

Evaluation of Less Favoured Area Support Scheme (LFASS)/ Development of Areas of Natural Constraint (ANC).

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**EVALUATION OF LESS FAVOURED AREA SUPPORT SCHEME (LFASS)/
DEVELOPMENT OF AREAS OF NATURAL CONSTRAINT (ANC).**

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The views expressed in this report are those of the research team and do not necessarily represent those of the Scottish Government Officials or Ministers.

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Executive Summary

- E1. In anticipation of the transition from Less Favoured Areas (LFAs) to Areas of Natural Constraint (ANCs), the Scottish Government (SG) commissioned a desk-based evaluation of the Less Favoured Area Support Scheme (LFASS). The aim was to establish how LFASS currently meets the goals of the Rural Development Regulation (RDR) and ANC working guiding principles, and to review the evidence and provide proposals for the development of the new ANC scheme.

Land Abandonment

- E2. Agricultural abandonment of land has potential implications for commodity production, rural communities and environmental conditions. Although the pattern is uneven, agricultural census data and LFASS payment data indicate that abandonment has occurred in recent years, predominantly on poorer quality land and in more remote areas, both at field level and whole farm level.
- E3. This is despite on-going and increased support and reflects a number of factors, including market pressures, the decoupled nature of most payments and broader socio-economic changes. In some cases, abandonment may be temporary, in others more permanent. Moreover, whilst some instances of abandonment may generate additional environmental or recreational benefits, widespread abandonment is generally viewed as undesirable.

Payment distributions

- E4. Reflecting the historical headage basis for livestock support payments, per ha payment rates for both LFASS and the Single Farm Payment (SFP) have been higher on better quality land within the LFA than on poorer quality land. Although this remains the case, payment rates on poorer land have risen as a result of changes to LFASS and through the introduction of the new Pillar I Basic Payment Scheme (BPS). Consequently, total funding to more remote areas with poorer quality land has increased and will continue to do so as the BPS is phased in (provided that land is actually claimed). Funding to better quality land in more accessible areas within the LFA will, generally, decrease (unless it was lightly stocked historically).
- E5. Although the three-region model adopted for the BPS limits the degree of redistribution, the switch away from the historical SFP means that more extensive LFA cattle and sheep farms (in any region) will gain funding at the expense of more intensive LFA and non-LFA farms. Within each BPS region, the area-based nature of payments means that larger farms will receive higher total payments.

Sustainable Farming Systems

- E6. Excluding support payments, the net margins for livestock grazing enterprises across the LFA (and elsewhere) are typically negative. Moreover, gross margins are also often negative. This reflects underlying challenges to achieving profitability everywhere, but

also variation across farms in terms of size and skills – lower quartile performers are markedly less efficient than upper quartile performers (indicating scope to improve through management and/or structural adjustments).

- E7. Hence, many LFA farm enterprises would not be sustainable in the absence of support payments – including LFASS but also other Pillar II schemes and, especially, Pillar I payments. However, care should be taken to distinguish between individual enterprises and their host farm businesses/households which may have multiple sources of income. Size also matters in that small-scale enterprises can contribute only modestly (via revenues or area payments) to total income, even if run efficiently.

Income Foregone and Additional Costs

- E8. Concepts of income foregone and additional costs arising from operating in an LFA are intuitively appealing. Indeed, the absence of certain farming activities from the LFA reflects the relative profitability of different enterprises. However, this means that types of activities observed within an LFA have evolved endogenously to suit their circumstances. As such, their cost structure cannot be easily compared with activities elsewhere that have evolved under different circumstances – they are different enterprises.
- E9. For example, whilst it is apparent that transportation distances and limited scope for producing fodder and straw locally can raise the unit costs of some inputs, the effect is not only on those unit costs but also on the type of management system adopted in terms of the intensity and mix of inputs deployed and of outputs generated. Consequently, systems may have different cost structures, but (reflecting the principle of equi-marginal returns) profitability may be more similar if expressed in terms of net (rather than gross) margins and if consideration is given to different denominators. For example, per animal, per ha, per labour unit or per £ of capital investment.

Conclusions

- E10. The advent of ANCs is forcing many of the questions raised by previous debates about LFA policy to be revisited and presents an opportunity to address a number of unresolved concerns. However, broader rural development objectives and SG National Performance Framework outcomes, plus overarching EU objectives such as economic growth, social cohesion and climate change, all now have greater prominence. As such, any future LFA-type policy should be shaped less by previous policies and more by intervention logic and commitment to delivering against clear and justifiable objectives.
- E11. Unfortunately, decoupled payments are at best a weak and blunt tool for influencing land management in ways likely to deliver on the stated policy objectives. Specifically, by imposing only weak conditionality on how land is managed, LFA/ANC policy has little leverage on the occurrence or intensity of management activities or their knock-on effects with respect to production, retaining jobs and skills or delivering environmental

benefits. Moreover, a focus on biophysical constraints alone is insufficient to calculate the “appropriate level of support” through additional cost/income foregone calculations. Notwithstanding EU-level endorsement of ANC, their underlying logic is itself also not compelling if considered in a broader context.

E12. Consequently, given budget limits and ANC rules, although various design options for designations and payment rates can be constructed, none are likely to deliver satisfactorily on policy aims nor to avoid significant redistribution from existing support patterns. Ultimately, if the European Commission’s rules around ANCs do not permit the degree of targeting and conditionality required to address specific policy objectives and redistribution is unavoidable anyway, it may be that other policy instruments available under both Pillars of the CAP would be more suitable and that at least a proportion of funding currently directed through LFASS could be better deployed in other ways. Sustainable rural development is unlikely to be secured through denial of the pressures for structural adjustments and continuation of the existing approach.

EVALUATION OF LESS FAVOURED AREA SUPPORT SCHEME (LFASS)/ DEVELOPMENT OF AREAS OF NATURAL CONSTRAINT (ANC).

1. Introduction

1. To help inform preparations for the transition from Less Favoured Areas (LFAs) to Areas of Natural Constraint (ANCs), the Scottish Government (SG) commissioned an evaluation of the current payment mechanism based around LFAs in Scotland – the Less Favoured Area Support Scheme (LFASS). The aim was to establish how LFASS currently meets the goals of the Rural Development Regulation (RDR) and ANC working guiding principles, and to review the evidence and provide proposals for the development of the new ANC scheme.
2. The exercise was desk-based, essentially comprising a review of secondary data and previous evaluation studies supplied by the SG and by members of the LFASS/ANC Stakeholder Group (see Appendix A for list of information provided). Other relevant material was drawn on (see Appendix B), as was the collective experience of the evaluation team and the key principles agreed by the Stakeholder Group.
3. The exercise focused on five specific topics:
 - i. Land abandonment; the extent to which land has been abandoned over time and to establish the reasons for land abandonment.
 - ii. The distribution of LFASS Payments across geographical regions and agricultural sectors.
 - iii. The distribution of estimated new Pillar 1 Payments across geographical regions and agricultural sectors.
 - iv. Sustainable farming systems; what level of support is required to enable business viability and how important LFASS is to farm business and farm household income.
 - v. Whether LFASS has appropriately compensated farmers for income forgone and additional costs they face as a result of having LFA land.
4. Following a brief summary of the background to LFASS, the five topics are addressed in turn (ii and iii together) before some discussion and concluding comments are offered. Inevitably, given the complex inter-relationships involved, there are some overlaps between the issues considered in each section.

2. Background

5. LFAs are defined across the European Union (EU) in relation to physical disadvantages imposed on agricultural production by, for example, relatively poorer climatic, topographical or soil conditions. Introduced in the mid-1970s, they have evolved over time both in terms of how they are defined and how payments intended to compensate farmers for having to cope with disadvantages are calculated.

6. In particular, the switch in 1999/2000 from headage payments for LFA livestock to area payments for LFA land was a radical change, and one that offered a prologue to the issues to be raised by subsequent wider decoupling of Pillar I support payments. Following prolonged criticism of inconsistency and incoherence of LFA policies across the EU, LFAs are to be replaced by a new spatial designation: ANCs. The scope and rules for ANCs are prescribed by EU regulations and constrain how they can be implemented in Scotland (but there is no obligation to introduce the ANC policy).
7. The current incarnation of Scottish LFA policy – LFASS – has perhaps endured far longer than could have been anticipated at the time of its creation following the switch to decoupled payments from the previous coupled Hill Livestock Compensatory Allowance (HLCA) system. This reflects delays at the EU-level in the development of ANCs but also understandable domestic preferences for some stability after the prolonged difficulties of devising an area-based payment scheme that was acceptable to a variety of stakeholders, including DG Agriculture and DG Environment.
8. LFASS is widely seen as a key part of the institutional support structure for Scottish agriculture. However, the advent of ANCs is now forcing many of the questions raised by previous debates about LFA policy to be revisited: for example, where lines should fall on a map; how disadvantage should be measured; how payment rates should reflect disadvantage; whether historic stocking densities should feature; how environmental considerations should be addressed; and whether and how transport costs (peripherality) should be included. In turn, this prompts consideration of objectives and the consequences of any redistribution of support that inevitably accompanies policy changes: development of the original LFASS was shaped by constraints on the pace and degree of redistribution between “winners and losers” and similar pressures are still apparent.
9. Although many of the issues encountered in previous LFA reforms may remain the same, the broader policy context has changed in that Pillar I is now not only (mostly) decoupled but is also shifting to a ‘flattened’ area-based payment (rather than an historic link to previous payments). Moreover, a reduced overall budget, a desire for simplification and the demise of distinct funding axes within Pillar II have all heightened awareness of the dominance of LFA expenditure within it and the need to foster linkages to broader rural development objectives within the overarching RDR.
10. In addition, there is a need for Rural Development Programmes (RDPs) to sit within European policy priorities (Europe2020: economic growth, social cohesion, climate change etc.) and policies are subjected to increased scrutiny through the Common Monitoring and Evaluation System. Furthermore, the Court of Auditors has examined some RDP policies critically, questioning their value for money. Domestically, the SG National Performance Framework is also relevant.

11. All of this points to the need for a robust, defensible, evidence-informed policy that contributes significantly to the delivery of desired outcomes. Hence the aim of this evaluation exercise was to review LFASS in order to inform development of any subsequent ANC support mechanisms.

