

Measuring Regional Variation in Farm Support: Wales and the UK, 1947-72*

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Abstract

This article uses the Producer Subsidy Equivalent (PSE) method of measuring farm support as a basis for quantifying the subsidies provided in the UK as a whole and the region of Wales between 1947 and 1972. The results demonstrate that when expressed as a percentage of the value of production, the PSE was on average higher in Wales than the UK as a whole. This was partly a product of the spatial dimension to UK farm policy provided in the form of hill farm subsidies. However, market price support dominated farm policy expenditure which, along with headage payments and improvement grants, tied the benefits of support to the scale of production. This penalized Wales where farm size was smaller on average than in the UK as a whole. Indeed, when the PSE results are expressed per hectare and per farm they show that hill farm subsidies were not sufficient to compensate for the disadvantage Welsh agriculture experienced from its smaller average farm size.

THE spatial dimension of agricultural policy is gaining increasing prominence in current debate. The issue is particularly exigent in the EU where enlargement, subsidiarity and future CAP reform are focusing attention on the question of how support can be more effectively targeted to particular regions and farms. A major product of this is increased pressure for a shift of policy competence back from EU institutions to national ones. Support for such a change is growing strongly in the UK owing to the high net cost of the CAP to the country and the continuing strains in the UK governments relationship with the EU.¹

The assertion that national governments are more likely to cultivate regionally variable measures of farm support would appear, *prima facie*, to be supported by historical experience, and the commitment to hill farm support consolidated after the Second World War. Indeed, the UK government was determined to defend

these subsidies upon entry to the European Community in 1973, citing their critical importance to the economic fortunes of hill farmers in regions such as Wales.² As yet, however, the precise scale of importance of these subsidies has not been measured because of a lack of quantification of the total amount of support received at the sub-national level.

In the light of this, the aim of this article is to measure both the regional dimension to pre-CAP UK farm policy (ie objectives and instruments) and the outcome of this in terms of the geographical distribution of support. More specifically, the article will measure the amount of farm support provided between 1947 and 1972 in the UK as a whole and in the region of Wales where hill subsidies were deemed to be particularly important. The purpose of this analysis is twofold: firstly, it will provide answers to questions about the significance of regionally variable subsidies in the UK in the period of national autonomy over farm support; and secondly, it will highlight the potential role for the sub-national

*I am indebted to staff at both the Welsh Office Agriculture Department and the Ministry of Agriculture, Fisheries and Food for their help in collecting the data for this paper. I am also grateful for the comments and suggestions of two anonymous referees.

¹R. Kjeldahl and M. Tracy, eds, *Renationalisation of the Common Agricultural Policy?*, Copenhagen, 1994; P. Minford, 'Deal of understanding after the Beef War', *European Jnl*, 1996, p. 10.

²Cmnd 4289, *Britain and the European Communities: An Economic Assessment*, HMSO, 1970, p. 17.

quantification of farm support in both historical and contemporary policy analyses.

I

The 1947 Agriculture Act consolidated and extended state support for UK agriculture and therefore provides a useful starting point for this analysis. Building upon 1930s policy developments and embracing the lessons of wartime experience, the act affirmed the purpose of and mechanisms for farm support in the UK. Deficiency payments were the favoured tools of support. Under this scheme, farmers were guaranteed a certain market price while consumers paid the price freely determined by supply and demand. If the price consumers paid fell short of the guaranteed price, the difference was made up in the form of subsidies from the government.

This scheme was favoured because it allowed both low food prices and easy import access to a country only 65 per cent self-sufficient in food. Over 80 per cent of agricultural output was initially covered by the scheme which aimed to encourage a 20 per cent increase in production by 1952 and stabilize and support the level of farm income. Price guarantees were set on the basis of average industry costs.³ This inevitably penalized smaller than average farms and those farm types with higher than average costs. This implied that the performance of UK aggregate income was emphasized over that of particular regions or types of farms.

Price guarantees were accompanied by input subsidies and improvement grants which increased in number and type over the 1950s and 1960s. These were specifically designed to lower farm costs, encourage the use of modern technology and so contribute to production expansion.⁴

The payment of direct subsidies on hill

livestock represented the only deliberate attempt to channel extra support to clearly defined geographical areas. These began in wartime and were continued by the Hill Farming Act of 1946 and the Livestock Rearing Act of 1951. These subsidies were primarily designed to ensure that hill farms provided sufficient stocks for lowland breeding purposes in line with the government's livestock production objectives.⁵

These subsidies were destined to be of particular importance in Wales where with 80 per cent of farmland subject to severe crop-growing limitations, hill cattle and sheep farms accounted for over 60 per cent of farm holdings. Indeed, the Welsh agricultural sector has traditionally appeared distinctive in its UK context. In terms of structural characteristics, output per hectare of farmland (or land productivity) in the region was some 30 per cent below the UK national average in 1947, while mean farm size was some 50 per cent below the UK figure. Agriculture has also traditionally occupied a relatively more important socio-economic role in Wales than in the UK as a whole. In 1947, farming accounted for 9.3 per cent of Welsh GDP and 6.3 per cent of UK GDP. By 1995, the figures were 2.1 per cent and 1.5 per cent respectively. Agricultural activity remains of critical importance to the Welsh rural economy, the management of the environment and the preservation of the minority Welsh language.⁶

II

An appropriate measure of the amount of support made available in the UK and Wales from 1947 must, therefore, be one which measures both price support and the subsidies made available as improvement

³ Cmd 8239, *Fixing of Farm Prices 1951*, HMSO, 1951, p. 4.

⁴ *Ibid.*, p. 3.

⁵ Cmd 8556, *Annual Review and Determination of Guarantees 1952* [hereafter *Guarantees*], HMSO, 1952, p. 4.

