if the elasticity of substitution falls, rising farm prices may cause the sector's value added to diminish as a proportion of the total product value. A growing share of price support payments will therefore accrue to producers of intermediate inputs.
- Experience throughout the world has shown that farm price support can indeed raise sectoral incomes but cannot increase labour incomes significantly, if at all. Higher product prices only lead to higher prices for land and quotas, if these are introduced for various products as production rises.

Figure 2
Farm Incomes in the USA and Government Expenditure for Farmers



Source: G. Miller: *The Political Economy of International Agricultural Policy Reform*, Canberra 1986, p. 18.

- It should not be overlooked that institutional arrangements lead to an increase in expenditure over time, since they naturally have their weaknesses and afford opportunities for circumvention or even illegal exploitation. The more widely known the loopholes in a system become, the more breaches of the system there will be.

- Another reason why the income efficiency of expenditure on farming in the industrialised countries has diminished in recent years is that the national agricultural policy of one country has a greater propensity to cause an increase in spending in other countries. This interdependence is particularly true of the two largest agricultural exporters, the EC and the USA. Increasing agricultural trade conflicts and costly attempts to find solutions are the result. One example that stands for many is the compromise reached

¹⁰ American Enterprise Institute, *Legislative Analyses. Issues in 1985 Agricultural Legislation*, Washington D.C. 1985, p. 12.

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Rolf Jungnickel, Axel Gerberding and Ulrike Maenner

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(CONDITIONS FOR INVESTMENT IN THE ASEAN REGION)**

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Klaus Fertig

**ÖLANGEBOTSMODELLE:
ENTSCHEIDUNGSHILFEN FÜR DIE WIRTSCHAFTSPOLITIK?
(OIL SUPPLY MODELS:
DECISION-MAKING AIDS FOR ECONOMIC POLICY?)**

In the years 1973/74 and again in 1979/81 the world economy was shaken by steep increases in the price of oil. Adjustment to high energy prices became a central task for economic policy both in industrialised countries and in the Third World. This book examines the question, whether and in what way the numerous models designed to explain future oil supply are able to provide the oil-importing western industrialised countries with decision-making aids for the evaluation of the supply situation during the critical phase of the next twenty years. The author lays particular emphasis on optimization models, which are based on the theory of exhaustible resources, and which allow the price and quantity decisions of the oil-suppliers to be derived from the model. (In German)

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between the EC and the USA in January 1987, under which the EC, or more specifically Spain, must import additional grain from the US even though the EC already produces a grain surplus. These additional imports into the EC are bound to be matched by additional exports of grain from the Community, diverting trade and incurring additional government expenditure.

Resistance to Reform

The above exposition of the causes of the increasing income inefficiency of government expenditure on agriculture has demonstrated that political decisions have had a major influence. In some areas it should be obvious that changes in policy could increase income efficiency. For example, it can be shown that removing the quota system from the EC's milk market organisation could produce expenditure savings substantially greater than the corresponding loss in farmers' incomes.¹¹ Direct transfers to farmers would therefore compensate for their loss while at the same time raising the income efficiency of government expenditure. The question thus arises why it is next to impossible to modify the Common Agricultural Policy so that income efficiency is increased.

The Common Agricultural Policy demonstrates particularly clearly how strong the status quo can be. Past policies have created vested interests among the producers of agricultural products, firms upstream and downstream of agriculture, and also among individual member countries. For this reason a policy change that may necessarily harm individual sections of society is difficult to achieve. This is especially true where any change requires the approval of all those affected, as is the case at present in the EC as a result of the de facto unanimity rule. A situation can therefore arise in which measures that are clearly beneficial to the EC as a whole, and to the majority of member countries, cannot be implemented because individual member countries would be prejudiced. Compensation for damage could be agreed to, but it can often not be arranged quickly enough.

Selected Policy Proposals in the EC

Negotiations are now under way on a series of policy proposals that should help improve the situation. The German Government, in particular, has distinguished itself in this regard. Some of its proposals are discussed briefly below. Attention is focused mainly on income efficiency, but account must also be taken of their

macro-economic effect, in other words the effect on the efficiency of the economy as a whole.