3. Land abandonment

12. Land abandonment is an emotive term, but also one open to different interpretations. In particular, although land used previously but no longer active in agricultural production has been abandoned from a farming perspective, it may still be delivering social benefits in the form of other ecosystem services such as recreational enjoyment or climate regulation. Moreover, the possibility of returning land to agricultural (or other commodity provisioning service) usage in the future means that it retains an option value: unless land values drop to zero, it has not been truly abandoned.
13. Nonetheless, prolonged agricultural abandonment in the sense of no active farming management has been observed historically in Britain during periods of agricultural depression and more recently as a transitional effect of accession to the EU in some New Member States. Moreover, once abandoned agriculturally, some land may be very difficult to bring back into production due to (e.g.) scrub encroachment, drainage degradation and loss of local skills. Policy interest in this form of abandonment arises for a number of reasons, including the relationships to total agricultural production and agri-food supply-chains, to the viability of individual farms and rural communities, and to environmental conditions.
14. The impacts of any agricultural abandonment will depend on the nature of these relationships. For example, a diminished area of utilised farmland may reduce the volume of domestic agricultural output available for processing and consumption whilst any associated reduction in other inputs (notably labour) and income may impact negatively on local economies. Equally, various semi-natural habitats may be threatened by cessation of land management. Conversely, abandoned land may impact only marginally on production levels, local economies may be more dependent on other activities and some environmental conditions may be enhanced by reduced management intensity.

Measurement

15. Irrespective of the nature of the relationships, the first step is to identify and measure the extent of any land abandonment. Unfortunately, the main source of agricultural land use statistics – the June Agricultural Census - is only available with a degree of aggregation at a regional, parish or farm level. This means that intensity of use can only be calculated across the entire reported area, not for individual parcels of land,¹

¹ Although FIDS within IACS do relate to individual parcels of land, they offer no information on management and thus cannot help to identify the extensive margin – the point at which marginal land is being entered to or

for example, by assessing average labour or livestock per ha across the whole farm, parish or region.

16. Yet intensity of management does vary and, although wholesale abandonment is possible, it is generally individual parcels of land (or indeed parts within a parcel) that are abandoned first. For example, individual farmers will typically choose to retire their least productive land, such as parcels most compromised for production (e.g. prone to flooding) or most distant from the farmhouse, and to continue farming their remaining land. Abandonment also lies at one extreme of the spectrum of management intensity, and may be preceded by a gradual reduction in intensity. Consequently, the actual extent of any abandonment (both current and/or historic) is obscured by estimates of average intensity of usage which can, at best, only give an indication of likely abandonment.
17. Although active land uses are recorded in the agricultural census, there is no explicit category for land abandonment and hence abandonment can only be inferred from a reduction in the total area reported. This may be reasonable at the regional or national level, but is unlikely to be accurate at the parish or farm level since reductions in reported areas may simply reflect transfers between farms in different parishes, not actual abandonment.² Moreover, the annual census lacks full coverage due to a combination of less than complete compliance by farmers and deliberate less frequent inclusion of smaller farms. Consequently, some census figures are based on estimates rather than reported data and may or may not accurately reflect land use at a given location. Nevertheless, census data can provide broad indications of change.
18. As an alternative, claims for area payments under either Pillar I (i.e. the BPS or previous SFP) or Pillar II (i.e. LFASS) are more likely to be accurate and timely since there is a direct financial incentive to claim and penalties for mis-claiming. As such, reductions in areas claimed may be reasonably interpreted as indicating abandonment.³
19. Some farmers may adjust their average land use intensity by reducing the area claimed without altering other inputs (e.g. livestock), meaning that land may appear to be abandoned on paper but nothing need necessarily have changed on the ground. That is, for example, the same number of livestock may actually be run over

withdrawn from farming. Agricultural census data do provide some information on management, but only at a farm holding not a parcel level and only in terms of reported livestock and labour numbers.

² Land reported under the main farm holding (i.e. in a given parish) can physically be in different parishes.

³ Although care has to be taken in interpretation since whereas poorer quality land no longer claimed is probably abandoned, better quality land no longer claimed may have switched to a usage such as cereal (e.g. barley) production that is not eligible for LFASS support. Some farmers may also potentially forgo claiming but choose to retain land in production (at low management intensities) if payment rates are low and perceived regulatory burdens high

the same area of land, but the area reported will change.⁴ Nonetheless, payment claims are probably a reasonable indicator of abandonment.

20. Other means of measuring abandonment could include bespoke surveys of farmers or analysis of remote sensed land use data. The former would be time-consuming and expensive whilst also adding to the information provision burden on farmers. By contrast, remote sensed data are generally already available. Unfortunately, a recent attempt revealed a number of practical difficulties and was unable to generate reliable estimates (Aitkenhead, 2015). Hence identification of abandonment here is subject to the caveats noted above and based on the aggregate census and payment data provided by the Scottish Government.

Findings

21. At the national level, over the period 1992 to 2014, census data show that there has been a reduction in the area of LFA farmland associated with grazing livestock and in the number of livestock (see Table A). The reduction in livestock has outpaced reductions in area, so average stocking densities have also declined. The reductions have been steeper in those parts of the LFA receiving the lowest level of LFA payments (less than £20/ha, compared to £20-£40/ha for mid-range payments and greater than £40/ha for high payments).

Table A: Livestock and Farm Area Changes, 1992 to 2014

Category	Low payment Parishes	Mid payment Parishes	High payment Parishes	Scottish Average
Grazing livestock	-39%	-27%	-23%	-30%
Forage area	-10%	-7%	-5%	-9%
Area of farms with Grazing Livestock	-22%	-13%	-20%	-18%
Stocking density	-29%	-20%	-18%	-22%

Source: derived from Table 2 in SG's Project 1 Summary Report on Land Abandonment.

22. This pattern is confirmed by LFASS claim data, albeit for the shorter period of 2007 to 2013. Specifically, there was a reduction in the total area claimed of over 460k ha (14%) with over three-quarters of this decline occurring on the poorest quality land, Grazing Category A (see Table B).

⁴ Anecdotal incidences of this were noted following the introduction of supplementary payments for extensive grazing in that additional land was claimed but not necessarily grazed. Hence when extensification payments were abolished, the land was no longer claimed but saw no change in its management. This is an example of the problems caused by using average rather than parcel-specific management information.

Table B: LFASS claimed land area 2007 and 2013, by LFASS grazing category

Grazing Category	2007 Area (Ha)	2013 Area (Ha)	Difference	% Change
A	1,727,059	1,372,205	-354,855	-20.5%
B	695,555	647,371	-48,183	-6.9%
C	348,929	325,799	-23,131	-6.6%
D	606,683	569,946	-36,737	-6.1%
Total	3,378,226	2,915,321	-462,905	-13.7%

Source: Table 3 in SG's Project 1 Summary report on land abandonment.

23. Although the SG analysis concludes only that abandonment *may* have occurred, this seems unduly cautious – the figures are consistent with other commentary about general declines in agricultural activity across Scotland (and the wider EU) in response to a combination of challenging market conditions and the decoupling of Pillar I support.
24. As noted previously, it is possible that the extent of abandonment may be exaggerated in some cases where land has been effectively abandoned for some time, but is only now being reported as such because of the formal activity requirements. Equally, some parishes have gone against the trend and actually increased numbers of livestock and/or claimed areas.⁵ Nonetheless, it is reasonably clear that some agricultural abandonment has occurred.
25. This abandonment has occurred despite on-going support, both via LFASS and the (larger) SFP – probably reflecting the switch to decoupled payments and poor market returns. The high share of poorer quality (Grade A) land within the total abandoned area indicates that more marginal land is being discarded first. This is as expected given the lower per ha market returns and lower per ha support payments associated with poorer quality land – businesses with a mix of land qualities will abandon the poorest first and businesses with only poorer quality land have the least scope for adjusting production systems.⁶
26. Where abandonment has occurred, questions arise as to the extent of any adverse impacts and the extent to which LFASS has reduced the degree of abandonment. Consideration of impacts is beyond the remit of this review, but it should be noted that environmental benefits derive from *appropriate* management, not necessarily simply continued current management. Equally, given the dominance of poorer quality land amongst the total abandoned area, the associated reductions in

⁵ Inspection of parish-level and BRN-level data suggest that this may be a statistical artefact of how data are reported, with new land and livestock for some expanding farm businesses being reported against the parish within which the BRN is located rather than where the land and livestock actually are. In addition, LFA farms are reported as being all LFA if the majority of their land is LFA, again meaning that changes in land composition could lead to under or over-reporting of actual areas.

⁶ The relationship between in-bye and other land is an important consideration here, with abandonment in one location potentially having implications for land elsewhere (a so-called “halo effect”).

agricultural output and labour inputs may not be large at the national scale (but may still be significant at the local level).

Discussion

27. The pressure for abandonment arises from a combination of factors. First, when support payments are excluded, many cattle and sheep enterprises within the LFA are unprofitable (see later sections on Sustainable Farming Systems and on Additional Costs/Income Foregone). As such, continued land management is dependent on support payments off-setting market losses sufficiently to provide an acceptable return.
28. Second, the level of return deemed acceptable is influenced by a range of considerations. For example, the level of market returns achieved (which in turn depends on scale and efficiency) but also the importance of that enterprise to overall business or household income (which may draw on, *inter alia*, other enterprises, off-farm employment, pensions and investments), average incomes (in the local or wider economy), willingness to tolerate lower incomes to retain a familiar way of life, capital (land) value appreciation, and whether a family successor for the farm is in place. As such, reflecting variation in individual circumstances, the level of support needed to induce continued land management varies considerably across farms. This partly explains⁷ continued agricultural production when average profitability is clearly poor: the question is perhaps not so much why some land has been abandoned but why more has not been.
29. Third, the decoupled nature of both LFASS and the SFP means that they exert no direct influence over intensity of production above some minimum level required to satisfy “active farmer” criteria. As such, support payments do not necessarily preclude partial abandonment (i.e. a general reduction in average production intensity and withdrawal of active management from individual parcels of land) nor total abandonment if market losses are high relative to total support.
30. Higher support payment rates per ha might reduce formal abandonment of poorer quality land, but would not necessarily induce significant land management changes: if the act of production incurs losses, decoupled support payments can really only induce minimum production since greater production imposes effectively an income loss on land managers. In this context, an understanding of the distribution of support payments across the LFA is of interest.

⁷ Other possible explanations: include lack of awareness of actual profitability; a focus on gross rather than net margins (e.g. by mortgage-free owners); and, a belief that margins will improve over the longer-term.

