

REFEREED ARTICLE**THE FINANCIAL IMPACT OF ENTRY LEVEL SCHEME PARTICIPATION ON FARMS IN THE TEESDALE LESS FAVOURED AREA**

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The study is based on a detailed analysis of seven case study farms in the upland region of Teesdale in County Durham to assess the financial impact of participation in the Entry Level Scheme (ELS). Standardised payments under the scheme have been drawn up in compliance with EU regulations and do not provide scope for a profit element. However it was found that in all cases the farms were able to profit by scheme participation. The analysis includes consideration of non-cash costs, the adoption of environmental management practices before scheme entry, and stocking rate reductions stimulated by subsidy decoupling. The study concludes that whilst making profit from the scheme seems to be quite possible, if unintended, the main implication for payments methodology is to recognise a need for a profit element and to apply more targeting to ensure that farmers with higher costs and income foregone can also profit by scheme participation.

Key Words: Entry Level Scheme, agri-environment payments, income foregone, partial budgets.

Introduction

This paper uses a case based analysis to assess the actual income foregone as a result of participation in the Entry Level Scheme (ELS). Seven case study farms were selected from a list of all farms participating in ELS in Teesdale, County Durham. The area is one of upland beef and sheep farming and is entirely within the Less Favoured Area (LFA). Under the scheme farmers are rewarded for applying the prescriptions with points. It is a whole farm scheme and farmers must match or exceed a point's target of 30 points per hectare (reduced to 8 points per hectare for enclosures of 15 hectares or more in the LFA). Farmers receive a payment of £30 per hectare (or £8 per hectare respectively). Exceeding the points threshold does not generate any additional payment and falling short of it results in penalties or disqualification. (Defra, 2006a). Farmers therefore tend to exceed the threshold to err on the side of caution. The prescriptions applied are self-selected by the farmer on entering the scheme.

The study calculated the net income foregone of applying each of the management prescriptions chosen using partial budgets. The loss of income and costs from all the prescriptions were then compared with the payment to see whether the farm was able to profit by participating in the scheme. This followed a methodology used by Jones (2006) in exploring the financial implications of participation in the Countryside Stewardship Scheme (CSS) and the Wildlife Enhancement Scheme (WES).

The establishment of standard payment rates under ELS does not allow any scope for an element of financial reward or profit. ELS is funded under Axis 2 of the Second Pillar of the Common Agricultural Policy (CAP). The rules for determining standardised agri-environment payments are set out in

Directive 1698/2005. This stipulates that they cannot exceed the aggregate of income foregone, costs incurred and transaction costs and member states must submit budgets to demonstrate that payments do not exceed these expected amounts. The Department for Environment Food and Rural Affairs (Defra) have submitted budgets based on partial budgets for each prescription under ELS to show that payments are at a level which is below that of the income foregone and costs incurred (Defra, 2004 and 2006a). As a result if these expectations were to be matched by farmers adopting the schemes then they would not be expected to make a profit from scheme participation. However the Defra estimates are based on standardised budgets and in practice, circumstances might enable farmers to apply the prescriptions with lower costs or income foregone and thereby make a profit from the payment. The study essentially aimed to explore whether that was possible on the seven case study farms. This should not however, be taken to be a kind of field test of either the methodology used by Defra in determining payments or the assumptions they used. This would require specific comparisons to be made with all elements within the Defra budgets. The information to do this accurately is not available (at least in the public domain) but in any event it would have set a different, more difficult and probably rather tenuous objective for the study. Obviously the method of assessment by way of partial budgets is the same as that used for payment determination, but Defra have to encompass a very broad range of circumstances in their budgeting, whereas the study is specific to a small number of farms in Teesdale. If they can profit from the application of certain individual prescriptions this does not necessarily imply that Defra should have set the payment rate lower. It simply means that there were circumstances, in a particular year, under which making a profit was possible at the rate of payment chosen.

