A CASE BASED ANALYSIS EVALUATING THE FINANCIAL CONTRIBUTION TO FARM INCOME OF ENTRY LEVEL ENVIRONMENTAL STEWARDSHIP ON UPLAND FARMS IN ENGLAND

Jonathan Wallis
5 Rennington Place, North Fenham,
Newcastle upon Tyne, NE5 3LJ
Email: j.r.wallis@gmail.com

Dr James V.H. Jones
Royal Agricultural College,
Cirencester, Gloucestershire, GL7 6JS
Email :james.jones@rac.ac.uk

Abstract

The study is based on a detailed analysis of seven case study farms to assess the economic contribution of the Entry Level Scheme (ELS) to farm income. Theoretically agri-environment schemes should not make a positive contribution to farm income. On each case study farm the financial impact of participation in ELS was assessed using a conventional partial budgeting methodology. The actual income foregone figures from the case study farms were then compared with the theoretical figures produced by DEFRA. The study established that there is a substantial difference between the actual costs and income foregone and those assumed by DEFRA. The farms were therefore able to profit from their ELS agreements and it did make a positive contribution to farm income. The study raises important issues about the principles involved, in particular the use of actual and notional costs and the overlap between agri-environment requirements and voluntary unpaid measures undertaken by farmers ex ante. The study also addresses whether it is only those farmers who are able to profit who will enter the scheme.

Keywords: Entry Level Scheme (ELS), DEFRA, agri-environment requirements.

Introduction

This paper uses a case based analysis to assess the income foregone as a result of participation in the Entry Level Scheme (ELS). The seven case study farms were all located in the uplands of Teesdale, County Durham and were chosen from a list of all farms in the Less Favoured area of Teesdale participating in ELS. The study not only looked at ELS's impact on farm profit, but the also at the differences between the actual costs and income foregone and those assumed by the Department for the Environment, Food and Rural Affairs (DEFRA) in setting ELS payment rates. Jones (2006) has been the only previously published work that has used the same methodology in assessing agri-environment scheme payments.

ELS is part-funded by the Common Agricultural Policy (CAP) and payment levels are subject to limits set out in the Rural Development Regulation (RDR). Directive 1698/2005 stipulates that agri-environment payments cannot exceed the aggregate of income foregone, costs incurred and transaction costs. Income foregone is the term used for any income lost as a result of entering into an agri-environment scheme, i.e. both net revenue loss and net additional costs. Member states must submit budgets to demonstrate that payments do not exceed these expected amounts. Directives in force at the time ELS was submitted for approval by the EU Commission, 1257/1999 and 445/2002, made it possible for member states to include an 'incentive' element which was capped at 20% of the income foregone.

This is no longer possible under Regulation 1698/2005 which now permits recovery of 'transaction costs' but does not allow for an incentive. ELS budgets never made use of the incentive component in payments and therefore ELS cannot in theory make a positive contribution to farm income as it only covers income foregone and costs. Any positive income contribution can therefore only be achieved if actual income forgone is lower than the theoretical figures.

In the study the income foregone of participation in ELS was calculated on a prescription by prescription basis on the case study farms. If this was less than the payment then it not only demonstrates that a profit can be made but also that the income foregone was smaller than that forecast by DEFRA.

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

There has been a certain amount of discussion, research and commentary on whether agri-environment scheme payment levels allow a positive income contribution. Most of this however uses rather indirect methods of estimation or opinions rather than direct calculations.

Behavioural studies

There have been a number of studies that have made reference to the financial motivation for agri-environment participation. The conclusions of these 'behavioural studies' have generally been that the payment is not enough to cover the costs.

A study conducted by DEFRA (2002a) found that a third of respondents were dissatisfied with payments and that the income foregone rarely covered the costs of participation in agri-environment schemes. Moss (1994) drew similar conclusions in assessing the payment levels under the Environmentally Sensitive Area Scheme (ESA) in the Mourne Mountains and Slieve Croob. From the survey "of those who had received payments, only one third felt their costs had been totally covered" (Moss 1994: 174). Both of these studies relied upon opinion and did not identify any actual costs to the farmers of participation in schemes.

Estimation and Extrapolation

Thomson and Slee (1998) used survey data from costed farms to estimate the impact of ESA scheme participation on farm income in the Cairngorm Straths ESA. The study estimated that, at an aggregate level, the Net Farm Income was enhanced by £527,032 due to ESA payments. Although the findings were based on estimation and extrapolation they do offer, to an extent, an economic evaluation of payment levels that runs contrary to opinion in the behavioural studies.