4. Payments distribution

Introduction

31. The principal underlying questions with regard to the distribution of LFASS payments are first, whether or not changes in the distribution have impacted on stock numbers and land use and, second, impacted significantly on farm household incomes or more generally farm household wellbeing and longer-term business viability.
32. There are five circumstances which could lead to a change in the level of LFASS receipts at parish level between 2013-2017.
 - Increases in per ha subsidy levels which will increase parish level receipts.
 - Increases in the area paid outwith the parish of residence of the BRN will increase reported parish subsidy levels.
 - Increases in subsidy payment will arise where land which on appeal receives LFASS payments when previously no claims were made.
 - Decreases will arise because of land abandonment where land is no longer claimed for.
 - Decreases will arise where there is a shift from livestock to arable farming on part of the area.
33. Establishing causality with respect to impacts of LFASS payments on destocking, abandonment or declining farm incomes is extremely difficult. Identifying the impact of relatively small (and in this case) generally positive changes in one part of the overall policy mix on stocking, incomes and longer-term business viability is fraught with difficulty. Changes in markets, as well as bigger changes in the Pillar I payments are likely to produce more significant impacts on income change and strategic decisions to change stocking. Family life cycle and succession factors are also likely to shape decisions. LFASS is one factor among many that will influence stocking decisions and resultant farm incomes.
34. It is beyond the scope of this study either to engage in detailed econometric analysis or to engage in complementary in-depth qualitative or quantitative analysis of farm businesses and their decision making with respect to major or minor adjustment decisions. Instead, we describe the observed and changes in LFASS payments over the period from 2007-2013 and contextualise these in a wider analysis of anticipated⁸ spatial changes in Pillar I payments under the new Basic Payments Scheme (BPS).

Data

35. The SG data were presented by parish and by agricultural administrative region. Both of these spatial entities raise challenges when interpreting data and generally it

⁸ SG BPS figures presented for evaluation are estimates and may be subject to revision if payment rates and/or claimed areas are different.

is more useful to look at per hectare figures as these afford a greater degree of comparability over space and between farm types. Parishes often contain a mix of land quality but it is the subtler variations in the distribution of land quality within and between farms that are likely to frame the individual farmer's room for manoeuvre with respect to enterprises, stock numbers and business trajectory. Agricultural administrative regions are even more diverse entities with respect to land quality, which means that only coarse-grained analysis and interpretation is possible at such a scale. The inherent characteristics of the land, combined with farmer skills, and (whole family) off-farm earnings, will shape the subsidy dependence of the farm household. The capacity to produce sufficient winter keep, and depending on systems, bedding, on the holding is a key factor, especially in island and remote situations because of the high cost of importing fodder.

36. Between 2007 and 2013 LFASS payments increased by 10% overall.⁹ A breakdown of this figure by previous intensity of support on a per ha basis shows that the parishes with the greatest increase between 2007 and 2013 were the areas with lower average rates of payment per ha, with the smallest increases in areas with higher per ha payments at the start of the period. Changes were thus redistributive with respect to prior LFASS receipts at per ha levels, particularly by rewarding the remoter districts where there is an abundance of poor quality land. This reflects the deliberate raising of headline payment rates per ha in the Fragile and Very Fragile regions, where poorer land is more common.
37. However, even in the low payment per ha LFASS parish cohort which on average experienced the greatest gains in subsidy, there were parishes where overall subsidy receipt went down. The proportion of parishes with decreases ranges from 8% in parishes with less than £10 per ha receipts in 2007, to 31% and 30% respectively in parishes with subsidy receipts of between £30 and 40 per ha and over £40 ha (Table C). Thus the most negative change at parish level in overall subsidy receipt is associated with parishes receiving higher initial receipts on a per ha basis; that is the better quality land in the LFA. However, with the exception of parishes in receipt of zero subsidy in 2007, in all subsidy per ha categories, over two thirds of all parishes received increased subsidy over the period. This reflects the increase in the overall LFASS budget between 2007 and 2013.

⁹ Within this, the estimated share attributable to the enterprise mix (rather than basic area payment) fell slightly overall, but by more in the remoter, Very Fragile areas.

Table C: No of parishes with changing LFASS payments 2007 to 2013, by 2007 payment band

2007 £/ha	Number of Parishes	Parishes increasing	Parishes decreasing	No change	%increasing	%decreasing	%no change
£0	128	8	0	120	6%	0%	94%
£0 - £10	74	68	6	0	92%	8%	0%
£10 - £20	143	124	19	0	87%	13%	0%
£20 - £30	190	142	48	0	75%	25%	0%
£30 - £40	221	152	69	0	69%	31%	0%
>£40	137	96	41	0	70%	30%	0%

Source: Table 1 in SG's Project 2 Summary report LFASS payment distributions.

38. A notable characteristic of these data is the degree of churn (movement up and down) within particular subsidy receipt per ha categories. This suggests that other causal forces, or at least other causal forces in tandem with subsidy change, are determining the subsidy receipt changes. That there are parishes in one subsidy receipt group (of the four groups from lowest to highest) that are gaining subsidy when others in the same group are losing subsidy suggests multi-causality. When aggregate receipts in a class are increasing on average, but some parishes in that class are receiving less LFASS per ha, land may have been destocked and therefore subsidy is not claimed or land previously claimed may be under another type of production. The exact cause of variation within classes cannot be deduced from the available data. Over the period 2007-2013 the livestock sector in terms of cattle and sheep numbers declined in Scotland as a whole, but the area of cereals increased. Consequently, a decline in LFASS payments in better land areas is more likely to be associated with a reorientation of farm businesses towards cereal production rather than abandonment of farming activity.¹⁰
39. Poorer land types as judged by prevalent enterprises receive the highest subsidy per farm as a percentage of income (but less per ha), while the highest per ha receipts of LFASS are on lowland cattle and sheep farms, specialist beef and mixed farms (Table D). This information reveals nothing about the influence of LFASS on farm

¹⁰ Inspection of BRN-level claims data and of different land cover types at the parish-level suggest that this may be true in at least some cases.

profitability because all sources of subsidy are bundled in the table. This can be appraised by considering the relative contributions of the Basic Payments Scheme and LFASS at parish level.

Table D: Average LFASS payments (£/ha) farm income, by farm type.

Farm Type	2007 LFASS £/Ha	2013 LFASS £/Ha	Change	% Change
Cereals	£15.43	£26.14	£10.72	69.5%
General Cropping	£12.84	£12.47	-£0.38	-2.9%
Specialist beef (SDA)	£28.48	£34.96	£6.48	22.8%
Specialist sheep (SDA)	£9.53	£12.70	£3.17	33.2%
Mixed Cattle and sheep (LFA)	£15.98	£21.19	£5.21	32.6%
Dairy	£21.20	£27.02	£5.82	27.5%
Cattle & Sheep (Lowland)	£30.74	£34.90	£4.15	13.5%
Mixed	£27.33	£30.93	£3.59	13.2%
Horticulture	£16.80	£22.38	£5.58	33.2%
Specialist Pigs	£28.78	£21.85	-£6.93	-24.1%
Specialist Poultry	£7.19	£20.23	£13.04	181.4%
Other	£8.89	£13.69	£4.80	54.0%
Unknown	£11.36	£12.25	£0.89	7.8%
Total (Average)	£17.53	£22.35	£4.82	27.5%

Source: Table 7 in SG summary report on LFASS payment distribution (Project 2)

40. Using as illustrative examples (from detailed parish-level data supplied by the SG) four extensive and relatively remote parishes in different parts of Scotland (Farr, Sutherland; Crathie and Braemar, Aberdeenshire; Ardchattan and Muckain (Glen Etive) Argyll; and Morebattle, Borders), the relative contribution of LFASS to BPS payments is highest in Braemar and Crathie with LFASS receipts in 2013 comprising 46% of the estimated BPS in 2019 and lowest in Farr at only 14% of the estimated BPS in 2019. In three of these four parishes BPS payments were predicted to rise significantly over 2011 levels of SFP (Farr, +124%; Braemar and Crathie, +75%; and Ardchattan and Muckain, +44%). Morebattle was estimated to lose 25% of its 2011 SPS under the new BPS by 2019. Thus the geography of anticipated BPS changes indicates that parishes with least-favoured land will generally be net beneficiaries, while parishes in better quality upland farming areas will lose BPS. However, the degree of benefit is quite variable from place to place.
41. Table B (see above) reported changes in the area on which claims are made with respect to four categories of grazing land from worst quality to best. Between 2007 and 2013 there was a 20% drop in the area for which subsidy was received in the poorest quality land. In the other three land categories, the area in receipt of subsidy dropped by between 6.0 and 7.0%. Some poorer quality land has almost certainly ceased to be actively farmed, but whether this comprised whole farms or part of farms cannot be deduced from the data available.

42. Yet Table C (see above) shows that subsidy rates have increased by most where subsidy receipts were previously lowest. Hence, all we can conclude is that in spite of subsidy increases per ha on poorer quality land, a disproportionate amount of destocking or at least non-claiming was taking place on the poorer quality land. Although this may reflect the low (absolute) base of previous LFASS payments, it also suggests other causal forces at work other than LFASS.
43. A further breakdown (Table E) of the data shows that in over 25% of the poorer land grade parishes there was an increase in LFASS area claimed (and thus of payments). The proportion of parishes with a net increase in LFASS payments increases with land quality with nearly 36% of the best quality parishes (category D) showing an increase in total subsidy receipts. Table E also shows that in spite of the higher increase in LFASS payments on poorer land, stock numbers and claimed area has declined faster than elsewhere. It also shows that there is a significant proportion of parishes which apparently 'buck the trend' and have expanded their LFASS-subsidised activity.

Table E: No. of parishes with Increased or Decreased LFASS Area Claims, by Grazing Category

Category	Increases		Decreases	
	Count	Area	Count	Area
A	143	88,135	409	-341,161
B	190	40,382	368	-70,802
C	204	23,678	392	-37,824
D	259	27,503	462	-51,892

Source: Updated (pers. comm, SG) Table 4 in SG summary report on land abandonment (Project 1)

44. Table F shows the receipts per agricultural administrative area. Seven areas show a change of over 10% over the time period 2007-2013 but only one of these (Fife) is negative and the overall amount of LFASS receipts in this case is fairly low.