Assessment of the income contribution of agri-environment payments and income foregone

The ability of farmers to profit by agri-environment scheme participation has been explored by researchers in the past either directly as part of an economic assessment, or indirectly as part of an examination of farmer's decision-making behaviour. A number of studies that have sought opinions from farmers as to the extent to which they are profiting from agri-environment scheme participation have come up with the conclusion that payments are not high enough. Examples of this include the economic evaluation of CSS undertaken in 2002 (Carey *et. al.*, 2003) and the assessment of the Mourne Mountains and Slieve Croob Environmentally Sensitive Area (ESA) by Moss (2004). Reviews of opinion based research confirm the importance of financial concerns as a barrier to entry to agri-environment schemes (Wilson and Hart, 2001 and Morris and Potter, 1995).

Economic assessments which have compared the incomes of farms which participate in agri-environment schemes with those that do not; tend to suggest that participation can boost farm income. The study by Thomson and Slee (1998) of the impact of ESA scheme participation on farm incomes in the Cairngorm Straths ESA estimated that Net Farm Income had been enhanced

by over half a million pounds by the ESA payments. The difficulty of such studies is one of not being able to demonstrate conclusively the causality between scheme participation and enhanced income. However farm level budgetary assessment such as that carried out by Jones (2006) provides clearer evidence of both whether farmers can enhance their income by scheme participation, and for which type of management prescription and under what circumstances. Jones in an assessment of three farms participating in CSS and WES, showed variable but significant gains under all the management prescriptions on all the farms with the exception of a small loss made under a WES prescription on one farm (Jones 2006: 484). The study showed significant variance between farms due to the differing circumstances under which prescriptions were applied demonstrating why it is quite likely that theoretical income foregone will differ from the actual. The study also attempted to show the potential impact of subsidy decoupling as a result of CAP reform. It showed that there was generally a much greater financial advantage from participating in agri-environment schemes post CAP reform due to a lowering of the income foregone.

Methodology

The case area was defined as the Less Favoured Area (LFA) of Teesdale. Only farms that were exclusively within the LFA were chosen for the study. Teesdale was used as the upland pilot area for ELS in 2003. Several farms held on-going pilot ELS agreements but these were also excluded in order to avoid any points of difference between the pilot scheme and the one finally adopted nationally. Sixteen farmers were approached and seven agreed to participate. Table 1 summarises the size, tenure, enterprises and stocking rate for each of the case study farms. They vary in size, tenure and stocking rates, although the enterprises were similar, with only Farm D providing some variation in the form of a poultry enterprise.

The average farm size in the sample was slightly higher than the average for the area (Defra 2006b). However because the census records farm size as 'holdings' and the size of farms in the survey are those for a total farming business the size difference is really not all that significant. Stocking rates were slightly higher than expected based on Farm Business Survey (FBS) figures (Newcastle University 2005: 26-33). The farms in the study are thus reasonably typical and representative of farms in the area.

Partial budgets were constructed for each prescription on each farm using the most recent set of farm accounts as a basis for the figures. As actual year figures they are on a different basis from the standard estimates of income foregone in Defra budgets, which are based on 'a forecast for a period of up to five years' (Jones 2006 : 480). The accounts data used was for 2004/2005. None of the farmers considered that this year had been atypical or unusual in any way.

When assessing the income foregone as a result of participation in agri-environment schemes, there are some difficult issues of principle related to notional costs and whether changes related to applying the agri-environment prescription might have occurred any way. In order to be clarify this it was

Table 1: Summary of case study farms

	Size (ha)	Tenure	Enterprises	Current stock- ing rate (GLUs/ha)
<i>Farm A</i>	69.67	Owner Occupied	Hill sheep (179 ewes), Suckler Cows (53)	1.23
<i>Farm B</i>	180	-Owner Occupied (136ha) -Grazing license (44ha)	Sheep (Mules and Swales) (500 ewes), Suckler cows (10)	0.72
<i>Farm C</i>	229.87	Tenanted (AHA)	Hill sheep (290 ewes)	0.30
<i>Farm D</i>	20.98	Owner Occupied	Poultry pullets (17,000 pullets), Sheep (150 breeding mules).	1.44
<i>Farm E</i>	114.06 with further 20 ha grazing agreement	-Tenanted (94ha) (AHA) -Owner Occupied (20.06)	Sheep (600 breeding mules), Suckler cows (50).	1.68
<i>Farm F</i>	20.89 ha	Owner Occupied	Swaledale ewes (90)	0.88
<i>Farm G</i>	48.77 ha	Tenanted (AHA)	Sheep (250), Suckler Cows (45).	2.1

decided to estimate a kind of core basic income foregone (referred to as ‘direct income foregone’) based only on actual costs and revenue implications without accounting for those that would have been incurred without the scheme and any non-cash costs. The additional elements were:

