Estimating the Incidental Socio-economic Benefits of Environmental Stewardship Schemes

Final Report

by

Jane Mills, Paul Courtney, Pete Gaskell, Matt Reed and Julie Ingram

Countryside and Community Research Institute

with contributions from:

Mike Clarke, John Powell, Carol Kambites, Nick Lewis, Ros Boase, Emma Dennis, Nicki Courtney, Emily Measures and Bekki Griffiths, Nigel Boatman, Fera and Bob Ford, University of Birmingham

Project manager: Jane Mills
Email: jmills@glos.ac.uk

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Executive Summary

1. Introduction

This report assesses the incidental socio-economic benefits of Environmental Stewardship (ES) schemes in England in order to identify their socio-economic impact on the wider local economy. In particular, it assesses the extent of local multiplier effects and employment creation as an indirect result of agri-environment expenditure. The three objectives of the research were:

- **Farm Level Impacts** - to produce farm level estimates of the social and economic benefits of Entry Level Stewardship (ELS), Higher Level Stewardship (HLS), Organic Entry Level Stewardship (OELS) agreements, disaggregating estimates by value of agreement; farm type; and between organic and non-organic schemes.
- **Scheme Option Level Impacts** - to produce estimates of the relative social and economic benefits of different ES option groups (both capital and land management).
- **Aggregate Level Impacts** - to estimate the aggregate social and economic impact of ES differentiating between ELS/HLS/OELS agreements, to produce estimates at England and English Government Office Regions (GORs) levels; and by landscape typology.

The method used for estimating local economic impacts of ES schemes is the LM3 model, originally developed by the New Economics Foundation (NEF). The model measures the impact of the first three rounds of spending in the economy and estimates the magnitude of subsequent rounds to derive income and employment effects (in terms of £m and full-time equivalent (FTE) jobs1) and multipliers (which indicate the pound for pound impact of the original investment).

Figure 1 illustrates the data input requirements for the NEF’s LM3 model used in this study. The direct benefits relate to the initial scheme payment that can be regarded as additional and remains local; indirect benefits relate to the subsequent local expenditure of this income on inputs by agreement holders, contractors, suppliers and advisors; and induced benefits relate to the expenditure of wages, salaries and profits by local employees. In simple terms, the multiplier effect can be defined as: Multiplier = (Direct Effects + Indirect Effects + Induced Effects) / Direct Effects, wherein the direct effects are the initial investment into the economy and the indirect and induced effects are the subsequent spending resulting from that original investment. The multipliers calculated can be of differing magnitude because the direct injection is not always the scheme injection.

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1 This is the ratio of total paid hours during a period by the number of working hours during that period. An FTE of 1.0 means that the person is equivalent to a full-time worker, while an FTE of 0.5 indicates that the worker is only half-time.
2. Methodology

Literature review
The research initially undertook a critical review of studies which have explored the economic impacts of Agri-environment Schemes (AES) and in particular have employed the NEF’s LM3 model. It also examined the evidence for the social and human capital benefits of AES. The review identified a number of issues which helped to inform both the direction and detail of the research project.

Study of agreement holders
Data required for LM3 models and the social assessment of ES were collected through face-to-face and telephone interviews. A sample of 360 agreement holders was selected for interview and stratified on the basis of scheme type, agricultural landscape type and agreement value. In total, 72 agreement holders were interviewed face-to-face and 288 by telephone. The questionnaires were designed to ensure that sufficient data was collected to feed into the LM3 model, but also contained open questions to solicit qualitative responses that could provide an insight into other aspects of the scheme.

Study of suppliers, contractors and advisors
To provide further data for the LM3 model both telephone and face-to-face interviews were conducted with 85 local businesses, involving agricultural contractors, suppliers of agricultural goods and advisors. These interviews
identified the income and employment impacts of the ES schemes on the business and the spatial distribution of supply and employment expenditure.

Local Economic Impact Analysis
The quantitative data gathered during the interviews were used to calculate the income and employment effects of ES schemes and a total of 48 LM3 income and employment models were produced. The more qualitative data were analysed to identify trends that would indicate the social impact of the schemes and other important issues.

3. Key Results

The main results from the LM3 analysis are provided below. The multipliers presented are for a 40 minute drive time from the agreement holder, unless otherwise stated.

Local economic impact of ES

All schemes – As Table 1 shows, at the national level the derived income multiplier for all the ES schemes was 1.42. Thus, a £1 expenditure on ES activities could be said to result in a total output in the local economy (40 minutes drive time from agreement holder) area of £1.42. Extending the local boundary to a 60 minute drive time zone from agreement holders, the income multiplier for all ES schemes was 1.73. Going beyond the 60 minutes, the income multiplier for the ‘elsewhere’ category is 32.3. The ‘scheme’ multiplier for all ES schemes, which divides the total income effect by the total scheme payment, is 0.26. This shows that for every £1 of ES scheme payment that goes to the agreement holder, 0.26 is generated off-farm in the local economy through direct expenditure and indirect and induced effects.