Table F: LFASS funding 2007 & 2013, by agricultural region

Ag Region	Total LFASS payment £			Mean LFASS payment £/ha		
	2007	2013	% Change	2007	2013	% Change
Argyll & Bute	£5,796,177	£7,224,639	24.6%	£17.46	£24.21	38.7%
Ayrshire	£3,492,140	£3,768,779	7.9%	£23.70	£27.17	14.6%
Clyde Valley	£3,451,878	£3,495,659	1.3%	£24.81	£26.39	6.4%
Dum' & Galloway	£8,765,887	£9,137,924	4.2%	£29.00	£31.50	8.6%
East Central	£1,690,166	£1,805,588	6.8%	£15.29	£18.50	21.0%
Eileanan an Iar	£1,594,171	£1,809,670	13.5%	£12.08	£16.67	38.0%
Fife	£433,445	£344,795	-20.5%	£31.63	£32.86	3.9%
Highland	£9,578,218	£12,181,637	27.2%	£10.00	£14.53	45.3%
Lothian	£1,200,334	£1,184,230	-1.3%	£23.77	£26.54	11.6%
NE Scotland	£5,947,773	£6,330,923	6.4%	£26.58	£32.62	22.8%
Orkney	£3,237,696	£4,029,316	24.5%	£47.42	£62.92	32.7%
Scottish Borders	£5,788,337	£6,156,963	6.4%	£24.31	£26.04	7.1%
Shetland	£2,148,061	£2,560,243	19.2%	£18.40	£25.18	36.8%
Tayside	£3,932,310	£4,499,333	14.4%	£11.04	£14.46	31.1%
Unknown	£2,164,418	£628,600	-71.0%	£11.36	£12.25	7.8%
Overall	£59,221,012	£65,158,299	10.0%	£17.53	£22.35	27.5%

Source: Tables 4&5 in SG summary report on LFASS payment distribution (Project 2)

45. Table F also shows that subsidy receipt increases of over 30% between 2007-2013 occurred in six agricultural administrative regions (broadly but not wholly matching council areas). These comprised Argyll and Bute, Western Isles, Highland, Orkney, Shetland and Tayside. These areas include some of the most extensively farmed areas (Western Isles) but also one of the most intensively farmed areas (Orkney) and show no consistent pattern with respect to type or intensity of predominant farming system. On a per ha basis, it is again impossible to draw conclusions about the causal nature of the patterns of change, but LFASS levels would not appear to be a critical factor. No agricultural administrative regions showed a decline in per ha LFASS receipts. Table G indicates that forecast changes to the distribution of Pillar I funding will lead to significant regional shifts, favouring the West and North.

Table G: SFP funding 2011 & forecast BPS funding 2019, by agricultural region

	No.of Businesses	2011 Total	2019 Total	% change
Argyll & Bute	1070	£17,409,253	£21,518,121	23.6%
Ayrshire	1175	£28,407,826	£26,437,237	-6.9%
Clyde Valley	1060	£25,585,563	£24,227,546	-5.3%
Dumfries & Galloway	2013	£70,227,556	£56,297,198	-19.8%
East Central	603	£15,580,772	£14,582,852	-6.4%
Elieanan an Iar	1983	£3,018,110	£7,783,103	157.9%
Fife	526	£20,019,157	£15,543,120	-22.4%
Highland	4248	£58,894,276	£63,518,502	7.9%
Lothian	521	£19,509,844	£16,497,683	-15.4%
North East Scotland	3559	£103,035,493	£79,661,427	-22.7%
Orkney	731	£13,919,025	£13,930,468	0.1%
Scottish Borders	1171	£49,581,968	£43,628,565	-12.0%
Shetland	1006	£4,623,347	£7,442,353	61.0%
Tayside	1674	£51,692,511	£48,360,303	-6.4%
Total	21340	£481,504,698	£439,428,478	-8.7%

Source: Derived from Illustrative Pillar I payment distribution by parish (Project 3).

46. Table H shows changes in LFASS receipt by farm type, both in terms of total receipt by farm type and on a per ha basis. The biggest increases were on enterprise types with very low figures (pigs and specialist crops) but no significance can be attached to these. Both Severely Disadvantaged Area (SDA) classes of farm type (SDA specialist cattle and SDA specialist sheep) showed aggregate increases in subsidy receipt in excess of 10%, whereas that for mixed cattle and sheep LFA farms exhibited a lower increase of LFASS receipt of 7.9%.

Table H: LFASS funding 2007 & 2013, by farm type

Farm Type	Total LFASS payment £			LFASS payment £/ha		
	2007	2013	% Change	2007	2013	% Change
Cereals	£633,527	£587,537	-7.3%	£15.43	£26.14	69.5%
General Cropping	£846,164	£1,079,317	27.6%	£12.84	£12.47	-2.9%
Sp. beef (SDA)	£22,883,220	£25,581,987	11.8%	£28.48	£34.96	22.8%
Sp. sheep (SDA)	£9,195,148	£11,221,259	22.0%	£9.53	£12.70	33.2%
Cattle and sheep (LFA)	£17,998,064	£19,413,101	7.9%	£15.98	£21.19	32.6%
Dairy	£1,371,070	£1,467,162	7.0%	£21.20	£27.02	27.5%
Cattle & Sheep (Lowland)	£325,657	£226,514	-30.4%	£30.74	£34.90	13.5%
Mixed	£4,552,953	£4,630,865	1.7%	£27.33	£30.93	13.2%
Horticulture	£35,262	£143,169	306.0%	£16.80	£22.38	33.2%
Sp. Pigs	£9,909	£3,978	-59.9%	£28.78	£21.85	-24.1%
Sp. Poultry	£120,635	£191,171	58.5%	£7.19	£20.23	181.4%
Other	£230,612	£213,519	-7.4%	£8.89	£13.69	54.0%
Unknown	£1,018,793	£398,720	-60.9%	£11.36	£12.25	7.8%
Overall	£59,221,012	£65,158,299	10.0%	£17.53	£22.35	27.5%

Source: Tables 6&7 in SG summary report on LFASS payment distribution (Project 2)

47. The two biggest losses were in lowland cattle and sheep farms (30.4% reduction) and cereals (7.3% reduction). The greatest losses of subsidy receipt were usually associated with the farming systems associated with better land, which may imply an adjustment of farming system towards arable and therefore a shift to LFASS-ineligible activity (registering as abandonment) and/or a loss of the cattle uplift. Equally, the greatest gains were in the most biophysically constrained farming systems in SDAs.
48. On the basis of per ha receipt of LFASS support by farm type, the three dominant Less Favoured Area farm types, Specialist Sheep, Specialist Cattle and LFA Cattle and Sheep all received more support in 2013 than in 2007. The only negative changes were in General Cropping and Specialist Pig farms. Table I shows forecast changes to Pillar I funding, with total payments to LFA sheep and LFA cattle and sheep farms again increasing (against an overall national decline).

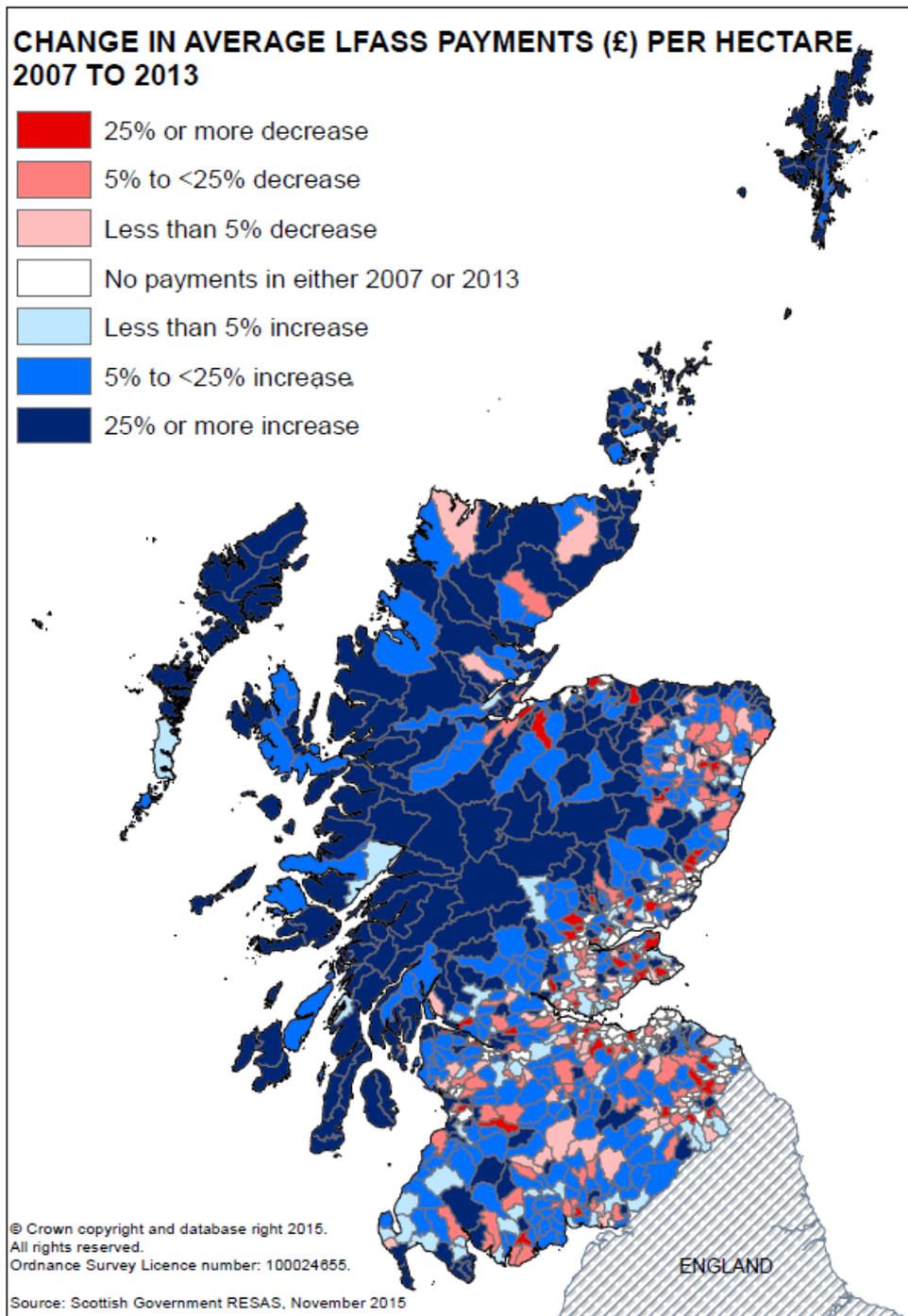
Table I: SFP funding 2011 & forecast BPS funding 2019, by farm type

Sector	Number of Businesses	2011 Total	2019 Total	% change
Cereals	2280	£69,827,323	£54,067,952	-22.6%
General Cropping	1565	£69,260,027	£55,697,104	-19.6%
Specialist beef (SDA)	4390	£111,363,811	£102,038,442	-8.4%
Specialist sheep (SDA)	4145	£28,030,140	£43,959,313	56.8%
Mixed Cattle & sheep (LFA)	2005	£61,705,409	£68,222,137	10.6%
Dairy	1083	£44,366,213	£31,389,568	-29.2%
Cattle & Sheep (Lowland)	285	£2,802,590	£2,969,741	6.0%
Mixed	1736	£73,875,784	£58,903,500	-20.3%
Horticulture	163	£1,152,110	£1,281,841	11.3%
Specialist Pigs	47	£504,700	£309,814	-38.6%
Specialist Poultry	268	£1,106,695	£1,301,043	17.6%
Other	3373	£17,509,896	£19,288,025	10.2%
Total	21340	£481,504,698	£439,428,478	-8.7%

Source: Derived from Illustrative Pillar 1 payment distribution by parish (Project 3).