⁶ M Haines *et al.*, *Agriculture and Rural Wales*, Report of a working party to the Campaign for the Protection of Rural Wales, Welshpool, 1991.

grants and hill farm support. OECD practice is to use the Producer Subsidy Equivalent (PSE) method, as developed by Professor Tim Josling.⁷ The PSE is a measure, for each commodity, of the total value of transfers from consumers and taxpayers to producers resulting from a given set of agricultural policies at a particular point in time. It has the advantage of combining the measurement of market price support with the amount of subsidies provided as direct payments (which do not raise consumer prices), and indirect or other support such as capital grants and input subsidies.⁸

The OECD has calculated and published PSEs for its member countries since 1979. However, for the EU countries the calculations pertain only to the EU as a whole.⁹ As yet, no attempts have been made to produce PSE estimates for individual EU countries and their regions. Nevertheless, the OECD has recognized that more disaggregated PSEs may have an important role to play in analysing the effectiveness of past, present and future agricultural policies.¹⁰ By applying the OECD's methodology, disaggregate PSE estimates have been produced in this study for Wales and the UK from 1947 (the year of the Agriculture Act) to 1972 (the year before entry to the EC). This is therefore a pioneering study which will not only shed important light on the potential uses of disaggregate PSEs, but will also yield new insights into farm support in this particular historical context.

Since Wales is part of the UK, it could be argued that this analysis involves double-counting. A comprehensive breakdown of UK support between all four constituent countries of the UK would indeed be

informative and is a potentially fruitful area for future research. Nevertheless, as a starting point for an analysis of the regional variation in UK farm support in this period, the Wales-UK dichotomy offers a useful standard for comparison.

Estimates have been made for eight commodities accounting for over 95 per cent of the total value of UK agricultural output (see Appendix, Table A1). For each commodity, the gross (or net) PSE is calculated as:

$$\text{Gross(Net) PSE} = \text{MPS} + \text{DP} + \text{OS}(-\text{FA}) \quad (1)$$

where MPS = market price support, or the amount spent on supporting the prices farmers receive; DP = direct payments, which refer to all subsidies paid directly to farmers which do not raise product prices; OS = all other support, which includes all production and improvement grants designed to modernise farms and encourage increased productivity; FA = Feed Adjustment, the extent to which feed costs are inflated by market price support on cereals. More detailed information on the methodology used to calculate PSEs for Wales and the UK is contained in the Appendix.

For individual commodities the rate of farm support can be expressed per unit of output (PSEu):

$$\text{PSEu} = \text{PSE}/Q \quad (2)$$

Since it is inappropriate to aggregate different commodities in tonnes, the rate of farm support for all commodities together is expressed as a percentage of the adjusted value of production (AVP) where:

$$\text{PSE Equivalent (\%)} = \frac{\text{PSE} * 100}{\text{AVP}} \quad (3)$$

where

$$\text{AVP} = (Q * P) + \text{DP} \quad (4)$$

III

Table 1 presents a summary of the calculations of the gross (or net) and percentage

⁷ FAO, *Agricultural Protection: Domestic Policy and International Trade*, C/73/LIM/9, Rome, 1973.

⁸ G H Peters, 'The interpretation and use of Producer Subsidy Equivalents', *Oxford Agrarian Studies*, 13, 1988, pp 1-13.

⁹ OECD, *Agricultural Policies, Markets and Trade: Monitoring and Outlook*, Paris, annual.

¹⁰ OECD, 'Modelling the effects of agricultural policies', *OECD Econ Stud*, 13, 1989-90, p 37.

TABLE 1
 Producer Subsidy Equivalents (PSEs) for Wales and the UK 1947-72

		1947	1948	1949	1950	1951	1952	1953
Gross PSE (£m)	Wales	14.4	18.6	22.4	20.8	22.8	25.8	25.9
	UK	115.5	174.0	222.3	198.1	239.3	268.4	289.2
PSE %	Wales	45.5	45.6	50.3	43.3	45.5	47.2	44.1
	UK	25.8	31.1	36.1	29.5	33.8	33.6	31.7
		1954	1955	1956	1957	1958	1959	1960
Gross PSE (£m)	Wales	26.3	25.2	26.9	22.9	21.6	29.8	32.7
	UK	302.5	332.0	320.5	383.3	445.1	378.0	400.9
PSE %	Wales	44.9	42.6	42.6	42.0	42.2	45.4	49.8
	UK	31.8	33.8	32.2	38.5	41.7	36.3	38.1
		1961	1962	1963	1964	1965	1966	
Gross PSE (£m)	Wales	41.6	34.0	27.8	32.3	30.3	31.8	
	UK	454.4	439.9	426.0	363.3	290.8	331.5	
PSE %	Wales	58.1	48.8	42.3	44.5	42.2	40.8	
	UK	40.6	42.4	41.1	32.4	22.4	27.2	
		1967	1968	1969	1970	1971	1972	
Net PSE (£m)	Wales	36.3	40.4	36.6	37.3	40.5	40.5	
	UK	416.0	340.9	354.9	355.4	451.4	308.2	
PSE %	Wales	44.2	46.3	41.4	39.7	40.1	35.8	
	UK	29.9	23.6	23.9	22.0	25.0	15.6	

Source: PSE calculations; see Tables A2 and A3 in Appendix.

PSE for Wales and the UK from 1947 to 1972. The Appendix presents the results in greater detail.

The results demonstrate that Wales consistently received a higher percentage rate of agricultural support than the UK average. The gap between the percentage PSE in Wales and the UK as a whole averaged 12.9 percentage points over the entire period. Some 8.6 percentage points of this were accounted for by the higher rate of market price support (MPS) received in Wales, 2.4 percentage points by the higher rate of direct payments (DP), and 1.9 percentage points by the higher rate of other support (OS) received in the region. Welsh agriculture therefore enjoyed a higher than average margin of protection on the value of its output, suggesting that the spatial dimension to UK agricultural support was indeed successful at targeting extra support to Welsh farmers.

IV

The higher percentage rate of market price support in Wales was not a product of higher regional producer prices. Closer analysis of the individual commodity PSEs expressed per unit of output reveals that differences in support levels between Wales and the UK were caused almost entirely by different (generally higher) unit levels of direct payments and other support in Wales. For example, over the 1947-72 period on average, the unit PSE for beef/veal was some £55.10 per tonne higher in Wales than the UK. Some £33.90 of this could be accounted for by higher direct payments per unit of beef output in Wales, and the rest by the higher unit rate of other support on beef in the region.

The only exception to this was milk where there was a small difference in regional prices as a result of the pricing policy of the Milk Marketing Boards

established in 1933. On average over the 1947-72 period milk prices in Wales were 2.5 per cent higher than in the UK as a whole. These higher prices were designed to cover the extra transport costs of collecting milk from remote hill farms in the region.¹¹ For all other commodities the UK government set support prices and adopted a uniform pricing policy for the whole country. The government was not prepared to sacrifice the administrative simplicity of its price support policy which set prices on the basis of the costs of an average-sized farm.