1 Farmers own time

This does not have a cash cost and to an extent is fixed. In a strict sense therefore it was a cost that did not alter. However it would be wrong to assume that the farmer’s own time should not be costed or rewarded in any way. The point about showing it separately is that by putting a cash cost against it assumes a form of payment for the time spent. Even if an agri-environment scheme were to show only a little profit after accounting for the farmer’s labour then the cash return will be greater. The figures for the cost of the farmer’s own time and the methodology for applying it was that used by the Farm Business Survey (Newcastle University, 2005).

Table 2: The financial impact of ELS payments on each of the case study

Farm	Payment	Income foregone from:			Net Gain/Loss	Net Gain/Loss expressed as a percentage of the payment
		Direct changes	Farmers own time	Baseline environmental work		
A	£1,450.00	-£61.78	-£16.07	-£370.51	£1,001.64	69.08%
B	£5,025.00	-£180.52	£0.00	-£889.40	£3,955.08	78.71%
C	£1,807.00	£0.00	-£34.83	-£123.60	£1,648.57	91.23%
D	£629.00	-£152.47	£0.00	-£152.22	£324.31	51.56%
E	£2,563.00	£10.00	-£28.58	-£2,204.07	£340.35	13.28%
F	£613.00	-£10.00	-£11.61	-£74.16	£517.23	84.38%
G	£1,463.00	£0.00	-£7.14	-£229.55	£1,226.31	83.82%

Note:

1. A minus sign indicates a net cost to the farmer before accounting for any Entry Level Scheme payment.
2. Where figures are positive this indicates a net gain to the farmer which will be additional to their Entry Level Scheme payment.

2. Income foregone of baseline environmental work

This category assessed the income foregone of any environmental practices required under the scheme which were being undertaken prior to entering into ELS. In other words the baseline before changes exceeded the basic level. The baseline assumed by Defra in their calculations was basic good farming practice guidelines and the requirements of Single Payment Scheme cross-compliance conditions.

The financial impact of ELS on each farm

Table 2 shows the financial impact of ELS payments on each farm across all three elements of income foregone. All seven farms made a net gain from ELS. There is considerable variation in the results. The income foregone from direct changes were quite small, or in two cases non-existent. Even by adding in the other potential elements of income foregone (the farmer's notional labour costs and enhanced environmental baselines) the income foregone is well below the level of the ELS payment. The resulting profit margin from ELS was typically well over half the amount of the payment. The exception being Farm E with a profit margin of only 13% largely as a result of a considerable amount of income foregone from environmental work which they had been undertaking before joining ELS.

Farm E makes a gain rather than a loss from direct changes which may seem counter intuitive but it is a situation that also arose in Jones's work, and is not that hard in fact to envisage how this might arise. If the prescription requires the farmer to stop an activity (such as hedge cutting) and this saves cost and has no impact on production then there may be a positive income

foregone. This is made clearer in the assessment of income foregone by prescription.

Income foregone by prescription

The prescriptions were examined in detail for changes in costs and revenue to give an income foregone before applying the benefit of the payment. The payments are included in the tables in the form of points. The points would equate to pounds on the assumption that farmers had exactly the number of points required to reach the threshold and no more. However the point's threshold can be exceeded and all the farmers in the study exceeded the threshold. The excess of points ranged between each of the farms from 0.16% to 10.8%. The net gains and losses in table 2 account for any revenues and costs associated with meeting all of the options and therefore, it can be seen that a profit can still be made where the farmer has an excess profit.