49. The parish-based mapping is more revealing of the micro-geographical distribution of LFASS support, but large differentials in parish size still make it more meaningful to explore per ha receipts at parish level. There are three main concentrations of LFASS support at per ha level: the north coast of Aberdeenshire and Moray (i.e. the southern shore of the Moray Firth as far east as Fraserburgh; Black Isle and Easter Ross; and Orkney. There are several smaller concentrations: in the Rhinns of Galloway; the Whithorn peninsula; Bute, the Cambeltown peninsula; and Thurso-Dunnet in Caithness. Most of the island parishes received relatively high rates of payment per ha, with Jura and parts of Mull providing an exception to this general rule. The causes of these high per ha rates is likely to be historically high concentrations of livestock within relatively favoured LFAs.
50. The main areas with low LFASS receipts per ha at parish level include the Grampian mountain core north of Perthshire, the Ross-shire and Inverness-shire high mountain areas and the far north west coast of Sutherland. These are areas where hill farming and sporting land use overlap significantly and include large areas where little active farming takes place; or where it does it is characteristically very extensive. This represents no more than the legacy of low payments to lightly stocked areas from the time when the area-based payments were first introduced based largely on the principle of minimum redistribution. There is also a significant number of parishes with no LFASS receipt in the better land and urban and peri-urban areas.

Figure A: Map of changes in parish-average LFASS payments per ha, 2007 to 2013



Source: Map 5 in in SG summary report on LFASS payment distribution (Project 2)

51. Two general observable trends are apparent from Figure A of the parish level changes in per ha payments of LFASS support. First, the least intensive farming areas have received a substantial boost in per ha payments at parish level. These include the core highland areas, the Hebridean islands and Shetland. Second, there are two major areas where there are many parishes with a per ha reduction of LFASS receipts: many parts of the Southern Uplands and of the North East of

Scotland. These are where the land quality is on average better and livestock systems are more likely to be mixed.

Illustrative local insights

52. In addition to these aggregate trends, there are also enormous intra-regional variations, with contiguous parishes that show hugely different rates of change. For example, in the Tarland, Coull, Logie Coldstone area of Aberdeenshire (see Figure B below), we find the highest per ha increases and greatest decreases in contiguous parishes.

Figure B: Aerial photo of Logie Coldstone, Tarland and Coull showing similarity of farming system

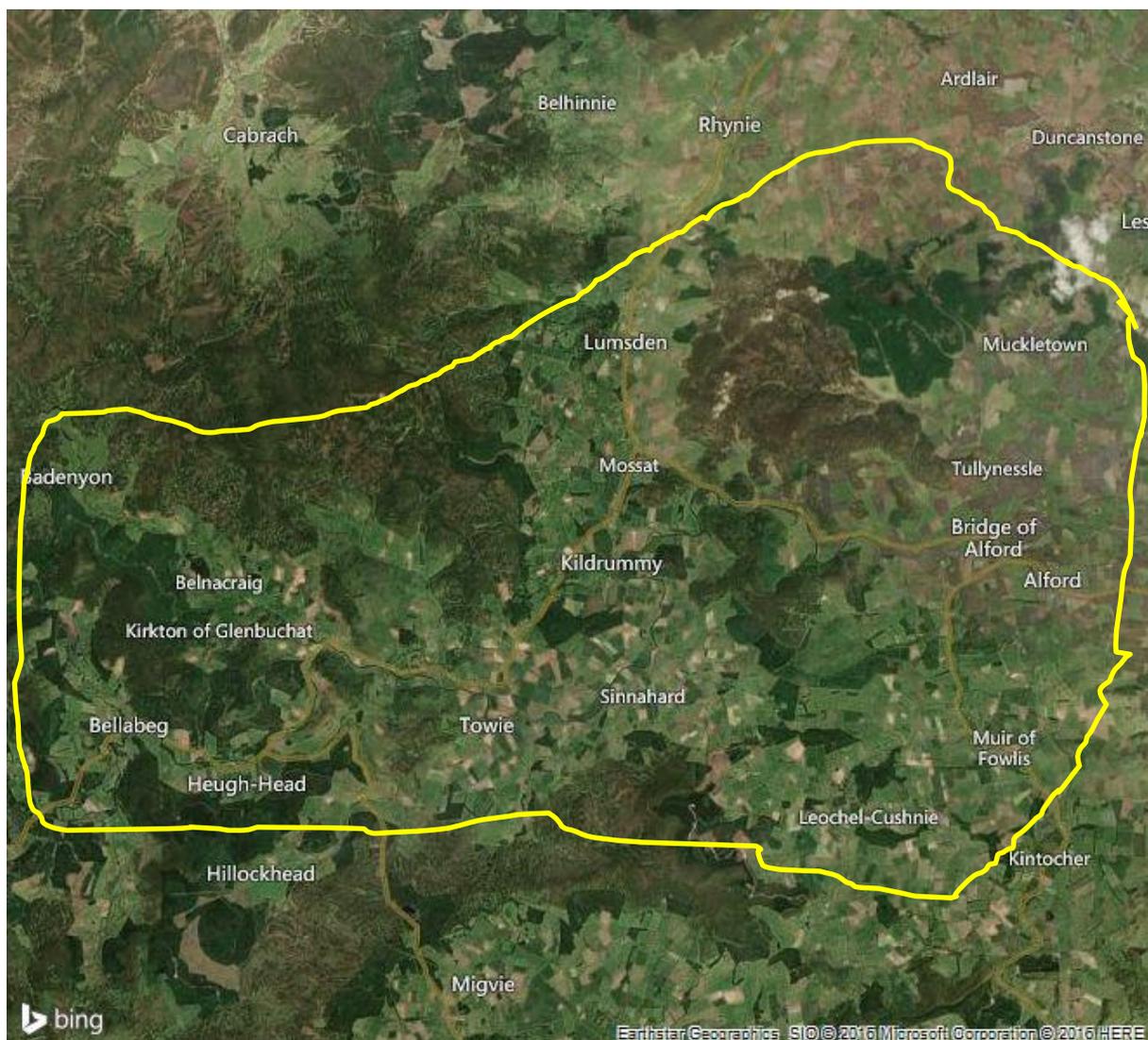


53. In the Inverness area and about a dozen other parts of Scotland, all in the area both south and east of the Great Glen there are contiguous parishes with the highest rates of increase alongside the greatest falls. These differences do not appear to be premised on farm type differences, tenure differences or farm size or farming system differences. Often the adjacent parishes have rather similar land type and farming

system characteristics. These profound differences in changes in subsidy receipt at parish level could be cross tabulated against other data, if available.

54. A likely reason, based on a discussion with a key informant in one of these areas, is that parishes with high levels of change include several significant farmers with farming enterprises who manage land holdings in several parishes but the stock of which is attributed to one parish which is the main address of the BRN. Given the relatively small size of many parishes there may well be only a handful of significant farm holdings and their stocking decisions will shape the trend for the parish as a whole. If there is a cluster of hub holdings in a parish it will have large increases, but in the case of a parish which contains many holdings with 'hubs' outwith that parish, we might anticipate a steep downward trend in stock numbers which is of course illusory rather than real; an artefact of the way data are collected and reported.

Figure C: Aerial photo of Upper Strathdon



55. We consider upper Donside as a microcosm of the situation in Scotland with a range of land uses from intensive mixed farming to very extensive hill farms. Upper

Donside, for our purposes, comprises the Don catchment above Lords Throat and Bennachie, including the Vale of Alford westwards. As can be seen from Figure C, the land extends from mixed farmland on gently undulating terrain at c. 150 metres in the Vale of Alford to high moorlands at just over 800 metres at the Don-Avon watershed in the west of the area. Alford is a mixed farming parish with a significant arable area located in the lowland basin of the Howe of Alford. Predicted changes in Pillar I payments will result in a reduction in BPS of just over 30%. Changes in LFASS payments will result in a 32.5% drop in LFASS payments. However, as LFASS in 2013 is equivalent to only 4% of the Pillar I payments BPS changes will drive future farm viability in this parish.

56. Between Mossat and the higher reaches of the Don, there are extensive mixed farms in the parishes of Kildrummy and Towie, some with relatively large areas of hill land with others entirely of enclosed land. These are parishes where individual farm type and enterprise mix will be configured to a large degree by the quality of land overall and the farm-specific mix. Mixed farms with cattle and cropping are the norm with sheep occupying higher pastures and open moor. In these parishes LFASS is not a major contributor to overall subsidy receipt.
57. Glenbuchat, a tributary valley coming off the Ladder Hills in Upper Strathdon is the most LFASS dominated parish in the study area and its LFASS payments in 2013 were equivalent to 21% of the SFP in 2011 and were the highest in Upper Strathdon. However, the roll out of the new BPS will result in an estimated increase in BPS of 64.4% in this parish. This will mean that if LFASS rates remained unchanged at 2013 levels, the share of LFASS as a proportion of BPS would be only 12.6%. Even though the LFASS payment rose by 52.8 % between 2007-2013, the impact of this on the longer term viability of hill and upland farms in the most disadvantaged parish in Upper Donside is relatively unimportant. The BPS is overwhelmingly more important as a determinant of future business viability.
58. There is a great deal of churn in farming systems in North-east Scotland and a clear pattern of growth in both the largest farm categories in terms of farm physical area and business size (Cook et al. 2016). At the same time, the number of very small farms has grown, with the majority being part time or hobby farms. The distinct 'hollowing out of the middle' of the farm structure revealed by census data (Cook et al., 2016) suggests that the number of medium sized farms is reducing whilst numbers of smaller and larger farms increase. We might speculate that changes in farming activity on these farms are driving at least some of the observable changes in subsidy payments distribution.
59. Overall, the relationship with respect to the changes in payments and stock numbers suggests no significant effect, either of payments rate increase in remoter hill and upland areas or of the reduction (or lower increase in payments) in what might be thought of as better land quality areas of the LFA. The insights offered by grounding

the data in an area known to the consultancy team assist interpretation. They also enable the degree of change in quite a small area to be scrutinised in more detail.