This uniform pricing policy discriminated against Wales. This was because support was allocated per unit of production, so that the more farmers produced the more subsidy they received. Smaller than average farms, which predominated in Wales, therefore received less than average support. This prompted one Welsh MP to call for the introduction of regional prices in 1968, claiming that 'unless such a system is created to take account and acknowledge the...different circumstances which exist between Welsh agriculture and the general agriculture of the UK, there will never be a satisfactory system of price determination for Welsh agriculture'.¹² The government rejected this proposal on the grounds that it would be impracticable and costly to implement.

Neither was the union lobby predisposed to fight for flexible pricing. The position of power held by the National Farmers Union (NFU) in the policy-making process was built on its claim to represent the interests of UK agriculture as a whole.¹³ It was therefore continuously forced to balance the needs of both cereal and livestock producers, and smaller and larger farmers. The perceived failure of the NFU to

represent the interests of Welsh livestock farmers ultimately led to the formation of the Farmers Union of Wales (FUW) in 1955. However, the NFU's exclusive position in the policy-making process at that time meant that FUW proposals for differential prices could not penetrate policy discussions.¹⁴

The higher percentage PSE in Wales is instead explained by the variation which existed in levels of price support between different commodities and therefore farm types. In other words, the geographical variation in production gave rise to an inevitable degree of variation in the level of market price support (Table 2).

The higher percentage rate of market price support in Wales was caused by the fact that price support was highest on milk, the commodity which dominated Welsh agricultural production (Table 3).

Table 3 shows that milk consistently enjoyed the highest rate of support. This was a result of its consumer importance and a tradition of protection dating back to the establishment of the Milk Marketing Board in 1933. When a surplus developed, a 'Standard Quantity' or limit on the output of milk subject to guarantee was introduced in 1954.¹⁵ However, this resulted in only a marginal reduction in the rate of price support. Moreover, the rate of production expansion actually increased from 1.8 per cent a year between 1950 and 1960, to 1.9 per cent between 1960 and 1970. Other livestock products were less heavily protected than milk and, as with crops, saw their rates of support change directly in accordance with the government's production objectives. Price support on pigmeat rose until the mid-1950s when a surplus developed, culminating in the introduction of a Standard Quantity in 1961.¹⁶ Prices were increased again after

¹¹ Milk Marketing Board, *Dairy Facts and Figures*, Thames Ditton, Surrey, annual.

¹² House of Commons, *Official Report of the Welsh Grand Committee - Agriculture*, 1968, first sitting 3 April 1968, col 19.

¹³ J Smith, *The Politics of Agricultural Support in Britain: The Development of the Agricultural Policy Community*, Aldershot, 1990.

¹⁴ FUW, *A Statement of Policy for the Farmers Union of Wales*, Aberystwyth, 1958.

¹⁵ Cmd 9104, *Guarantees 1954*, 1954, p 3.

¹⁶ Cmd 1311, *Guarantees 1961*, 1961, p 8.

TABLE 2
Average rates of market price support in the UK (expressed as a percentage of the value of output)

Period	Wheat	Barley	Sugar	Potatoes	Beef/veal	Sheepmeat	Pigmeat	Milk
1947-50	8.2	37.8	17.2	3.8	1.3	36.6	5	47.5
1951-54	-8.5	18.3	33.1	13.3	-14.4	12.9	23.1	53
1955-58	16.2	23.3	28.7	28.6	2.1	3.8	21.2	51.3
1959-62	20.6	37.5	25.8	14.8	11.2	18.3	18.5	49.9
1963-66	14.4	26	20	5	-17.5	5.8	5.9	46.9
1967-70	15.9	7.9	2.4	1.6	-3.1	6.8	2.3	41.4
1971-72	21.1	17.7	-7.1	-34.2	-33.6	16.1	11.1	39.4
1947-72	12.6	24.1	17.2	4.7	-7.7	14.3	12.4	47.1

Source: PSE calculations.

TABLE 3
Average commodity shares (percentage) of total value of production* 1947-72

Commodity	Wales	UK
Wheat	0.7	6.8
Barley	1.1	7.1
Sugar	0.1	2.8
Potatoes	4.6	7.8
Beef/veal	8.9	11.6
Sheepmeat	10.7	5.3
Pigmeat	6.0	14.3
Milk	67.9	44.3

* Of commodities included in PSE calculations.

Source: PSE calculations.

1968 as part of the production expansion programme which characterized entry preparations for the European Community.¹⁷ Sheepmeat support followed a similar pattern to pigmeat.

The emphasis placed upon expanding agricultural production in preparation for membership of the European Community deserves some explanation. European agricultural policy (based on high consumer prices and import protection) was ill-suited to the needs of UK agriculture since with its much smaller agricultural population (3.5 per cent compared with 16 per cent in the Community of Six in 1967), it would not benefit as much as other member states from high prices. At the same time the costs of importing from

higher-price Community sources would be proportionately more burdensome given heavy UK import requirements. The need to both reduce the import bill and maximize the benefits of high market prices required that production be expanded as quickly as possible.

From 1966, the government emphasized the expansion of beef production as part of the new import-saving role identified for agriculture by the 1965 National Plan.¹⁸ However, although the domestic producer price rose by 9 per cent a year on average between 1964 and 1972, market price support actually fell and was negative for most of this period. This was because world prices rose by 11 per cent a year on average due to international beef shortages.¹⁹

The import-saving policy had considerable implications for cereals support. From 1964 target prices for wheat and barley were set in relation to imports and standard quantities introduced.²⁰ These were relaxed from 1966 when the emphasis on expanded meat production necessitated increased domestic production of feed-stuffs. From 1967 attempts were made to redress the cereals market imbalance by encouraging a switch from barley to wheat production. As a result the standard quantity on wheat was abolished in 1968 and

¹⁸ Cmnd 2764, *The National Plan*, HMSO, 1965.

¹⁹ Cmnd 5254, *Guarantees 1973*, 1973, p. 8.

²⁰ Cmnd 2315, *Guarantees 1964*, 1964, p. 9.