Application of the Farm Environment Record (FER)

Table 3 shows the average income foregone of completing the compulsory FER. The only direct costs incurred was where an agent had been used to carry out the ELS application and in an instance where a farmer had erected a fence to increase the payment value by dividing up the field so that it could be shown as two separate enclosures on the FER. There was some considerable variance in the costs of farmer's own time in completing the FER. Farm F, the smallest of the farms, had the greatest time cost per hectare. The time taken to fill the application form was similar to the other farms, but the farmer only had a small area over which to spread the cost.

Options for boundary features

Table 3 shows that no direct income foregone was incurred from entering boundary features into ELS. The only direct change to income was where EB1, EB2 or EB3 hedgerow management options were included. Here, a net saving (i.e. a positive income foregone) was made as hedges were cut every other year rather than annually. Farm F was the only farm which did not make a gain as a result of managing their hedgerows under prescriptions EB1 and EB2, but they did not make a loss. The farmer had not undertaken any hedgerow cutting prior to joining ELS.

No costs were incurred on option EB6 (ditch management). The farms very rarely cleaned their ditches or applied fertiliser, manure, or pesticides close to the ditch so no changes in management were needed to accommodate this prescription.

No direct cost was incurred on option EB11 (stone wall protection) as none of the farms had changed their stone wall management. The cost of annual general wall management was costed as baseline environmental work, which was either the cost of the farmer's own time or the cost of using contractors. Even with this included the payment was more than enough to cover the cost, so there was still an element of profit.

Table 3: The average income foregone per unit across all the farms of subscribing to EA1 Farm Environment Record and ELS boundary prescriptions

Prescription	Income Foregone Category	Average income foregone across the farms	Points
EA1 Farm environment record (per hectare)	Direct income foregone	-£1.39	3
	Farmers own time	-£0.19	
	Baseline environmental work	-£0.00	
	Total Income Foregone	-£1.58	
EB1 Hedgerow management (on both sides of hedge) (per 100 metres)	Direct income foregone	£0.05	22
	Farmers own time	£0.00	
	Baseline environmental work	£0.00	
	Total Income Foregone	£0.05	
EB2 Hedgerow management (on one side of hedge) (per 100 metres)	Direct income foregone	£0.37	11
	Farmers own time	£0.00	
	Baseline environmental work	£0.00	
	Total Income Foregone	£0.37	
EB3 Enhanced hedgerow management (per 100 metres)	Direct income foregone	£10.00	42
	Farmers own time	£0.00	
	Baseline environmental work	£0.00	
	Total Income Foregone	£10.00	
EB5 Stone faced hedgebank management on one side (per 100 metres)	Direct income foregone	£0.00	8
	Farmers own time	£0.00	
	Baseline environmental work	£0.00	
	Total Income Foregone	£0.00	
EB6 Ditch management (per 100 metres)	Direct income foregone	£0.00	24
	Farmers own time	£0.00	
	Baseline environmental work	£0.00	
	Total Income Foregone	£0.00	
EB11 Stone wall protection and maintenance (per 100 metres)	Direct income foregone	£0.00	15
	Farmers own time	£0.00	
	Baseline environmental work	-£5.70	
	Total Income Foregone	-£5.70	

Note:

1. A minus sign indicates a net cost to the farmer before accounting for any Entry Level Scheme payment.
2. Where figures are positive this indicates a net gain to the farmer which will be additional to their Entry Level Scheme payment.

Table 4: The average income foregone per unit across all farms of subscribing to ELS woodland and upland grazing prescriptions