Summary

60. In spite of a significant boost in LFASS payments between 2007 and 2013 and expectations of even more significant BPS payments increases in the next few years, attritional reduction in farming intensity has taken place on many livestock farms on poorer quality land, more especially in the north and west. Elsewhere, parishes comprising generally better quality mixed farming have often seen their total LFASS payments fall over the period, almost certainly because the claimed area has fallen and/or loss of the cattle uplift (enterprise mix), which implies reduced size and reduced hectarage of livestock enterprises and, as is evident from both Scotland-wide and regional figures, an increase in the barley cropping area. On this better quality land the reduction in LFASS payments is unlikely to be associated with significant land abandonment, although individual fields of poor land quality or open hill within generally better quality land areas may be less utilised. Abandonment of such areas may well provide areas of enhanced environmental interest or have potential for carbon sequestration through colonisation by natural revegetation with trees and shrubs.
61. In remoter areas on poorer quality land in the north and west of Scotland significant livestock density reductions have taken place. Here it is reasonable to assume that a degree of abandonment of farming activity has taken place in spite of increases in LFASS receipts per ha over the period 2007-2013. It is not known whether farmers in these remoter areas are aware of the impending increases in BPS, which have the capacity to fundamentally alter both the gross output and the profitability of their holdings. It seems unlikely, in that the evidence of redistribution under the new BPS is only just becoming available.
62. The strongest characteristic of the subsidy redistribution/change data-set is that no consistent patterns of LFASS receipt change emerge other than the tendency for the parishes with the poorest quality land to experience the greatest reduction in aggregate receipt of LFASS payments: payments rate per ha have risen for poorer quality land, but if land is no longer claimed because of abandonment and/or reduced cattle numbers have removed the cattle uplift, overall LFASS receipts to some farms and parishes declines anyway. Within individual categories of LFASS 'intensity' (i.e. average per ha payments of LFASS) there are parishes with increases in receipts and parishes with decreases in receipts. Often there are neighbouring parishes with similar farming systems but with markedly dissimilar trends in subsidy receipts. This suggests other drivers than LFASS receipts are driving business adjustment strategies and livestock numbers.
63. The Land Abandonment evidence shows that the overwhelming majority of farms in western Scotland (including the South West and the North West) reduced their

livestock units between 1992 and 2014. Indeed, only five parishes west of a line from Dumfries to Inverness showed an increase in livestock units over this period. To the east of the Dumfries-Inverness axis, there is a much more mixed pattern of change, with more parishes experiencing reductions in livestock numbers but with a significant minority of parishes (between 70 and 100 out of 800 in Scotland) experiencing a growth in livestock units over the period. We conclude that some of this churn is real, but most is an artefact of the way data are collected for businesses with holdings located in more than one parish.

64. In the recent past, uncertainty of how the new BPS will impact upon farm profitability in different regions and the uncertainty associated with the obligatory changes from the SFP to BPS may have led some farmers to reduce enterprise intensity in remoter regions and on poorer quality land, but the out-turn of the new BPS system will almost certainly raise the incomes of less intensive farms significantly. Even if LFASS payment rates per hectare remain slightly higher than BPS rates (see Appendix C), the scale of future BPS changes will further reduce the significance of LFASS for farms in more remote locations.

5. Sustainable farming systems & business viability

Introduction

65. All of the evidence provided by the SG confirms that the type of farming systems currently dominant across the LFA are not commercially viable. Specifically, cattle and sheep enterprises typically incur not only negative net margins but often negative gross margins, revealing that market returns are not sufficient to cover even variable costs, let alone fixed costs (although this problem is not unique to LFA farms).
66. The persistence of loss-making enterprises implies a high degree of dependence on cross-subsidy from other funding sources, either private and/or public. Private sources include diversified on-farm income (e.g. tourism, forestry) and off-farm income (e.g. employment, investments, pensions) and are related to factors other than land quality (e.g. skills, accessibility, local labour markets). At a business or household level, a portfolio of income sources may deliver greater sustainability than is apparent at the enterprise level. However, household income data are not readily available.
67. Private cross-subsidisation might reflect attitudes to risk (e.g. uncorrelated, diversified income streams), lifestyle choices (i.e. loss making enterprises generate non-pecuniary private benefits and farms are also homes), or simply inertia (e.g. succession issues and reluctance to consider change).
68. The situation is made more complicated by increasing land values which have greatly enhanced the net worth of owner-occupiers.¹¹ This can be interpreted as increasing effective income since it reduces the need for alternative mechanisms for savings (e.g. ISAs, pensions) that non-land owning households have to use.¹² It may also leverage more favourable credit terms, again boosting effective income through lower interest costs. LFA land values are lower than elsewhere, but are still significant (and reflect, in part, capitalisation of support payments).
69. Although debt levels have risen in recent years, the level of debt in agriculture remains low relative to other industries. Moreover, LFA cattle and sheep enterprises are not as capital intensive as, for example, arable or dairy enterprises and hence debt levels for typical LFA farms are lower than the overall average. As such, debt servicing is not necessarily overly burdensome. The situation is also made more complicated by the typical co-location of farm households and businesses, which leads to a blurring of the line between different revenue and cost streams, for

¹¹ The SG (Project 4) figures also show increasing net worth for tenant farmers. This needs clarification since it may include some land values if tenants actually have a mix of rented and owned land, but otherwise will reflect (e.g.) the value of breeding livestock.

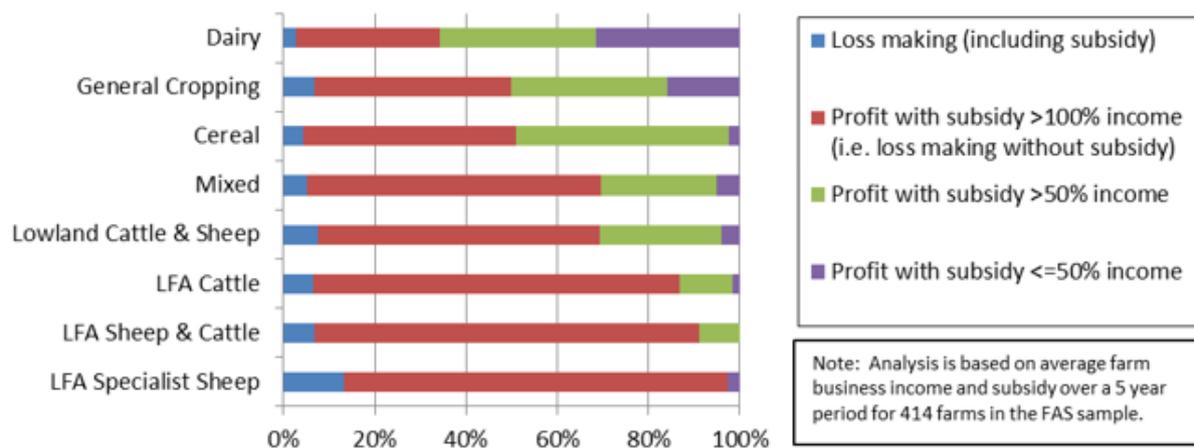
¹² Median Scottish household net worth was estimated at around £150k in 2008; the lowest farm net worth (for sheep farms) is reported at over £600k.

example, with respect to the utilisation of buildings, vehicles and computers and the taxation of income.¹³

Findings

70. Nevertheless, focusing at the enterprise or farm business level, it is apparent that viability/sustainability is highly dependent on public funding (Figures D & E). This is dominated by decoupled payments but also includes more targeted coupled support (e.g. beef calf scheme, agri-environment schemes). The latter exerts a degree of direct influence over management; the former acts only indirectly as an income support measure. Although Pillar I and II decoupled payments are administered separately, they should be considered jointly in terms of subsidy dependence.
71. The relative importance of LFASS to total business income also varies considerably. Figures D and E illustrate this. In addition, Table J shows that non-agricultural income is generally more significant: LFASS payments may make a difference at the margin, but are not a primary determinant of viability.

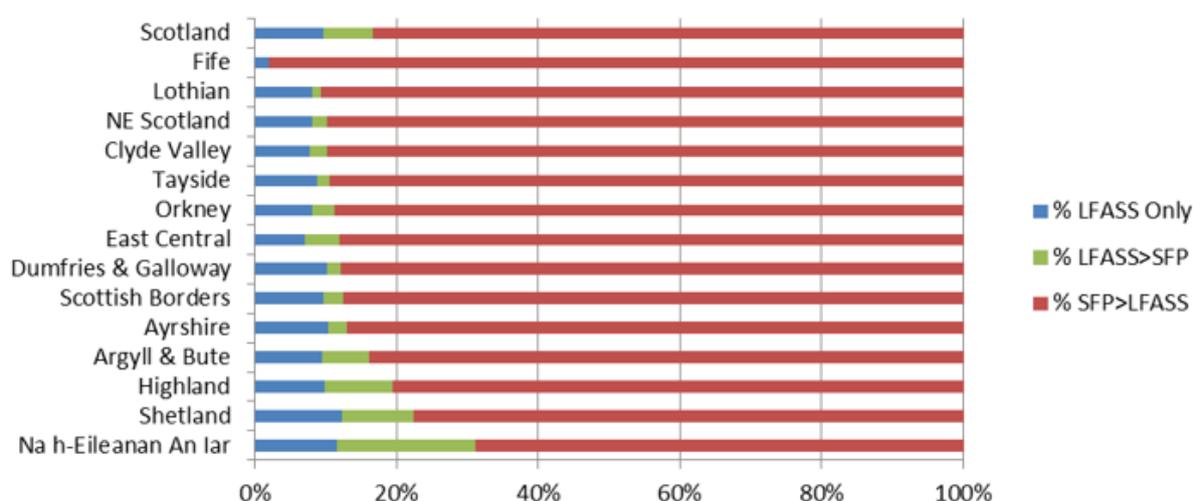
Figure D: Relative dependency on public subsidy, by farm type



Source: Figure 7 in SG's Project 4 summary report on sustainable farming systems

¹³ Although the same applies to other small businesses.