¹⁷ Cmnd 3558, *Guarantees 1968*, 1968, p. 14.

the differential between wheat and barley price guarantees increased by 50 per cent. The standard quantity on barley was abolished in 1969 when poor harvests threatened production targets.²¹

V

As mentioned earlier, over the 1947–72 period on average Wales experienced a higher percentage rate of direct payments than the UK national average. Between 1947 and 1972, the subsidies classified as direct payments to the UK agricultural sector consisted of the Hill Sheep, Cattle and Cow Subsidies (which had a deliberate spatial bias), and the Calf and Beef Cow Subsidies (which did not). The accumulated expenditure on these schemes in the UK amounted to £520.9 million, of which £90.9 million (17.4 per cent) was received in Wales. It is worth noting that on average over the 1947–72 period, Wales accounted for 10.4 per cent of the UK's farm holdings.

In terms of the total expenditure, Wales received more than any other UK region from the schemes of hill farm support, simply because it had the largest number of farms eligible for these subsidies.²² For example, 60 per cent of the region's hill cows were eligible for the Hill Cow Subsidy. This was introduced in 1953 and was paid annually on cows in regular breeding herds on land suitable only for the production of store cattle and sheep (Table 4).

The Hill Sheep Subsidy (introduced in 1952) was paid on ewes of specified hill breeds and was designed to maintain a reservoir of breeding ewes and store sheep for lowland producers. Prior to 1967, the subsidy was paid retrospectively according to the previous year's hill farm income and was not paid in 1954, 1958 and 1959 when

sheep farming was relatively profitable. A flat rate basis for payment was adopted in 1967 and the subsidy extended to include flocks maintained in areas eligible for hill cow subsidy.²³ As Table 5 shows, this significantly increased the scope of the scheme in Wales.

As the volume of hill farm support increased in Wales, so did the Welsh hill farmer's dependence upon this support. On average between 1952 and 1957, hill subsidies accounted for 18 per cent of net agricultural product in Wales (where net product is equal to gross output less gross input less depreciation). By 1967–72, this ratio had risen to 58 per cent.

Despite the large quantities of hill support received in Wales, the region's farmers could have earned even more had their rate of subsidized herd expansion (up 352 per cent by 1975) matched that of their English counterparts.²⁴ Moreover, the PSE analysis enables us to place the value of hill farm support to Wales in its context. The £50.2 million spent on hill subsidies in the region up to 1972 was relatively insignificant compared to the £459.3 million received as price support.

The other direct payments to farmers introduced after 1947 had no explicit spatial objectives but were also geared towards livestock production. Over £35 million (10 per cent of the UK total) was received under the Calf Subsidy in Wales up to 1972. However, the north-west and south-west regions of England captured the greatest shares of this subsidy since they benefited from greater opportunities for switching from milk to beef production.²⁵ The Beef Subsidy (introduced in 1967) was even less significant in Wales, providing a total of just over £2 million of assistance (7.5 per cent of the UK total) up to 1972.

²¹ Cmnd 3558, *Guarantees 1968*, p 14; Cmnd 3965, *Guarantees 1969*, 1969, p 15.

²² I Bowler, 'Regional specialization in the agricultural industry', *Jnl Agric Econ*, 32, 1981, pp 43–54.

²³ Cmnd 3554, *Wales 1967*, HMSO, 1967, p 47.

²⁴ I Bowler, *Government and Agriculture: A Spatial Perspective*, 1979, p 53.

²⁵ *Ibid*, p 54.

TABLE 4
The Hill Cow Subsidy in Wales 1953-72

Year	Number of cows subsidized in Wales	Total payments in Wales (a) £m	Total payments in UK (b) £m	(a) as percentage of (b)
1953	3894	0.036	0.310	11.6
1954	53635	0.492	2.320	21.2
1955	43505	0.429	2.419	17.7
1956	49806	0.498	2.675	18.6
1957	36746	0.367	2.850	12.9
1958	73635	0.736	3.050	24.1
1959	59348	0.683	3.850	17.7
1960	67312	0.807	4.475	18.0
1961	68423	0.809	4.900	16.5
1962	78237	0.936	5.300	17.7
1963	80403	0.961	5.550	17.3
1964	77241	0.921	5.675	16.2
1965	87517	1.607	6.450	24.9
1966	108782	1.958	7.300	26.8
1967	105811	2.037	8.400	24.2
1968	110306	2.344	9.900	23.7
1969	122720	2.729	11.425	23.9
1970	129053	3.063	13.375	22.9
1971	134740	3.201	13.500	22.1
1972	139355	3.413	15.300	22.3
		Total 28.027	Total 130.024	Mean 20.0

Sources: MAFF, *Agricultural Statistics of the UK*, annual; MAFF Welsh Department, *The Digest of Welsh Agricultural Statistics*, annual.

VII

Table 6 shows the many and various schemes classified as other support in the UK between 1947 and 1972. The accumulated expenditure on these improvement grants and input subsidies amounted to £1463.83 million in the UK, of which £114.63 million (7.8 per cent) was received in Wales.

Most of these subsidies were designed to help farmers in all parts of the country to become more productive, and were not therefore tailored to different regional needs and circumstances. For example, as part of the production expansion programme, the 1947 Agriculture Act established subsidies on fertiliser and lime. A total of 6.6 million tonnes of fertiliser were delivered to Welsh farms up to 1972 under the aegis of the Fertiliser Scheme, at a cost in subsidy of £28.6 million. Lime was more appropriate for improving fertility on

upland farms and although 7.8 million tonnes were supplied to Wales by 1972 at a cost of £12.8 million, the rate of application of subsidized lime in the region remained only half that in England. The blanket nature of the scheme failed to account for the higher unit cost of lime spreading in upland areas where heavy rainfall continually leached the soil.²⁶

Even those schemes of support which were specifically designed to encourage hill farm improvements were criticized for not being sufficiently tailored to the conditions of Welsh agriculture. Under the Hill Farming Act of 1946 and Livestock Rearing Act of 1951, grants were provided to cover 50 per cent of the cost of improving the socio-economic fabric of hill farms. The Hill Farming Act of 1956 extended the

²⁶ Cmnd 7820, *Wales and Monmouthshire: Report of Government Action for the Year Ended 30 June 1949* [hereafter *Wales Government Action*], HMSO, 1949, p. 22.