Prescription	Income Foregone Category	Average income foregone across the farms	Points
EC2 Protection of in field trees (grassland) (per tree)	Direct income foregone	£0.00	8
	Farmers own time	£0.00	
	Baseline environmental work	£0.00	
	Total Income Foregone	£0.00	
EL1 Field corner management (LFA land) (per hectare)	Direct income foregone	-£14.29	100
	Farmers own time	£0.00	
	Baseline environmental work	£0.00	
	Total Income Foregone	-£14.29	
EL2 Manage permanent in-bye grassland with low inputs (per hectare)	Direct income foregone	£0.00	35
	Farmers own time	£0.00	
	Baseline environmental work	-£26.82	
	Total Income Foregone	-£26.82	
EL3 Manage in-bye pasture and meadows with very low inputs (per hectare)	Direct income foregone	£0.00	60
	Farmers own time	-£12.40	
	Baseline environmental work	£0.00	
	Total Income Foregone	-£12.40	
EL4 Management of rush pastures (LFA land) (per hectare)	Direct income foregone	£0.00	60
	Farmers own time	£0.00	
	Baseline environmental work	-£2.79	
	Total Income Foregone	-£2.79	
EL6 Moorland and rough grazing (per hectare)	Direct income foregone	£0.00	5
	Farmers own time	£0.00	
	Baseline environmental work	£0.00	
	Total Income Foregone	£0.00	

Note.

1. A minus sign indicates a net cost to the farmer before accounting for any Entry Level Scheme payment.

2. Where figures are positive this indicates a net gain to the farmer which will be additional to their Entry Level Scheme payment.

Prescriptions for trees and woodlands

Table 4 shows the income foregone from the application of prescription (tree protection). None of the farms incurred any income foregone or costs as a result of entering into this prescription. Defra assumed that there would be a stocking rate reduction to accommodate the prescription. Although Farm E did reduce their stock this decision was made in response to subsidy decoupling rather than joining ELS.

Upland grazing prescriptions

Table 4 shows that no direct income foregone was incurred as a result of entering land into upland grazing prescriptions except on Farm F. Here the farmer had erected a fence to exclude the corner that was entered into EL1 Field Corner Management, without realising this was not necessary for compliance with the prescription. Costs for baseline environmental work were incurred on five farms. The farms had already been using a topper or spot sprayer to control invasive weeds prior to joining ELS. Although this was a requirement under the upland options it was something that they were doing anyway.

Farms C and F did not report any costs for baseline environmental work as none were carried out. Farm B was a moorland farm where spot spraying is not required due to the nature of the land. Only bracken required control, and this was the responsibility of the landowner. Farm F occasionally chopped weeds down with a scythe but said that this was too minimal a time requirement to put a realistic annual estimate on the cost.

The limitations typically placed on the use of nitrogen, manure, herbicides and pesticides under upland grazing options did not create any change in the management on most farms. Farm G was the only one to have applied a greater quantity of nitrogen than that allowed prior to joining ELS. The farmer managed not to reduce stocking or forage output by increasing the application of nitrogen elsewhere on land that was not under ELS upland grazing prescriptions.

Option EL3 required farmers not to supplementary feed any livestock kept in that field although no farmers encountered changes to accommodate this. It might be that farmers have continued to supplementary feed despite prescription limitation because they in-winter their livestock or have access to land not entered into ELS which they used as supplementary feeding area.

Stocking rate changes

Only three farms were prepared to disclose sufficient data on stocking rates to allow a gross margin to be calculated. Farm A had reduced cow numbers but increased their sheep flock. This gave a net financial gain as sheep have been producing a better return than store cattle. Farm E had decreased cow numbers but maintained sheep numbers – a loss in income that was more than covered by the ELS payment. Farm F, which did not keep any cattle, had reduced sheep numbers but again the ELS payment more than compensated for this.

Most farmers said that the reduction in stocking was mainly due to

decoupling and in some cases impending retirement. The introduction of the Single Payment Scheme (SPS) and ELS was concurrent. Decoupling subsidy much reduces the financial impact of stocking rate reduction. Cross-compliance conditions have added to and reinforced existing baseline standards of environmental care. This fits comfortably with the relatively undemanding requirements of the basic and self-selected environmental management prescriptions in ELS. The reduction in stocking as a response to decoupling fits well with *ex ante* evaluation (ADAS, 2002) and subsequent analysis of costings on upland beef and sheep farms with and without the benefit of production-linked direct payments (Jones, 2007). Indeed the decrease in income foregone and the beneficial impact on the profitability of agri-environment scheme participation (unless payment rates were to be revised downwards) was one of the principal conclusions in the study, previously referred to, by Jones (2006).