Table 1: Income Multipliers: National level, by Scheme

<table>
<thead>
<tr>
<th>Scheme</th>
<th>40 Minute Drive time</th>
<th>60 Minute Drive time</th>
<th>Elsewhere</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Income Multiplier</td>
<td>‘Scheme’ multiplier</td>
<td>Income Multiplier</td>
</tr>
<tr>
<td>HLS</td>
<td>2.23</td>
<td>1.43</td>
<td>2.67</td>
</tr>
<tr>
<td>ELS</td>
<td>1.29</td>
<td>0.16</td>
<td>1.61</td>
</tr>
<tr>
<td>All Schemes</td>
<td>1.42</td>
<td>0.26</td>
<td>1.73</td>
</tr>
</tbody>
</table>

The survey found that a high percentage (80%) of all ES expenditure by agreement holders is spent locally. The same is true for the purchases made by the contractors, suppliers and advisors sampled.

The direct employment effect was calculated from the number of additional jobs created on the holding as a direct result of ES activities, taking into account displacement effects in the local labour market. On average over the sample, 0.015 additional direct FTE jobs were created per agreement holder, which suggests farms were able to absorb much of the additional workload generated by the scheme without recruiting additional staff. Upland agreement holders, in particular, saw any increase in workload as a positive
impact in that it created work for underemployed farm workers and family members. Thus it appears that ES is more important on the agreement holdings for job retention rather than job creation.

Assumed co-efficients were applied to calculate the indirect and induced employment effects. As Table 2 shows the employment multiplier calculated for all ES schemes was 1.25 (FTE) jobs. Thus for every 1 FTE job created as a direct result of scheme expenditure, 0.25 FTE jobs are created in the local economy. Also 1.32 FTE jobs were created for every £m of initial scheme injection.

<table>
<thead>
<tr>
<th>Scheme</th>
<th>40 Minute Drive time</th>
<th>60 Minute Drive time</th>
<th>Elsewhere</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Employ. multiplier</td>
<td>FTE jobs/£m injection</td>
<td>Employ. multiplier</td>
</tr>
<tr>
<td>HLS</td>
<td>2.14</td>
<td>2.21</td>
<td>2.23</td>
</tr>
<tr>
<td>ELS</td>
<td>1.16</td>
<td>1.38</td>
<td>1.17</td>
</tr>
<tr>
<td>All Schemes</td>
<td>1.25</td>
<td>1.32</td>
<td>1.28</td>
</tr>
</tbody>
</table>

**HLS** - Comparing HLS and ELS schemes, HLS generated the highest income multiplier of 2.23 in the local economy (40 mins). These schemes are more demanding than ELS schemes and contain capital works, which require greater expenditure in the local economy. Also the additionality benefits of HLS schemes are high. In the absence of HLS scheme payments 79% of the scheme work would not have been undertaken. Extending the local boundary to 60 minutes drive time increases the HLS income multiplier to 2.67.

The ‘scheme’ multiplier for HLS is 1.43. This indicates that for every £1 of HLS scheme payment that goes to the agreement holder, £1.43 is generated off-farm in the local economy through direct expenditure and indirect and induced effects.

HLS schemes generated the highest employment multiplier of 2.14 and the highest FTE jobs created/£m scheme injection of 2.21, reflecting the more demanding nature of these schemes and the greater requirement for the use of contractors and supplies compared to ELS.

**ELS** - The ELS income multiplier of 1.29 and the ‘scheme’ multiplier of 0.16 were lower than HLS as significantly less is spent on ELS scheme-related work in the local economy. The employment multiplier for ELS of 1.16 and the FTE jobs created/£m of scheme injection of 1.38 were also lower than HLS.

**Options level analysis** – As Table 3 shows the HLS boundary group (HB) generated both the highest income multiplier and employment multiplier of 2.28 and 2.28, respectively. This option group contains a high proportion of capital items, such as those associated with fencing and hedgerows which are popular options and require the use of contractors and the purchase of...
materials. The lowest income multiplier of 1.21 was for the ELS grassland option group (EK) which mainly required land management changes, rather than the purchase of additional inputs and services.

### Table 3: Income and Employment Multipliers by Option Group

<table>
<thead>
<tr>
<th>Option group</th>
<th>Income Multiplier (40)</th>
<th>Income Multiplier (60)</th>
<th>Employment Multiplier (40)</th>
<th>Employment Multiplier (60)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HB</td>
<td>2.28</td>
<td>2.75</td>
<td>2.28</td>
<td>2.41</td>
</tr>
<tr>
<td>EK</td>
<td>1.21</td>
<td>1.52</td>
<td>1.15</td>
<td>1.16</td>
</tr>
</tbody>
</table>

**Analysis by farm type** – The lowland livestock farms generated the highest income multiplier of 1.50. The livestock schemes contain a high proportion of boundary options which produce a high income multiplier. Also more income has been retained in the local economy for these farms through sourcing a greater proportion of supplies and contractors locally.