TABLE 5
The Hill Sheep Subsidy in Wales 1952-72

Year	Number of sheep subsidized in Wales (million)	Total payments in Wales (a) £m	Total payments in UK (b) £m	(a) as percentage of (b)
1952	1.422	0.215	1.003	21.4
1953	0.026	0.003	0.015	20.0
1954	0	0	0	0
1955	1.105	0.260	1.125	23.1
1956	1.083	0.255	1.100	23.2
1957	1.564	0.036	0.175	20.6
1958	0	0	0	0
1959	0	0	0	0
1960	0.987	0.142	0.525	27.0
1961	1.301	0.206	0.775	26.6
1962	1.302	0.339	1.250	27.1
1963	1.518	0.665	2.150	30.9
1964	1.319	1.477	5.100	29.0
1965	1.247	1.267	4.800	26.4
1966	1.595	1.703	7.100	24.0
1967	1.517	1.759	6.425	27.4
1968	2.172	2.311	6.875	33.6
1969	2.246	2.386	7.200	33.1
1970	2.361	2.543	8.550	29.7
1971	2.226	3.412	9.600	35.5
1972	2.364	3.413	9.275	36.8
		Total 22.392	Total 73.043	Mean 29.0

Source: as for Table 4.

period for submitting improvement schemes by a further seven years and made an extra £5 million available. While over 3000 schemes were approved in Wales by 1962, completion rates in the region (13 per cent) were lower than the UK average (22 per cent) as progress was hindered by poor access roads and difficulties in obtaining contract labour.²⁷

The main problem, however, was that Welsh hill farmers faced relatively greater difficulties in meeting their share of the costs of improvements, which were high relative to farm size even with a 50 per cent grant.²⁸ As early as 1953, Welsh MPs proposed that higher rates of grant aid and low interest-rate loans be paid to Welsh

farmers.²⁹ However, this proposal was rejected since 'the government could not agree that it would be right to give farmers in one part of the UK a rate of subsidy higher than that available to other farmers on similar land elsewhere'.³⁰ Instead, from the late 1950s onwards schemes of 'other support' were increasingly geared towards encouraging the creation of viable farm units by amalgamation.

However, owing to limited spatial flexibility in the design of these schemes, Welsh farmers still encountered difficulties in maximizing their benefits. For example, low financial incentives and stringent eligibility conditions limited the uptake of support under the Farm Amalgamation and

²⁷ Cmnd 8959, *Wales Government Action 1953*, 1953, p 25.

²⁸ House of Commons, *Official Report of the Welsh Grand Committee - Agriculture*, 1962, 30 May 1962, col 110.

²⁹ Cmnd 8844, *Report of the Rural Development Panel of the Council for Wales and Monmouthshire*, HMSO, 1953, p 7.

³⁰ Cmnd 9014, *Rural Wales*, HMSO, 1953, p 6.

TABLE 6
Schemes of other support in the UK 1947-72

Scheme	Total expenditure 1947-72 £m (current prices)	
	UK	Wales
Farm water	9.82	1.24
Field drainage	42.75	1.51
Hill farming improvement	17.82	10.93
Ploughing grant	108.95	13.13
Marginal production	12.01	1.65
Silo subsidy	6.80	1.29
Farm improvement	122.92	14.49
Horticultural improvement	16.35	0.29
Farm capital grant	134.27	3.44
Investment	27.00	1.06
Hill land	2.10	1.81
Lime subsidy	130.40	12.80
Fertiliser subsidy	509.15	28.60
TB attested herd	64.55	6.42
Small farmer	34.60	7.16
Small farm business management	2.60	1.02
Farm structure	4.07	0.27
All other*	217.64	7.52

* Many minor schemes such as bracken eradication, scrub clearance, grassland renovation.

Source: as for Table 4.

Farm Structure (Payments to Outgoers) Schemes of 1967. By 1972, rates of successful application under the Outgoers Scheme stood at 3.1 per cent in the UK and only 1.7 per cent in Wales. Similarly, the rate of adoption by eligible farmers under the 1957 Farm Improvement Scheme remained consistently lower in Wales (less than 60 per cent) than in England (over 90 per cent) due to lower average farm size.³¹ This also resulted in the mean value of aid per farmer being 40 per cent lower in the region.

The Small Farmer Scheme of 1959 was the most obvious attempt to encourage small farms to achieve a minimum acceptable economic size. This scheme defined this minimum size as a labour requirement of 275 Standard Man Days.³² This was supplemented in 1965 by the Small Farm (Business Management) Scheme.

Uptake of these schemes was fastest amongst the dairy farms of north-east Wales seeking to improve grassland quality.³³ Indeed, Wales received a larger share than any other region (23.6 per cent or £8.18 million) of the support made available under these schemes by 1972. However, the conditions of eligibility excluded 3000 part-time farmers in Wales and all farmers in receipt of hill farm improvement grants.³⁴ Moreover, while the scheme contained 'permissive provision ... to meet the needs of the various part of the UK ... no provision [was] made even for the possibility of a separate scheme for Wales ... ignoring the clear fact of special Welsh conditions'.³⁵

Despite the substantial amount of support made available in Wales, the continuing concern was that revenue from farm

³¹ R. C. Hine, 'Structural policies and British agriculture', *Jnl Agric Econ*, 24, 1973, pp 321-29.

³² Cmnd 583, *Assistance for Small Farmers*, HMSO, 1958, p 5.

³³ Bowler, *Government and Agriculture*, p 61.

³⁴ House of Commons, *Official Report Standing Committee A - Agriculture (Small Farmers) Bill*, 1958, 25 November 1958, col 73.

³⁵ *Ibid*, col 119.

TABLE 7
Mean PSE per farm and per hectare (ha), UK and Wales 1947-72

Years	Mean PSE per ha (£)		(a) - (b)	Mean PSE per farm (£)		(a) - (b)
	UK (a)	Wales (b)		UK (a)	Wales (b)	
1947-51	9.5	11.1	-1.6	357.6	360.4	-2.8
1952-56	15.6	14.3	1.3	576.9	473.9	102.9
1957-61	20.9	16.9	4	850.1	571.4	278.7
1962-66	18.8	18.2	0.7	828.5	632.5	196
1967-72	23.1	22.8	0.3	1063.8	1017.6	46.1
1947-72			0.9			124.2

Sources: PSE calculations; MAFF, *Agricultural Statistics of the UK*, annual.

production in the region was incapable of meeting labour and capital costs.³⁶ However, at the same time the response to this, the amalgamation of small farms, was contributing to the onerous problem of rural depopulation, such that Wales was the victim of 'policy schizophrenia'.³⁷ Between 1950 and 1960, Welsh agricultural employment fell by 29 per cent.