Direct assessments of income foregone

Jones (2006) is the only published work to have made a detailed case based assessment of income foregone using the same partial budgeting methodology as is used by DEFRA in justifying the payment rates to the EU Commission. The study presented a detailed analysis of the financial impact of participation in the Countryside Stewardship Scheme (CSS) and the Wildlife Enhancement Scheme (WES). Three lowland mixed farms from widely spread locations were used providing some contrast and variability. The study showed that pre-decoupling, "all of the farms benefited financially under the management prescription part of the scheme, with the exception of a small loss made under WES by Farm B" (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.

It is interesting to note that where studies have taken an economic approach to assessing agri-environment scheme payments (Thomson and Slee 1998, Jones 2006), they have concluded that farmers are able to make a profit from participation. Behavioural studies have generally concluded the opposite.

Trade and Press Debate

The CSS, WES and ESA schemes are all very different to ELS and it is therefore difficult to draw any comparisons in the financial outcomes of these to ELS. There has, however, been much debate as to whether ELS participation is financially worthwhile in the press. The farming trade press has generally offered the view that ELS provides a means for farmers to achieve additional income. In the study area the local press has generally been of the opinion that the ELS provides additional income without undue cost or loss of income. There is an acknowledgement that this will vary and that "for many farms, apart from the most extensively run units, there will almost inevitably have to be a policy change of some description" (Lognonne (2005)). The suggestion is that the potential of retaining status quo and therefore not suffering much income foregone in ELS participation will differ depending on both the type of farm and by how intensive the farm is.

Methodology

The case area was defined as the Less Favoured Area (LFA) of Teesdale. This area is typical upland with a mixture of hill, moor, inbye and some neighbouring lowland pasture. Suckler cows and hill breeding sheep flocks are the predominant farm enterprises. Where farms had both LFA and non LFA land they were excluded so that each of the farms was representative of a typical upland farm. A list of all farmers in this area who participated in ELS was obtained from the Rural Development Service (RDS). Teesdale was used as the upland pilot area for ELS in 2003. Several farms held on-going pilot ELS agreements but these were excluded from the sample as the agreements have some points of difference with the scheme as it is now operated. Out of the sixteen farms approached seven agreed to become case studies. Table 1 summarises the size, tenure, enterprises and stocking rate for each of the case study farms. The farms provided variation 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.

Table 1: Summary of case study farms

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

The average farm size was slightly higher than the average for the area as indicated by DEFRA census data (DEFRA 2006b). Stocking rates were slightly higher than expected based on local Farm Business Survey figures (Newcastle University 2005: 26-33) although this was largely because farm G had a more intensive system which distorted the figures somewhat. Nevertheless the farms used for this study provide examples of a reasonably typical farm type for the area with a range of sizes, stocking rates and tenure.

Partial budgets were constructed for each prescription on each farm using the most recent set of farm accounts as a basis for the figures. This not only meant that figures were accurate but that they made an interesting basis for comparison with DEFRAs theoretical calculations. As actual year figures however, they were drawn up on a different basis from the figures used by DEFRA which were 'a forecast for a period of up to five years' (Jones 2006 : 480). In theory actual figures will vary from year to year and will not be fully consistent with the normalised forecasts, as used by DEFRA. The accounts data used was for 2004/2005. Providentially none of the farmers had any reason to suggest that this year was 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 to deal with to do with notional costs and whether the type of costs incurred or changes required would have happened anyway. In order to be clear on this it was decided to deal with each element separately.

1. Direct Income Foregone

Direct income foregone consisted of only the direct impact on incomes and costs associated with ELS participation. Marginal changes to manual and management labour were only included as a cost where this was in the form of paid labour.

2. Farmers own time

Any of the farmers time that was directly associated with ELS was costed under this class. The time was defined and costed using figures from the Farm Business Survey.

3. Income foregone of baseline environmental work

This assessed the income foregone of any work that is required under the scheme but was being practiced before entering into ELS.