**Agricultural landscape analysis** - The Upland Fringe and Western Mixed landscape types generated the highest multipliers of 1.50 and 1.49, respectively. This largely reflects the predominance of livestock options in these areas which produce higher income multiplier effects.

**Regional level analysis:** - The highest multiplier impacts on the local economy were for the mainly livestock dominated North West and West Midlands regions, with income multipliers of 1.48, whilst the arable dominated East of England produced the lowest income multiplier of 1.33.

**Analysis by agreement value:** - The highest value agreements produced the highest employment multiplier of 2.63. These larger schemes are likely to have more complex options and a significant amount of capital works and there will require more outside help in implementing the agreement.

**Income effect on local businesses** - Seventy per cent of the surveyed businesses reported some increase in turnover as a result of the schemes. For about a quarter of these businesses, mainly stone wall contractors, tree nurseries and advisors, the impact on turnover was high (more than 50%). This suggests that some businesses are far more engaged with supplying ES goods and services and are more dependent on the continuation of ES to remain viable. The demise of such schemes may mean that such businesses cease trading and traditional rural skills are lost.

**Employment effect on local businesses** - The advisors and contractors created an average of 0.13 and 0.10 new FTE jobs per business in the local economy, respectively, to meet the demands of the ES schemes. These existing businesses were able to absorb much of the additional demand for their services without recruiting additional staff.

**Social benefits of ES**

*Human capital: attitudes, knowledge and farm practice changes* – The survey found that ES schemes have contributed positively to the management
skills base of farmers and increased their environmental knowledge, and general awareness of the environment when managing the farm. This increased awareness has translated into wider attitudinal and farm practice changes most notably the environmental impact of management actions across the whole farm. In particular, HLS agreement holders who have had to make changes to their established management practices have benefitted in this way.

Attitudes also extended to a sense of pride and recognition of the wider benefits in participation in the schemes from engaging with the public, helping with marketing or maintaining a level of income.

**Human capital: skills and training benefits** - ES has had the greatest positive impact in terms of skills and knowledge development on arable agreement holders, and these agreement holders were also more likely to have attended a training course. This may reflect the more demanding nature of the arable options where agreement holders are required to do more than their usual farming practices.

Forty-four per cent of agreement holders reported a transferability of skills from ES schemes to other projects/areas of farm work. They tended to apply the scheme management principles when carrying out other tasks around the farm, this applied particularly to field operations, such as cultivation of field edges, spraying and chemical usage, drilling and the timing of field operations.

A third of the sampled HLS agreement holders had attended training courses or open days as a result of ES scheme membership. Courses attended included hedge laying, dry-stone walling and management skills for specific habitats. The educational access options, in particular, had prompted some farmers to attend courses specifically designed for dealing with the public. In addition, a number of contractors and advisors also sought new knowledge and skills through training courses.

**Social interaction benefits** – The survey found that ES can play an important part in developing new social contacts and networks. Of the advisors used by agreement holders, 40% were not known to them previously, which indicates that these agreement holders had to reach out beyond the established social networks around their farm or business for this expertise. This was particularly the case for HLS agreement holders and for the lowland dairy and livestock farms. These new linkages and flows of information can potentially lead to profound changes in social and business activity.

The survey found that ES schemes and particularly HLS schemes have also brought agreement holders in contact with more farmers and the general public. It appears that in a period of increased isolation the social contact prompted by scheme membership (hosting or attending farm walks, meetings to discuss options, advisor visits) is greatly valued.
4. Implications for policy change

The study findings have a number of implications for policy concerned with delivering value from AES.

- The research confirms for the first time at a national scale that the incidental benefits of ES have a significant impact on the local economy. Due to the nature of ES requirements, much of the income and employment benefits are retained locally. This appears to be a particular characteristic of agri-environmental activities undertaken by the agricultural community.

- The research found that in the absence of ES scheme payments a large proportion of the scheme work would not have been undertaken. The contribution of ES scheme funding to ensuring that wildlife, landscape and historical features are created, restored and maintained is therefore vital.

- The uptake of capital works options within HLS schemes produces the highest income and multiplier effects in the local economy. Consideration needs to be given to this when contemplating future policy change.

- In some areas where farm underemployment is widespread, ES appears to have been important in retaining family members and farm employees on the farm. This has important policy implications at a time when farm employment is contracting.

- ES schemes under-pin employment for some local businesses, including stone walling and hedge restoration contractors and some advisors. The demise of such schemes may mean that some businesses cease trading and traditional rural skills are lost.

- ES schemes have resulted in a transferability of management skills to other areas of the farm, particularly in relation to field operations. This demonstrates that ES can produce wider environmental benefits across the farm, beyond the ES agreement.

- There are benefits of Natural England and other organisations continuing to promote such events as open days and farm walks as the increased social interaction they bring fills a social vacuum in the agricultural community and is greatly valued by many agreement holders.