1. *Promotion of protein production.* In an article entitled "Agricultural policy under pressure for change"¹², the Federal German Minister of Agriculture, Ignaz Kiechle, says that increasing the production of products in which the Community is not self-sufficient may be one way of curbing the excess production of other products. In particular, he believes that the market in home-produced pulses could be expanded.

If it is assumed that the output of these products can be stepped up only by paying financial inducements, it should be obvious that such an expansion would inevitably cause a substantial increase in expenditure; by the very nature of the system, the additional spending must always be greater than the rise in farm incomes.

2. *Subsidies to reduce capacity.* There appears to be general agreement that a reduction in farm output is necessary on both fiscal and macro-economic grounds and that this should go hand in hand with a reduction in the area of land under cultivation. Under free market conditions, the least productive land would indeed be taken out of use. Herr Kiechle suggests, however, that this should be effected not by market mechanisms but by government intervention. He advocates that areas used hitherto for food production should cease producing for the market for a set period. Voluntary land set-aside schemes should operate throughout the EC in exchange for financial compensation.

The calculations presented above have shown that such a measure may indeed be preferable to the present arrangements from the fiscal point of view, but in macro-economic terms it is inferior to land set-aside effected by price reductions. If the state offers financial incentives to take land out of production, there is no guarantee that the land left fallow will be the least productive. Instead, the guaranteed volume arrangements in the milk market have shown that there is reason to fear that quotas for agricultural land would be allocated on a national basis and that land might also be taken out of cultivation in regions with comparative advantages in agricultural production. Official intervention entails forgoing the exploitation of a scarce production factor. If this measure were adopted, existing problems of distribution would cause the efficiency of the overall economy to decline.

It must also be pointed out that taking land out of production temporarily cannot solve the problem of increasing surpluses and agricultural expenditure over

¹¹ See A. S. Friedeberg: Three methods of reducing EEC milk supplies, in: Food Policy, Vol. 10 (1985), No. 3, pp. 199-201.

¹² See I. Kiechle: Agrarpolitik im Zwang zur Neuausrichtung, in: Berichte über Landwirtschaft, Vol. 64, No. 4, November 1986, p. 520.

the medium-to-long term with certainty. If the land is brought back into use when the arrangement expires, the surpluses will return to their old level. Moreover, it should be borne in mind that yields will increase on the remaining cultivated land, so that if one really wanted to solve the problem of growing surpluses by means of land set-aside schemes even more land would have to be taken permanently out of production. Farmers would therefore see their production base being progressively eroded, which would probably meet with mounting resistance despite any compensatory payments.

3. *Reduction in the level of farm prices and direct transfers to compensate for losses of income.* Even representatives of farmers' organisations would probably not deny that their members' incomes depend heavily on political decisions. Until now, a larger proportion of their politically determined income has been provided by means of price support than by direct financial aid. Consideration should be given to achieving the politically desired rise in farm incomes less by supporting prices and more by means of direct transfer payments. One argument that has been put up against this proposal is that government spending on agriculture would continue to rise. The calculations presented above prove, however, that this argument

does not hold water in a large part of the sector. It should also be borne in mind that the enlargement of the EC has given it greater dominance in world markets and that mounting Community surpluses therefore increasingly depress world market prices and lead to additional expenditure. If it were possible to reduce the surpluses by cutting EC support prices, the Community would at the same time be helping to raise world market prices. Community expenditure on export subsidies would therefore decline not only because of a contraction in the volume of exports but also because the subsidy per unit of exports would fall. Another consideration is that a system of direct transfer payments and lower support prices would allow assistance to be focused better on areas of social need.

4. *Multilateral or bilateral policy co-ordination.* It is undoubtedly true that both the EC and the USA could unilaterally increase the income efficiency of farm expenditure and reduce the economic costs of their agricultural policies without the co-operation of their trading partners. However, the strains of the necessary domestic adjustment could be reduced if several countries, or at the least the EC and the USA, simultaneously modified their agricultural policies in the same direction.

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