So far the analysis has focused on explaining why Wales had a higher percentage PSE than the UK national average. However, on its own the PSE percentage is not an adequate measure of the extent of regional variation in farm support. This is because the effect of a higher margin of protection may be nullified where a region has lower productivity and/or smaller average farm size. A proper evaluation of the extent of regional variation in support therefore demands that the PSE figures also be expressed per farm and per hectare (Table 7).

While the percentage PSE figures in Table 1 suggested that there was a degree of regional variation in support in this period to favour Wales, Table 7 reveals a different picture. On average over the whole period there was very little difference between mean PSE per hectare in Wales and the UK, while mean PSE per

farm was some £124 higher in the UK than in Wales. This suggests that the effect of the higher percentage PSE in the region was more than cancelled out by the effect of the region's lower land productivity and smaller average farm size. This implies that the regional variation in support was not sufficient to compensate for Wales' relative physical and economic handicaps and Welsh farmers therefore remained relatively disadvantaged.

VIII

Using the OECD's PSE methodology, this article has measured the amount of farm support provided in the UK and the region of Wales from 1947 to 1972. First and foremost, this has provided a means of measuring the spatial dimension to UK farm policy during this period. The PSE calculations show that when expressed as a percentage of the adjusted value of production, Wales received a higher rate of support than the UK national average. The greatest share of farm support in the region was provided by market price support and, moreover, Wales received a higher percentage rate of price support than the UK national average. However, this geographical variation in support did not reflect a policy of regional pricing but was rather the inevitable product of varying levels of commodity protection.

³⁶ House of Commons, *Official Report of the Welsh Grand Committee - Agriculture*, 1965, third sitting, 23 June 1965, col 132.

³⁷ R. W. Slee, 'Agricultural policy in remote rural areas', *Jnl Agric Econ*, 32, 1981, pp 113-21.

The spatial dimension to UK farm support was provided by hill farm subsidies with Welsh agriculture receiving a greater share of this support than any other region of the UK. However, Welsh farmers could have earned even more from these schemes had they been able to increase average herd sizes more quickly. Smaller average farm size also thwarted the ability of Welsh farmers to benefit from the increasing array of production and improvement grants provided over this period. Although the burden of the costs of these schemes was proportionately higher in Wales, the policy-making structure could not accommodate demands for flexible subsidy arrangements. The policy was instead directed towards raising the number of farms above defined thresholds of viability, which created concern that the depopulation of rural Wales might be accelerated.

Indeed, when the PSE results are expressed per hectare and per farm, they suggest that Welsh agriculture remained relatively disadvantaged in its UK context. Price support, headage payments and improvements grants tied the benefits of

support to the scale of production. The more farmers could produce, the more subsidy they could earn. This inevitably benefited larger farms in the more fertile agricultural regions of the country. The spatial dimension to policy, provided principally by hill farm support, was not sufficient to outweigh the disadvantage Welsh agriculture experienced from its smaller average farm size. Further research is required to determine whether the Common Agricultural Policy has been any more effective in this respect.

It would appear, therefore, that national and sub-national PSE calculations have a useful role to play in agricultural policy analyses at the regional level. They can be used to estimate the quantitative importance of spatially variable farm policies and can generate important insights into how effective policies are at compensating for regional disadvantages. This paper indicates that deliberately spatial farm policies are of limited use where they are insufficiently tailored to a region's needs, and where they remain dominated and overshadowed by blanket support mechanisms.

APPENDIX

Methodology for PSE Calculations for Wales and the UK

For each commodity the Gross PSE is calculated as:

$$\text{Gross PSE} = \text{MPS} + \text{DP} + \text{OS} \quad (1)$$

where MPS = market price support; DP = direct payments; OS = all other support.

MPS is calculated as the difference between the supported producer price (P) and some reference or 'world' price in national currency (Pwnc), multiplied by the volume of production (Q):

$$\text{MPS} = Q * (P - P_{\text{wnc}}) \quad (2)$$

The PSE therefore assumes the small-country case with no account taken of the effect of any country's policies on the actual world price. The PSE calculations are particularly sensitive to the values of reference prices and therefore the choice of these prices is an important one. The OECD guideline is that the reference price should not

necessarily be the cheapest source of a particular commodity, but should be that which is most representative of where the particular country, region or trading bloc can obtain supplies of the commodity of a comparable quality and suitability for its requirements.³⁸

Since 1979, the OECD has made strenuous efforts to improve the choice of reference prices used in the EU PSE calculations. It has done this by adopting prices which are representative of EU trading patterns as a whole and which could therefore be used in national and sub-national PSE analyses for EU member countries.³⁹

As far as possible, this convention has been adopted for this analysis with reference prices being chosen on the basis of how representative they are of European import prices for this period. This provides an important standard for the analysis. It

³⁸ OECD, *Agricultural Policies*, annual.

³⁹ *Ibid.*

TABLE A1
Commodity definitions and reference prices used 1947-72

Commodity	Type	Reference price
Wheat	Common wheat	US export price
Barley	Common barley	Canadian import price
Potatoes	Maincrop/ware	Netherlands producer price
Sugar	Sugar beet	Danish producer price
Beef/veal	Bovine meat, dressed carcase weight	Argentinian imported deadweight
Sheepmeat	Dressed carcase weight	UK wholesale price deadweight
Pigmeat	Whole and half carcasses	Danish producer price deadweight
Milk		Implicit external milk price derived from milk equivalent of traded dairy products (butter, skim milk powder; Netherlands & Denmark)

Sources: FAO, *Production Yearbooks*, Rome, annual; World Bank, *Commodity Trade and Price Trends*, Rome, annual.

may be desirable in the future to produce PSE estimates using these prices for other European countries and regions for this period, to analyse both the volume and spatial variability of the support they provided at this time. Table A1 shows the reference prices chosen for this analysis and indicates the data sources used. All prices have been converted using the current £:\$ exchange rate.

Estimating UK and Welsh PSE's for the 1947-72 period is aided by the wealth of statistics available on prices, production and subsidies. The main UK sources are the White Papers published annually as part of the Review of the UK agricultural industry which determined the level of price guarantees up to 1973;⁴⁰ and the annual census returns for UK agriculture published by the Ministry of Agriculture Fisheries and Food. The main Welsh sources are the agricultural census returns for Welsh agriculture published by MAFF Welsh Department, MAFF, *Agricultural Statistics of England and Wales*, annual, and Department for Home Affairs, *The Digest of Welsh Statistics*, annual.