4. Income foregone due to stocking rate changes

Where stocking rate has changed, but not as a result of ELS, the loss or gain in revenue as a result of this change was budgeted under this classification. It was found that farmers were typically responding to subsidy decoupling by reducing stocking rates any way and that arguably they would have done this without entering the ELS. Not all farms were happy to disclose information that would allow a gross margin to be created for on farm enterprises. Where this was the case this 'cost' class was not analysed but highlighted as 'Not Disclosed' in the results so that the reader is aware there had been a stocking rate change.

The financial impact of ELS

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

		Income foregone from:					
	Payment	**Direct changes (£)**	**Farmers own time (£)**	**Baseline environmental work (£)**	**Stocking rate changes (£)**	**Net Gain/Loss (£)**	**Net Gain/Loss expressed as a percentage of the payment**
Farm A	£1,450.00	-£61.78	-£16.07	-£370.51	£13.51	£1,015.15	70.01%
Farm B	£5,025.00	-£180.52	£0.00	-£889.40	Not disclosed	£3,955.08	78.71%
Farm C	£1,807.00	£0.00	-£34.83	-£123.60	Nil	£1,648.57	91.23%
Farm D	£629.00	-£152.47	£0.00	-£152.22	Nil	£324.31	51.56%
Farm E	£2,563.00	£10.00	-£28.58	-£2,204.07	-£18.21	£322.14	12.57%
Farm F	£613.00	-£10.00	-£11.61	-£74.16	-£18.27	£498.96	81.40%
Farm G	£1,463.00	£0.00	-£7.14	-£229.55	Not disclosed	£1,226.31	83.82%

Notes

Not Disclosed: The farmer has been unwilling to divulge information on gross margins.
Nil: The farmers stocking rate has not changed.

Table 2 shows the financial impact of ELS payments on each farm across all three classes of income foregone. All seven farms made a net gain from ELS. There is considerable variance between the farms with Farms E and A making net cost savings on direct changes and stocking rate changes respectively.

To assess this in more detail it is necessary to go through the costs on each farm prescription by prescription. This has been done by taking ELS prescriptions in two groupings on the boundary features and FER and woodland and grazing related options.

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

		Average income foregone across the farms	Payment
EA1 Farm Environment Record (per hectare)	Direct income foregone	-£1.39	**£3.00**
	including farmers own time	-£1.58	
	including baseline environmental work	-£1.58	
EB1 Hedgerow management (on both sides of hedge) (per 100 metres)	Direct income foregone	£0.05	**£22.00**
	including farmers own time	£0.05	
	including baseline environmental work	£0.05	
EB2 Hedgerow management (on one side of hedge) (per 100 metres)	Direct income foregone	£0.37	**£11.00**
	including farmers own time	£0.37	
	including baseline environmental work	£0.37	
EB3 Enhanced hedgerow management (per 100 metres)	Direct income foregone	£10.00	**£42.00**
	including farmers own time	£10.00	
	including baseline environmental work	£10.00	
EB5 Stone faced hedgebank management on one side (per 100 metres)	Direct income foregone	£0.00	**£8.00**
	including farmers own time	£0.00	
	including baseline environmental work	£0.00	
EB6 Ditch Management (per 100 metres)	Direct income foregone	£0.00	**£24.00**
	including farmers own time	£0.00	
	including baseline environmental work	£0.00	
EB11 Stone wall protection and maintenance (per 100 metres)	Direct income foregone	£0.00	**£15.00**
	including farmers own time	£0.00	
	including baseline environmental work	-£5.70	

Application of the Farm Environment Record (FER)

Table 3 shows the average income foregone of completing the compulsory farm environment record. The only direct costs associated with the FER on the seven farms was where an agent had been used to carry out the ELS application and where a farmer had erected a fence to increase the payment value on Farm A. This was put down to the FER as it was a cost to the farmer of entering into ELS. There was some considerable variance between the costs of farmers own time in applying for the scheme across all farms. Farm F, which was actually the smallest of the farms, had the greatest time cost. 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. In calculating theoretical income foregone, DEFRA assumed that there would be a cost for the time measuring features and areas but made no allowance for time in filling out the application. DEFRAs assumed measuring time and cost were so much greater than that found in this study that the payment exceeded all costs of the FER and not just those of measuring.

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 was made as hedges were now cut every other year rather than annually.

Farm F was the only farm which made no gain as a result of putting their hedgerows into prescriptions EB1 and EB2, but they did not make a loss. The farmer had never cut their hedgerows prior to ELS as they had always relied on sheep to 'graze' the hedges which seemed unlikely to be sustainable in the longer term given the difficulties in preventing top growth.