Figure E: Relative importance of LFASS and SFP funding, by region



Source: Figure 9 in SG's Project 4 summary report on sustainable farming systems

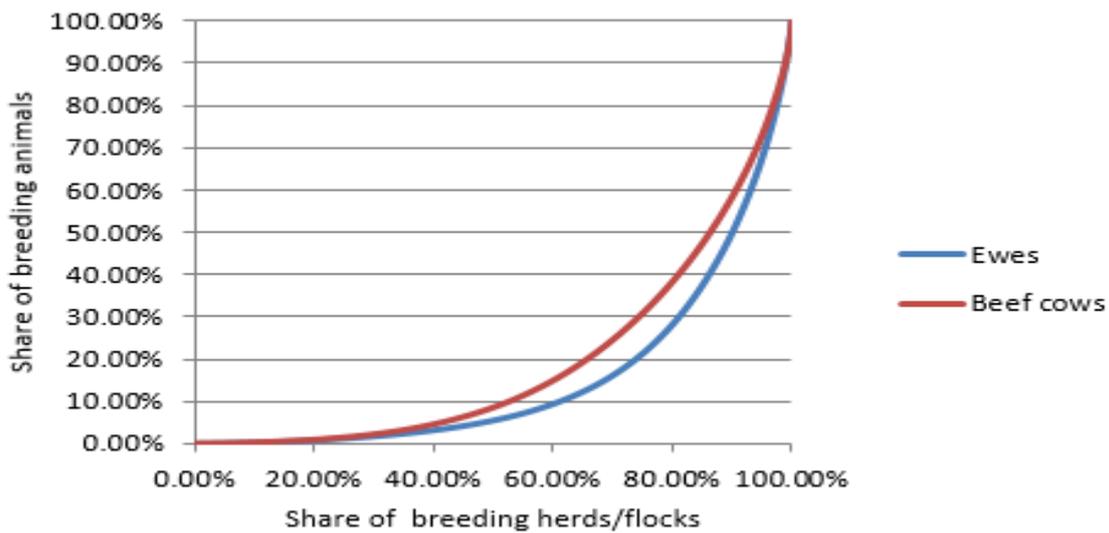
Table J: Share (%) of farm income, by region

NUTS 3 region	Non-agricultural	LFASS	All other ag' sources
Aberdeenshire & areas	36	8	56
Caithness & areas	31	14	55
Dumfries & Galloway	32	9	59
Lochaber & areas	47	15	38
Western Isles	84	6	10
Scottish Borders	15	31	54

Source: Table 7 in SG summary report on sustainable farming systems (Project 4)

72. Further evidence of non-viability is provided by SRUC's (Barnes *et al.*, 2013) focus on cash income (ignoring depreciation and investment needs) as a crude comparator to minimum wage earnings. On this basis, a proportion of all Scottish farms are non-viable (i.e. fail to generate even minimum wage earnings), but an even higher proportion of cattle and sheep farms are non-viable.
73. Low viability is associated with upland locations and High Nature Value; Upland and/or HNV farms are likely to be associated with poorer agricultural land (i.e. lower productivity and/or higher costs). Viability is also affected by size, not necessarily through inefficiency but rather simply through the inability of small-scale enterprises to generate sufficient income to sustain a livelihood. Most LFA beef herds and sheep flocks are relatively small (Figure F).

Figure F: Cumulative distributions of LFA breeding animals against LFA herds/flocks



Source: pers. comm. SG

6. Income Forgone and Additional Costs.

Principles

74. The prices of factors of production adjust to the level of disadvantage. Feed and fertiliser hauled in to remote areas will obviously be more expensive. However, local production factors should be cheaper. Rents are lower in Caithness than they are in Aberdeenshire, where they are in turn substantially less than in Angus or the Lothians. As a result holding size and especially farm size is much larger in hill areas than in lowground areas. This endogenous adjustment, at least to some extent, compensates for the lower output and higher costs (per unit of output) on LFA land. Labour costs are driven by demand for labour in the wider economy rather than agriculture alone, and wage rates are less in remote areas than in areas close to abundant employment opportunities such as Aberdeenshire or the Lothians (Cook et al., 2016).¹⁴
75. It makes no sense to compare standard systems across hill, upland and lowland – for example comparing the costs of an essentially lowground cattle system (using lots of straw and concentrates) across these three levels of land quality, and to then use this as an example of cost disadvantage. A hill producer would not sensibly operate a cattle system which needed to buy in large amounts of straw and concentrates. A hill producer acting rationally would utilise the unique resources of that situation, wintering cows at low stocking rates on a dry or sheltered hill, maximising use of home-grown silage and selling calves before they need large amounts of concentrate, using roughage- maximising breeds, selling breeding stock rather than finishing cattle, and so on. Likewise an arable farmer operating a cattle system would not put down the large areas of grass typical of upland systems, but

¹⁴ “Travel to Work Areas” (TWAs) are one example manifestation of regional labour markets.

would maximise use of arable by-products. To get at the real disadvantage suffered by LFA producers we need to get beyond simplistic comparisons, and we need to build in how rational producers would adjust.

76. We need to recognise that previous support regimes (headage payments, SFPS, building grants) have shaped current LFA systems. There is an argument that they have sometimes encouraged farmers to adopt rather standardised systems whatever their location. Grants for agricultural sheds have clearly produced many benefits, but they have also sometimes tied farmers into systems requiring lots of purchased straw, or expensive slurry handling. The requirement to boost productivity to pay for the investment and the existence of the shed to overcome harsh winters, has allowed the adoption of essentially lowground cattle breeds on hill farms. These require higher inputs. It could be argued that it is not the role of LFA support to compensate for the higher costs of what may be inappropriate systems, encouraged and supported by other subsidy regimes.
77. There will be extra costs and lower income if there is production on disadvantaged land. Following the guiding principles for the Scottish ANC scheme, the aim is maintaining and promoting sustainable farming systems. Presumably this means that calculations of income foregone and extra costs need to be applied to the sustainable level of production for different levels of disadvantaged land. Yet defining sustainable production is difficult. Stocking rates are the obvious if simplistic approach, but comparisons could also be on the basis of, for example, returns per animal, per ha, per labour unit or per £ of capital investment (the latter being how performance comparisons across other, non-farm, types of business are generally conducted).
78. Hill areas will mostly receive higher Pillar I payments under the new area-based regime being phased in to 2019. Intensive cattle and sheep farms (especially beef farms) on the better LFA areas will mostly see reduced payments. This potentially means that areas with low production levels and hence low levels of income foregone/extra costs will in effect be over compensated, and areas with high production levels and hence lots of extra costs/income foregone due to natural constraints, will in effect be under compensated. As already noted in previous sections, the effect of an LFA/ANC payment needs to be considered jointly with whatever Pillar I payment is in place, and the relationship between different factors is unlikely to be linear or constant across different locations, farm types or enterprise scales.

Commentary on cost data provided for review

79. SRUC Farm Management Handbook (FMHB). This publication presents typical hill, upland and lowground systems, but is not a sound basis for assessing income foregone and extra costs. Firstly, cattle and sheep margins are only presented to Gross Margin level (output minus variable costs). Much of the difference between hill and lowground may be due to fixed costs. Secondly, the margins are illustrative

and not based on surveys of real businesses and their costs. For example, the lowground suckler cow margins in the FMHB are much lower than those for upland or indeed hill cow systems. This is partly due to home-grown straw in the lowground example being priced at a very high opportunity cost. In reality, the lowground farmer will view it as a by-product with only a baling and handling cost (and a useful value once “processed” into dung). A similar argument could be made about home-grown feed barley on a largely arable unit.

80. QMS Cattle and Sheep Profitability in Scotland. This presents figures based on detailed analysis of the costs and incomes of a decent sized sample of real cattle and sheep enterprises, throughout Scotland, covering all levels of disadvantage. The figures are produced to Net Margin level including rent and finance costs, but excluding unpaid family labour (who get their return as drawings from the business). However, the unpaid labour is valued and made available in the document. No area-based subsidies are included. Unfortunately, the figures are only produced as £ per head, not per hectare. Table K, below, reworks the QMS 2014 cattle enterprise margins, to include unpaid labour and, using the published Grazing Livestock Units/ha, to give an approximation of margin per hectare. More work is, however, required to get at the true margin per hectare rather than an approximation.
81. Table K covering average results, on first inspection, presents a confusing picture. All the cattle enterprises have a negative net margin. Lowground types lose a bit less than upland, as might be expected. On a per hectare basis, hill cows make the least loss – each hill cow loses a lot, but they are very lightly stocked, so the loss per ha is much lower than on intensively stocked lowland. Extensive upland is the worst place to be. Given that hill units are larger, the net loss per farm may be similar. Once we cost in unpaid labour, the pattern per hectare is the same, but loss per cow follows the pattern we might have expected with hill cows losing most (there is lower labour productivity in the hill and upland situation).

Table K: QMS Cattle Net Margins, Average Performance, per hectare adjusted for unpaid labour

	Hill	Extensive upland	Upland	Lowground	Rearer Finisher	£/ha Advantage Rearer Finisher versus Hill
GLU/Ha	0.15	1	0.7	1.13	0.79	
Net Margin per cow	-96	-124	-103	-68	-67	
Net Margin per Ha	-14.4	-124	-72.1	-76.84	-52.93	-38.53
Unpaid labour p/kg lwt sold	71	48	34	43	24	
Lwt sold kg per cow	259	252	333	276	518	
Unpaid labour per Ha	27.58	120.96	79.25	134.11	98.21	
Adjusted Net Margin per cow	-279.89	-244.96	-216.22	-186.68	-191.32	
Adjusted Net Margin per Ha	-41.98	-244.96	-151.35	-210.95	-151.14	-109.16

82. Table L shows top third herd results. All the enterprises make positive net margins per cow and per hectare (except extensive upland which approaches break-even). Lowground enterprises make bigger margins than hill enterprises. When unpaid labour is costed in, hill and extensive upland systems with their low labour productivity, move into loss. Lowground cattle enterprises break-even and top-third rearer-finishers still make positive margins.

Table L: QMS Cattle Net Margins, Top Third Performance, per hectare adjusted for unpaid labour

		Hill	Extensive upland	Upland	Lowground	Rearer Finisher	£/ha Advantage Rearer Finisher versus Hill
GLU/Ha		0.2	1	0.8	1.2	1.11	
Net Margin per cow		22	-7	121	118	200	
Net Margin per Ha		4.4	-7	96.8	141.6	222	217.6
Unpaid labour p/kg lwt sold		71	48	34	43	24	
Lwt sold kg per cow		259	252	333	276	518	
Unpaid labour per Ha		36.78	120.96	90.58	142.42	138.00	
Adjusted Net Margin per cow		-161.89	-127.96	7.78	-0.68	75.68	
Adjusted Net Margin per Ha		-32.38	-127.96	6.22	-0.82	84.00	116.38

83. Table L may reflect the actions of economic maximisers with an eye on a future with less subsidy support, and hence reflect true differences in levels of disadvantage. This very simple analysis suggests that the difference is around £116 per hectare between hill and lowground. The figures suggest difficult questions about the distribution of support. If the aim is to maintain production (because of its wider benefits) then the cattle margin data tends to suggest that on a per hectare basis most support is needed in the extensive uplands, lower rates in the real hill areas and least in the lowground/better upland.
84. QMS sheep net margins (Table M) show a clear pattern of margins being higher in the lowground and lower up the hill. Unfortunately, accompanying sheep stocking rate data are not reported in the publication.

Table M: QMS Sheep Net Margins, Average Performance

	Hill	Upland	Lowground	£ Advantage Lowground versus Hill
Net Margin per ewe	-23	-3	27	50
Unpaid labour p/kg lwt sold	25	25	15	
Lwt sold kg per ewe	28.5	56.2	73.1	
Adjusted Net Margin per ewe	-30.1	-17.1	16.0	45.9

85. Farm Accounts Scheme Gross Margin Data. A verifiable representative sample, but not very useful if only to Gross Margin level. Individual FAS co-operators, costed to Net Profit level, would make excellent case studies to help understand the true differences between hill, upland and lowground businesses.
86. Remoteness: cost impact study. SRUC March 2015. Using Farm Management Handbook gross margins as models means that the main purchased input costs and

cattle and sheep net prices are simply adjusted for an additional haulage charge. A planned survey of input price differences across Scotland was abandoned.