Quantity data relate to production from the relevant national farm as recorded in the census returns. Quantities of meat output in Wales have been estimated as the number of slaughtered Welsh livestock multiplied by the UK ratio of meat equivalent. Domestic producer prices are annual averages at the farm-gate, including guarantees, and have been obtained from the Annual Review White Papers. Where UK prices are unavailable, prices used are the average for England and Wales.⁴¹ Where expenditure on subsidies relates to financial years (April to March), it has been calendarized using the ratio 0.25:0.75.

For livestock commodities, a deduction is made

to the gross PSE to account for the effect of guaranteed cereal prices on purchased feed costs. Thus:

$$\text{Net PSE} = \text{Gross PSE} - \text{FA} \quad (3)$$

where FA = feed adjustment, calculated as the difference between expenditure on feed at protected and world prices by livestock category.

It is difficult to make the feed adjustment to UK and Welsh PSEs because of the lack of reliable data on feed prices and quantities by livestock category and region. This problem has been overcome by using farm level data on concentrate expenditure.⁴² No feed adjustment estimates have been made before 1967 because up until this time price support on feed grains took the exclusive form of a deficiency payment which did not raise its free market price.

For each livestock enterprise, the total feed adjustment (FA) estimate has been calculated as:

$$\frac{\{[(a * P_{fw}) + (b * P_{fb})] * 100\}}{C} - \frac{\{[(a * PW_{fw}) + (b * PW_{fb})] * 100\}}{C} \quad (4)$$

where Pfw and Pfb are the protected prices of feed wheat and barley respectively; PWfw and PWfb are their respective world prices; C is total expenditure on purchased concentrates, and a and b are weights based on the proportions of the volume of concentrates accounted for by wheat and barley, the main price supported cereals fed to livestock.

These weights have been estimated using MAFF six-monthly surveys into livestock rations, which typically cover between 40 and 50 per cent of all

⁴⁰ For example, Cmnd 3558, *Guarantees 1968*.

⁴¹ MAFF, *Agricultural Statistics of England and Wales*, annual.

⁴² Farm Management Survey, *Statistical Results for Wales*, University of Wales, Aberystwyth, annual.

TABLE A2
UK PSEs 1947-72: aggregate of all commodities

	Unit	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956
Adjusted value production	£M	448.428	560.33	615.21	671.971	708.631	798.65	912.53	952.44	982.93	993.71
A. Market price support	£M	114.595	172.736	221.03	196.841	234.669	241.129	255.202	262.432	279.979	262.194
B. Levies	£M	0	0	0	0	0	0	0	0	0	0
C. Direct payments:	£M	0	0	0	0	0	0	0	0	11.4	15.2
Area & Headage Payments	£M	0	0	0	0	0	0	0	0	11.4	15.2
D. Reduction of input	£M	0.939	1.312	1.228	1.308	2.208	16.449	20.483	24.287	27.307	41.376
costs/general services:											
Capital Grants	£M	0	0.029	0.039	0.202	0.917	7.445	8.896	11.223	11.643	10.732
Structural/Infrastructural	£M	0	0	0	0	0	0	0	0	0	0
Fuel/Fertiliser	£M	0	0	0	0	0.917	7.57	10.176	11.434	14.146	22.655
General Services	£M	0.939	1.283	1.189	1.106	0.374	1.434	1.411	1.63	1.518	7.989
E. other	£M	0	0	0	0	2.453	10.829	13.509	15.786	13.347	1.095
Total other support	£M	0.939	1.312	1.228	1.308	4.661	27.278	33.992	40.073	40.654	43.071
Gross total PSE	£M	115.534	174.048	222.258	198.149	239.33	268.407	289.194	302.505	332.033	320.465
PSE percentage	£M	25.7642	31.0617	36.1272	33.7736	33.6076	31.0915	31.7611	33.7799	32.2493	
	Unit	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966
Adjusted value production	£M	994.78	1066.84	1040.01	1050.98	1119.27	1038.34	1037.15	1120.02	1299.15	1220.1
A. Market price support	£M	321.317	379.518	302.011	316.218	364.513	352.203	336.821	272.439	202.282	237.713
B. Levies	£M	0	0	0	0	0	0	0	0	0	0
C. Direct payments:	£M	15.8	17.4	20.6	22.9	23.6	24.5	27.4	34.599	37.199	46.414
Area & Headage Payments	£M	15.8	17.4	20.6	22.9	23.6	24.5	27.4	34.599	37.199	46.414
D. Reduction of input	£M	43.802	45.752	53.066	58.495	66.231	61.633	59.787	54.633	51.366	47.427
costs/general services:											
Capital Grants	£M	12.084	12.55	16.209	18.553	22.481	21.807	21.102	18.793	17.957	16.238
Structural/Infrastructural	£M	0	0	0	3.261	5.31	1.503	3.397	3.716	2.74	1.881
Fuel/Fertiliser	£M	25.121	26.724	30.032	30.049	32.466	33.872	32.331	30.693	28.185	26.817
General Services	£M	6.597	6.478	6.825	6.632	5.974	4.451	2.957	1.431	2.484	2.483
E. other	£M	2.42	2.456	2.326	3.26	0.028	1.601	1.978	1.653	0	0
Total other support	£M	46.222	48.208	55.392	61.755	66.259	63.234	61.765	56.286	51.366	47.427
Gross total PSE	£M	383.339	445.126	378.003	400.873	454.372	439.937	425.986	363.324	290.847	331.554
PSE percentage	£M	38.5351	41.7238	36.3461	38.1428	40.5954	42.3693	41.0727	32.4391	22.3875	27.1743

TABLE A2
(Continued)