In theory DEFRA had envisaged a loss on hedgerow management prescriptions in that there would be additional time every other year to cut hedges and also loss of crop adjacent to the hedge. None of the farmers considered that they suffered any reduced revenue from pastures as a result of the new cutting regime, nor had they encountered additional time that would outweigh the time saved by cutting bi-annually.

No direct cost was incurred on option EB11 as no farm 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 farmers own time in walling or the cost of the use of contractors. Even when this was considered the payment was more than enough to cover the cost so there was still an element of profit. Again both the time and cost assumed in DEFRAs income foregone calculations was greater than that found on the case study farms.

No costs were incurred on option EB6 under any of the classes. The farms very rarely cleaned their ditches or applied fertilisers, manures, pesticides etc. close to the ditch so there were no changes in management to accommodate this prescription.

Table 4: The average income foregone per unit across all farms of the application of ELS woodland and upland grazing prescriptions and stocking rate changes

		Average income foregone across the farms	Payment
EC2 Protection of in field trees (grassland) (per tree)	Direct income foregone	£0.00	**£8.00**
	including farmers own time	£0.00	
	including baseline environmental work	£0.00	
EL1 Field corner management (LFA land) (per hectare)	Direct income foregone	-£14.29	**£100.00**
	including farmers own time	-£14.29	
	including baseline environmental work	-£14.29	
EL2 Manage permanent in-bye grassland with low inputs (per hectare)	Direct income foregone	£0.00	**£35.00**
	including farmers own time	£0.00	
	including baseline environmental work	-£26.82	
EL3 Manage in-bye pasture and meadows with very low inputs (per hectare)	Direct income foregone	£0.00	**£60.00**
	including farmers own time	-£12.40	
	including baseline environmental work	£0.00	
EL4 Management of rush pastures (LFA land) (per hectare)	Direct income foregone	£0.00	**£60.00**
	including farmers own time	£0.00	
	including baseline environmental work	£2.79	
EL6 Moorland and rough grazing (per hectare)	Direct income foregone	£0.00	**£5.00**
	including farmers own time	£0.00	
	including baseline environmental work	£0.00	
Stocking rate changes (per hectare)	Direct income foregone	-£7.66	**£0.00**
	including farmers own time	£0.00	
	including baseline environmental work	£0.00	

Prescriptions for trees and woodlands

Table 4 shows the financial implication of prescribing to tree options under ELS. None of the farms incurred any income foregone or costs as a result of entering into the prescription. DEFRA assumed that there would be a stocking rate reduction to accommodate the prescription. Farm E did reduce their stock but this decision was made in response to subsidy decoupling rather than joining ELS.

Prescriptions for the uplands

Table 4 shows that no direct income foregone was incurred as a result of entering land into upland grazing prescriptions save 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 the prescription. Costs for baseline environmental work were incurred on five farms. Here either a topper or spot sprayer was used to control invasive weeds, a requirement under the upland options but something that they were doing any way. Farm E made a net saving on EL4 due to them no longer spot spraying the rush field. Although effectively this might be classed as a direct change to income foregone, the farmer had only stopped spot spraying as he had purchased a topper. Therefore, effectively this was a change in baseline environmental work.

Farms C and F did not have any costs for baseline environmental work as none was 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 knife but said that this was too minimal on time requirement to put a realistic annual estimate on the cost.

The upland options limit the application of nitrogen, manure, herbicides and pesticides although there was no change in management on most farms which would be expected under extensive upland farming conditions. Farm G was the only farmer who said that prior to ELS participation they applied a greater quantity of Nitrogen than the ELS threshold. Farm G had entered some land under prescriptions EL2 and EL3 to reach their points target and had to reduce their nitrogen input on these pastures accordingly. The farmer managed not to reduce stocking or forage output by increasing the application of nitrogen elsewhere on other land.

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

Income foregone of stocking rate changes

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

The question should be posed as to whether ELS did contribute to the change in stocking. Most farmers said that the change was due to decoupling and in some cases impending retirement. The introduction of the SFP and ELS coincided and both operate to an extent on a similar basis. Neither of them bears much relationship to production and both incorporate environmental management. If a case based analysis had not been used it might have been assumed that stocking rate changes were a result of ELS alone. The

benefit of the approach taken in this study was that it looked at the real issues and tried to factor in all causes. The study has highlighted that ELS payments are enough to cover any losses due to changes in stocking rate based on the evidence of these few farms in Teesdale.