Conclusions

The seven farms in this study all made a profit from ELS participation on any measure of income foregone and costs incurred (i.e. even including notional costs and the income foregone and costs associated with changes that they had undertaken before ELS entry). The standard assumptions on which payment levels have been justified presume that payments will compensate for income foregone and costs incurred and no more. Clearly therefore the farmers in the study had income foregone and costs that were below the anticipated level. There are at least three possible explanations for this. First, the Defra assumptions may have exaggerated the income foregone and costs incurred? Secondly, the farmers who have volunteered to join the scheme have unexpectedly low income foregone and costs from applying scheme prescriptions? Thirdly that the individual year basis of assessment shows lower income foregone and costs than might be expected over the longer period that Defra have to used to assess the income foregone and costs on a normalised basis?

The analysis has not specifically compared Defra assumptions with actual results. It is not possible therefore to confirm specifically the cause of the variance between actual and expected income foregone. In any event to demonstrate a variance with the conditions on seven farms in Teesdale would not necessarily indicate that the Defra assumptions for the whole of England were inappropriate. The only targeting geographically within ELS is for the few prescriptions that are restricted to the uplands i.e. they are restricted to the LFA. However with a closely targeted standard payment scheme it is inevitable that some farmers, in some conditions, will be able to achieve a profit by having income foregone and costs lower than those anticipated. In fact the study by Jones (2006) made it perfectly clear how heterogeneous the on-farm conditions are likely to be. However it is significant that all seven of the farms, including a large one, chosen at random from the ELS participants in Teesdale all achieved a profit from payments not designed to achieve this. The self-select nature of the choice of prescriptions and the voluntary nature of scheme participation makes it reasonably likely that farmers in the scheme will

be able to profit from participation. Looking at the prescriptions individually allowed a closer examination of the circumstances under which a profit can be made.

It generally seemed to be possible to apply the prescriptions for the management of boundary features without incurring much, if any, additional cost and no loss of production. Grazing management prescriptions generally require lower than normal stocking rates and consequent reduction in income. However on the case study farms they either had stocking levels allowing them to qualify, were selective about which land to manage in this way or ELS entry coincided with stock reductions prompted by the decoupling of direct payments. Stock reductions could thus be achieved with a reduction in market returns but no reduction in subsidy.

The examination of income foregone by including elements that would not be included in a strict evaluation based exclusively on direct cash cost and revenue changes, provided the opportunity to see more clearly what lead to the ability to profit. For example, we are able to see where income foregone and costs incurred were lower because farms had higher environmental management than basic baseline standards, cost structures which were biased towards fixed or notional costs, and also incentives leading to reduced stocking rates. One can see from this that each factor can contribute to explaining why income foregone or costs are lower than expected on individual farms. However even including the total amount of each of these factors, the income foregone and costs incurred are lower than expected.

Having answered the basic question as to whether farms can profit from what is not designed to be a profit-making scheme, there is scope for more work and analysis to look at other farm types in other areas to see how widely the findings are replicated and perhaps to compare in detail where the differences lie between the Defra assumptions and what can be identified from actual case based evidence. However supposing it is possible to establish that it is not just a few farmers in Teesdale that can profit from ELS participation, but in fact most farmers, it then raises the question as to whether this is a bad thing? Clearly it is not the intention as there is no scope to build a profit margin into payments in compliance with Regulation 1698/2005. However if there is no scope for farmers to profit from agri-environment scheme participation then they are likely to be deterred from doing so. It restricts the profit making incentive to those whose circumstances dictate very little or no cost or change to existing management. What is needed is some research to compare the circumstances of participants and non-participants to see the extent to which the latter are exceptional and have a greater ability to profit from receiving the payments.

There are obvious dilemmas associated with broad based and relatively untargeted agri-environment schemes based on standard payments. In the view of the authors there is nothing wrong with farmers making a profit by participation in ELS. What really should be challenged is the appropriateness of setting standard payments at a level where no profit is intended. Building in profit to the payments methodology might attract more farmers to achieve an intended profit and not one made only because their income foregone or costs

are lower than expected.

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