	Unit	1967	1968	1969	1970	1971	1972
Adjusted value production	£M	1389	1446.9	1484.72	1616	1803.02	1979.1
A. Market price support	£M	327.498	241.607	255.058	234.529	325.099	182.833
B. Levies	£M	0	0	0	0	0	0
C. Direct payments	£M	44.596	52.899	56.599	62.9	67.3001	69.9
Area & Headage Payments	£M	44.596	52.899	56.599	62.9	67.3001	69.9
D. Reduction of input costs/general services:	£M	49.427	51.204	55.597	66.887	74.222	79.316
Capital Grants	£M	18.102	21.634	24.85	27.322	40.098	48.69
Structural/Infrastructural	£M	1.376	1.373	1.741	1.143	0.769	0.658
Fuel/Fertiliser	£M	27.304	25.575	25.543	30.576	24.717	24.523
General Services	£M	2.645	2.622	3.463	7.846	8.638	5.445
E. other	£M	0	0	0	0	0	0
Total other support	£M	49.427	51.204	55.597	66.887	74.222	79.316
Gross total PSE	£M	421.521	345.71	367.254	364.316	466.621	332.049
Feed adjustment	£M	-5.482	-4.816	-12.395	-8.955	-15.246	-23.838
Net total PSE	£M	416.039	340.894	354.859	355.361	451.375	308.211
PSE percentage		29.9524	23.5603	23.9007	21.9902	25.0344	15.5733

TABLE A3
Wales PSEs 1947-72: aggregate of all commodities

	Unit	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956
Adjusted value production	£M	31.729	40.837	44.433	48.112	50.179	54.76	58.758	58.524	59.24	63.025
A. Market price support	£M	14.353	18.475	22.236	20.711	21.447	22.497	21.507	21.491	20.246	21.011
B. Levies	£M	0	0	0	0	0	0	0	0	0	0
C. Direct payments:	£M	0	0	0	0	0	0.478	1.018	1.358	1.463	1.767
Area & Headage Payments	£M	0	0	0	0	0	0.478	1.018	1.358	1.463	1.767
D. Reduction of input	£M	0.098	0.136	0.127	0.136	0.679	1.721	2.047	2.071	2.357	3.109
costs/general services:											
Capital Grants	£M	0	0.003	0.004	0.021	0.282	0.779	0.889	0.957	1.005	1.411
Structural/Infrastructural	£M	0	0	0	0	0	0	0	0	0	0
Fuel/Fertiliser	£M	0	0	0	0	0.282	0.792	1.017	0.975	1.221	1.522
General Services	£M	0.098	0.133	0.123	0.115	0.115	0.15	0.141	0.139	0.131	0.176
E. other	£M	0	0	0	0	0.714	1.133	1.35	1.346	1.152	0.982
Total other support	£M	0.098	0.136	0.127	0.136	1.393	2.854	3.397	3.417	3.509	4.091
Gross total PSE	£M	14.451	18.611	22.363	20.847	22.84	25.829	25.922	26.266	25.218	26.869
PSE percentage	£M	45.5451	45.5739	50.3297	43.3301	45.517	47.1676	44.1165	44.8807	42.5692	42.6323
	Unit	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966
Adjusted value production	£M	54.634	51.109	65.649	65.567	71.66	69.694	65.665	72.462	71.954	78.023
A. Market price support	£M	16.492	14.193	22.818	24.506	33.324	25.384	19.548	21.417	19.499	21.824
B. Levies	£M	0	0	0	0	0	0	0	0	0	0
C. Direct payments:	£M	1.626	2.266	2.306	2.733	2.67	2.87	3.468	4.34	3.926	6.2
Area & Headage Payments	£M	1.626	2.266	2.306	2.733	2.67	2.87	3.468	4.34	3.926	6.2
D. Reduction of input	£M	4.143	4.603	4.232	5.075	5.389	5.566	4.713	6.516	7.018	3.829
costs/general services:											
Capital Grants	£M	2.148	2.589	1.882	1.978	2.005	2.059	1.6	3.442	4.299	1.459
Structural/Infrastructural	£M	0	0.067	0.196	0.895	1.144	1.149	1.015	0.93	0.651	0.497
Fuel/Fertiliser	£M	1.835	1.786	2.014	1.987	2.013	2.132	1.926	1.917	1.853	1.67
General Services	£M	0.16	0.101	0.14	0.215	0.227	0.226	0.172	0.227	0.215	0.193
E. other	£M	0.689	0.525	0.46	0.368	0.264	0.166	0.066	0.0041	0	0
Total other support	£M	4.832	5.128	4.692	5.443	5.653	5.732	4.779	6.52	7.018	3.829
Gross total PSE	£M	22.95	21.587	29.816	32.682	41.647	33.986	27.795	32.277	30.353	31.853
PSE percentage	£M	42.0068	42.2372	45.4173	49.8452	58.1175	48.7646	42.3285	44.5433	42.1839	40.8251

TABLE A3
(Continued)

	Unit	1967	1968	1969	1970	1971	1972
Adjusted value production	£M	82.088	87.257	88.467	93.993	101.124	113.254
A. Market price support	£M	27.6515	25.751	25.6214	24.7484	26.8654	25.497
B. Levies	£M	0	0	0	0	0	0
C. Direct payments	£M	6.171	7.724	8.237	8.766	10.047	10.612
Area & Headage Payments	£M	6.171	7.724	8.237	8.766	10.047	10.612
D. Reduction of input costs/general services:	£M	2.839	7.365	3.346	4.24	4.416	5.913
Capital Grants	£M	0.703	5.104	1.033	1.993	3.114	3.918
Structural/Infrastructural	£M	0.359	0.334	0.424	0.36	0.258	0.33
Fuel/Fertiliser	£M	0.59	0.749	1.656	0.561	0.772	1.517
General Services	£M	0.187	0.178	0.233	0.326	0.272	0.148
E. other	£M	0	0	0	0	0	0
Total other support	£M	2.839	7.365	3.346	4.24	4.416	5.913
Gross total PSE	£M	36.6615	40.84	37.2044	37.7544	41.3284	42.022
Feed adjustment	£M	-0.399	-0.409	-0.609	-0.44	-0.8	-1.469
Net total PSE	£M	36.2625	40.431	36.5954	37.3144	40.5284	40.553
PSE percentage		44.1752	46.3355	41.3662	39.6991	40.0779	35.8071

compound feed production in the country.⁴³ Feed wheat and barley prices have been obtained from MAFF, while world feed prices have been estimated based on the margin between domestic and world producer cereal prices.⁴⁴

⁴³ MAFF, *Surveys into the Composition of the Main Livestock Rations in Great Britain*, annual.

⁴⁴ MAFF, *Agricultural Statistics of the UK*, annual.

The percentage of total concentrate costs at given prices accounted for by the major cereals has been applied to concentrate costs per £100 of enterprise output (derived from the farm level data) to give an estimate of concentrate cost per unit of output at protected prices. The difference between this estimate and that at world prices is the implicit tax on feed costs to be deducted from the gross PSE.