Conclusions

The seven farms in this study all made a profit from ELS participation. In theory this should not be possible unless the actual income foregone was less than that assumed in DEFRA's figures. Fundamentally, it is only those farmers at the lower end scale of income foregone that will be able to profit from ELS. Others at the higher end of scale of were likely not to gain from ELS entry and therefore might not join. This is clearly a governing factor in a farmers decision whether or not to enter ELS.

There was considerable variance between the income foregone incurred on each farm, however this can mainly be put down to two factors:

1. The use of an agent to complete the FER which increased the direct income foregone accordingly;
2. Baseline environmental work was higher on some farms than others.

Other than the above, there were no other factors that led to significant variance and the results are consistent representation of the costs involved in accommodating ELS.

The results beg the question as to why DEFRA and other bodies carrying out consultations on DEFRA's behalf have not 'ground truthed' their assumptions by doing a similar case based analysis. The findings from this study align with those of Thomson and Slee (1998) and Jones (2006) involving other agri-environment schemes in demonstrating that profit can be made on payments designed to achieve income foregone recovery only. It also poses potential questions concerning compliance with World Trade Organisation (WTO) Green Box rules. Nevertheless if there was no possibility of profit in agri-environment schemes participation there would be only a limited number of farmers willing to join for purely non-financial reasons. The objective of ELS was that it should appeal to a significant number of farmers so for this to be achieved there probably needs to be an incentive for the majority of farmers for inclusion targets to be met. By achieving broad uptake there is arguably extra wildlife and environmental benefits to be had than could be achieved by schemes taken up in isolated pockets. This needs the payment levels to be attractive to the majority and not just the few.

Subsidy decoupling is already extensifying production as beef farming in particular seems much less profitable without attached subsidies. The study has clearly showed that farmers are now reducing stocking rates as decoupling makes it less viable to maintain stocking rates. However upland grazing prescriptions do require at least minimum levels of stocking. It therefore ensures continuance of a pattern of extensive farming that might start to disappear otherwise.

A further argument in support of payments that exceed income foregone is the positive effect on farmer's attitudes. It was clear on each of the case farms that ELS had definitely made farmers more aware of environment and wildlife considerations. In fact a number of the farmers were interested in furthering environmental management by looking into the Higher Level Scheme (HLS). This all suggests that there probably are good arguments to have ELS payment rates higher than the income foregone. The concern should perhaps be not so much that the income foregone is less than expected but that this should be an issue.

References

ADAS (2003) The mid-term evaluation of the England rural development programme-hill farm allowance. ADAS

Baldock, D. and Lowe, P. (2006) Development of European agri-environment policy. In, Whitby, M. (eds). European environment and CAP reform: policies and prospects for conservation. CAB International: 8-26

Boatman, ND et al. (2004) Evaluation of the pilot entry level agri-environment scheme -Final report. Central Science Laboratory

CJC Consulting. (2002) Economic Evaluation of Agri-Environment Schemes. University of Cambridge [online]. Available from: http://statistics.defra.gov.uk/esg/evaluation/agrienv/default.asp [Date accessed 15.03.06].

Carey, P, Short, C, Morris, C, Hunt, J, Priscott, A, Davis, M, Finch, C, Curry, N, Little, W, Winter, M, Parkin, A, Firbank, L (2003) 'The multi-disciplinary evaluation of a national agri-environmental scheme', Journal of Environmental Management, 69, p. 71-91.

Colman, D. (1994) 'Comparative evaluation of environmental policies-ESAs in a policy context. In, Whitby, M. Incentives for countryside management-the case of environmentally sensitive areas. CAB International: 219-252

Council of the European Union (1999) Council Regulation (EC) No 1257/1999 of 17th May 1999 (on support for rural development from the EAGGF and amending and repealing certain regulations), Official Journal of the European Union, L.160/80 – L. 160/101.

Council of the European Union (2002) Council Regulation (EC) No 445/2002 of 26th February 2002 laying down detailed rules for the application of Regulation 1257/1999 (on support for rural development from the EAGGF), Official Journal of the European Union, L.74/1 – L. 74/34.

Council of the European Union (2005) Council Regulation (EC) No 1698/2005 of 20th September 2005 (on support for rural development by the EAFRD), Official Journal of the European Union, L277/1 – L.277/40.

DEFRA (2002a) Review of agri-environmental schemes in England (first consultation). DEFRA [online]. Available from: http://www.defra.gov.uk/corporate/consult/agri-env/index.htm [Date accessed 15.03.06].

DEFRA (2002b) Review of agri-environment schemes in England (second consultation). DEFRA [online]. Available from: http://www.defra.gov.uk/corporate/consult/agri-envrev/frameworkfull.pdf [Date accessed 15.03.06].

DEFRA (2004) Hill farm allowance-explanatory booklet 2005. DEFRA

DEFRA (2006a) Environmental Stewardship (ES) - Aid rates and income foregone calculations [online]. DEFRA. Available from: www.defra.gov.uk/erdp/docs/national/section9/section94/aid-rates [Date accessed: 28.01.06]

DEFRA (2006b). Agricultural Survey Data-Searches. DEFRA. Available from: www.defra,gov.uk/esg/work_htm/publications/cs/farmstats_web/datamap_links/search_menu [Date accessed:13.09.06]

European Commission (2005). Agri-environment measures –overview on principles, types of measures, and application. European Commission

HSBC (2006) Business finance and borrowing [online]. HSBC. Available from: http://www.hsbc.co.uk/1/2/business/finance-borrowing/business-loan [Date accessed: 24.08.06]

Jones, J.V.H. (2006), 'A case based investigation of the financial implications of agri-environment scheme participation: pre- and post decoupling', Journal of Farm Management, 12(7), p.477-498.

Lloyds TSB (2006). Lending rates [online]. Lloyds TSB. Available from: http://www.lloydstsbbusiness.com/rates_and_charges/lending_rates.asp [Date accessed 24.08.06]

Lognonne, A. (2005 July 29) Environmental Scheme will cost some farmers. The Journal (Newcastle, UK).

Morris, C. and Potter, C. (1995) 'Recruiting the new conservationists: Farmers' adoption of agri-environmental schemes in the UK', Journal of Rural Studies, 11(1), p. 51-63.

Moss, J. (1994) 'A baseline assessment for a new ESA-The case of the Mourne Mountains and Slieve Croob. In, Whitby, M. Incentives for countryside management-the case of environmentally sensitive areas. CAB International: 153-178

Newcastle University (2005). Farming in Northern England: Results of Newcastle farm business survey 2004/5. University of Newcastle upon Tyne.

Nix, J (2005). Farm Management Pocketbook, 36th Edition. Imperial College at Wye.

Parker, M and Tallentire, L (199?). Teesdale and the High Pennines. Discovery Guides Ltd. Middleton in Teesdale.

Policy Commission on the Future of Farming and Food. (2002) Farming and food: a sustainable future. Policy Commission on the Future of Farming and Food

Produce Studies (1994) The CSS: A review of incentive payments, an unpublished report to the Countryside Commission.

Rural Development Service (2005). Entry Level Stewardship Handbook. DEFRA

Ryan, M (2006) Personal communication with Martin Ryan of the Rural Development Service 12th June 2006.

Savills (1994) CSS: Review of arable reversion incentive rates, an unpublished report to the Countryside Commission.

The West Country (2005 July 17). Form fear losses £30.

The Darlington and Stockton Times (2006 February 18). First applicants start to receive ELS payments.

Thomson, V. and Slee, W. (1998) 'The Financial Impact of ESAs on LFA Farmers – A Case Study of Farmers in the Cairngorm Straths ESA', Farm Management, 9(12), p. 618 – 633.

Turner, JT and Taylor, M (1998) Applied Farm Management, 2nd Edition, Blackwell Science, Oxford.

Warren, M. (1998). Financial Management for farmers and rural managers, 4th Edition. Blackwell Science, Oxford

Whitby, M. (2000) 'Challenges and options for the UK agri-environment: presidential address', Journal of agricultural economics, 51(3), p.317-322

Whittaker, J.M. O'Sullivan, P. and McInerney, J. (1991) 'An economic analysis of management agreements. In, Hanley, N. Farming and the countryside-an economic analysis of external costs and benefits. CAB International: 197-214

Wilson, G.A. and Hart, K. (2001) 'Farmer participation in agri-environmental schemes: Towards conservation-oriented thinking?' Sociologia Ruralis, 41(2), p. 254-274.