87. Without a comparison of fixed costs these gross margin differences only tell half the story. Labour, rents and power costs are likely to be different. Purchased feed grain prices will be higher in remote areas, but for an Orkney farmer producing his own feed grain, the cost of production is what determines his farm profit – using local opportunity costs in the margin calculation may be distorting the true level of disadvantage. Presenting the results for a Lowland Suckler enterprise or a Suckler + Finishing enterprise in the outer islands makes little sense – these systems wouldn't be operated in those areas.
88. Defining the Vulnerable Areas of Scotland. Rural Analysis Associates, August 2011. This study has a section on Economics of Production which mainly uses the QMS Cattle and Sheep Profitability in Scotland 2010 edition figures and specifically the LFA Hill suckler and sheep net margins. There are some bold assertions that farms in the vulnerable areas will be “average” or “bottom third” and some useful figures comparing feed costs, diesel prices and hay prices across LFA areas. A costing for indoor finishing of lambs on concentrates unsurprisingly shows the extreme disadvantage of doing this in Shetland as compared to Aberdeenshire. However, as with other comparisons described earlier, it makes little sense to transpose lowground systems into hill/island areas. If extra time and financial resources were to be applied to a sheep enterprise in Shetland the first thought would surely be to how to produce a more attractive store lamb – for example through improved ewe genetics, ram genetics, targeted ewe feeding, the quality of homegrown forage – rather than shipping in concentrates to finish lambs.

Summary

89. In terms of data to get a better understanding of income foregone/extra costs, the need is for whole farm profitability data or at least enterprise net margins. Fixed costs must not be ignored. Whole farm profit data also accounts for differences in scale between hill, upland and lowground. Farm income and indeed farm household income is surely the critical measure.¹⁵
90. There is a very strong need for case studies on real farm businesses. It would be useful to have aggregate data which provided neat answers to the geographic distribution of income foregone/extra costs, but the range of available data do not provide such insights. Case studies on real businesses from across the islands, remote mainland, better upland and lowground would help develop the understanding of what is really different for a remote business. The physical and

¹⁵ But leads to interesting questions about whether, for example, a household deriving its income solely from a large-scale farming enterprise is more or less of a priority for support than a household engaged in small-scale farming but with high off-farm income. Debates about the share of funding going to particular types or sizes of farm need to make explicit which policy objectives are being considered (e.g. income support, land retention etc.).

financial position of each case farm needs to be described, including all the external support and the intensity and mix of different inputs. Different systems may have different cost structures, but (reflecting the principle of equi-marginal returns) profitability may be more similar if expressed in terms of net (rather than gross) margins and if consideration is given to different denominators. For example, per animal, per ha, per labour unit or per £ of capital investment

91. In looking at financial disadvantage, unpaid family labour should not in our view be ignored. Much of the real difference between hill and lowground units is in labour productivity – more labour input is needed to produce each unit of output. This is partly due to the need to spread stock over very large areas of difficult to access terrain, increasing the time required to feed, gather, treat and generally manage. Shorter growing seasons and poorer quality forage mean less liveweight growth per fixed unit of labour.
92. In our view it would be wrong to base support on income foregone/extra cost calculations which are based on theoretically transposing lowground systems on upland and hill situations rather than on genuine baselines and counterfactuals. Also there is a question over support for extra costs due to the adoption of systems, which were driven by previous support and grant regimes, which are now inappropriate. There is a need to look at the Top Third performers and to how systems will operate in the future, making the best use of local resources and limitations. This forward looking approach should extend to how the new BPS regime will redistribute Pillar I payments.
93. If the aim is to sustain production levels, the ranking of disadvantage may be extensive upland first, hill second, better upland third. The income foregone/extra costs don't just increase with remoteness and declining production conditions, but also with the level of actual production. The question of course would be if the level of production on the extensive upland is sustainable and therefore compatible with the ANC scheme.
94. However, sustainability has different aspects and the endogeneity of production systems includes responses to support payments such that the degree of reliance on support is not necessarily linked inversely to land quality. For example, livestock enterprises on better quality land typically use capital and labour more intensively. Consequently, reductions in support levels for better quality land may lead to more significant management changes there than increases in support levels induce on poorer quality land. For example, farms on better quality land may respond to declining support by running stock more extensively and reducing labour usage. Whether this leads to improved sustainability will depend on local circumstances in terms of, for example, environmental pressures and opportunities for non-farm employment.
95. An alternative approach to calculating appropriate payment rates would be to estimate the external funding needed to provide sufficient income to a farm

household. This would not require comparison with the production characteristics of non-LFA farms per se but rather with some target level of acceptable family income. As such, this would avoid issues of competitiveness or business viability by explicitly accounting for rising incomes across the economy in general, but would also imply a (public good) policy objective related to rural incomes or population retention rather than commodity production.

96. However, such a “needs-based” approach would also encounter practical difficulties. For example, farm households vary greatly in composition (e.g. size, age profile) and ability to generate income from on- and/or off-farm sources. Considering individual circumstances would be administratively costly (and the implied means-testing would be contentious) but offering standard support rates would lead to overly generous support to some and inadequate support to other households. It would also raise issues of why income support was being offered to households with high net worth (i.e. land wealth).
97. This suggests that payments would be better justified in terms of promoting positive outcomes rather than negative constraints and defining payment levels on the basis of total management costs rather than by reference to additional cost relative to some artificial comparator. However, such alternative approaches are not permitted under the RDR, meaning that any payments under ANCs can only be based on additional costs and income foregone arising from biophysical constraints – which is a critical limitation.

7. Discussion & Conclusions

Summary of findings

97. The evidence provided by the Scottish Government and by the LFASS/ANC Working Group allows some key findings to be offered under each of the specified review topics.
98. *Land abandonment.* Although the pattern is uneven and any estimates are subject to some uncertainty, agricultural land abandonment has occurred in recent years. This is despite on-going support under both Pillars of the CAP (i.e. SFP and LFASS) and reflects the influence of a range of factors, including the decoupled nature of most support, low market returns to farming and rising incomes in other sectors. Abandonment has been most prevalent on land with the poorest capacity for agricultural production.
99. *Payment distribution.* The previous (coupled) headage-based systems have continued to influence the distribution of (decoupled) support payments, with better quality land receiving greater funding. However, revisions to LFASS have increased payment rates on poorer quality land, as will the (phased) introduction of the BPS. Within a given payment category, area-based payments offer greater overall funding

to physically larger farms (provided that land is actually claimed rather than abandoned). Although LFASS and the BPS operate separately, it is their joint distribution that is relevant.

100. *Sustainable farming systems.* On average, farming enterprises within the LFA are unprofitable and hence heavily dependent on support payments. This applies when looking at net margins, but also for many farms even when considering only gross margins or cash incomes. However, business and/or household viability is also influenced by the availability of other income sources, including diversified enterprises, off-farm employment and pensions/investments. On average, LFASS is less important than other income sources and attributing viability specifically to LFASS is difficult.
101. *Calculating compensation payments.* Although intuitively appealing, the concepts of income foregone and additional costs are hard to operationalise.¹⁶ Specifically, it is difficult to identify appropriate comparators because observed production systems evolve to reflect prevailing local conditions: extensive production systems with less reliance on purchased inputs are more common in remoter areas with lower land quality and lower land costs.

Implications

102. The review findings summarised above have some implications for how a Scottish ANC scheme could be designed and implemented within the rules prescribed by EU regulations. The RDR rules are summarised as:

“Payments to farmers in mountain areas or in other areas facing natural or other specific constraints should, by encouraging continued use of agricultural land, contribute to maintaining the countryside as well as to maintaining and promoting sustainable farming systems. In order to ensure the efficiency of such support, payments should compensate farmers for income foregone and additional costs linked to the disadvantage of the area concerned.”

103. The Scottish ANC Working Group principles are expressed in similar fashion:

“The ANC scheme should be focussed on ensuring that an appropriate level of support goes to areas facing natural or other specific constraints which contribute, by encouraging continued use of agricultural land, to maintaining the countryside as well as to maintaining and promoting sustainable farming systems. The scheme will be based on a calculation of additional costs

¹⁶ By contrast, where a constraint is imposed on an existing system, the additional cost and/or income foregone may be more readily calculated. For example, as with organic farming and agri-environment schemes (although various other estimation issues do arise).

incurred and income forgone as a result of the natural or other specific constraints”.

104. However, at a practical level, difficulties in defining relevant comparators mean that estimates of additional costs and income foregone are subject to considerable uncertainties and likely errors – an “appropriate level of support” is difficult to gauge given heterogeneity of farming systems and the influence of factors other than biophysical constraints. Either further research (possibly based on case studies) will need to be undertaken or it will have to be accepted that simplistic estimates which neglect problems of self-selection and endogeneity will lead to systematic under or over compensation.¹⁷
105. Yet regardless of how additional costs and income foregone are calculated, the effect of LFASS support on the viability of individual farm businesses and households (rather than individual farm enterprises) is contingent on a number of other factors. In particular, most (but not all) farms receive Pillar I support. Indeed, given the apparent unprofitability of grazing activities within the LFA, viability is determined largely by support payments and other income sources. This means that it is the combined, joint distribution of support that matters rather than the specific value of LFA support viewed in isolation. If ANC rules preclude consideration of interactions with other determinants of business viability, support will not be well targeted and its effectiveness muted relative to other possible approaches.
106. The requirement to base payment rates on additional costs and income foregone also sits awkwardly with the decoupled nature of support. Payments rates based specifically on the additional costs or income forgone incurred through production are only relevant if production is actually occurring. Yet, by definition, decoupled payments are not supposed to directly influence production decisions, acting only indirectly as an income support or safety net mechanism. In which case, again, payments would be more logically calculated with reference to actual additional income support required to maintain business or household viability. However, a specific focus only on additional costs and only on biophysical constraints precludes this, excluding consideration of (e.g.) other income sources but also (e.g.) effects of scale and remoteness.
107. The decoupled nature of LFA/ANC payments also affects the ability of support to achieve any of the stated economic, environmental and social objectives. Specifically, although total land abandonment might be avoided through sufficiently high payments, this would not by itself necessarily translate into significant farming activity. Rather, because conditionality criteria (e.g. “active farmer”, cross-compliance) can be met with minimal production activity, the influence on commodity output is not guaranteed and therefore the associated effects on (e.g.) retaining

¹⁷ Problems arising from heterogeneity of cost structures across farms are not unique to LFA/ANC policy.

labour and skills or maintaining appropriate land management for environmental benefits are not guaranteed either. Hence decoupled LFA/ANC support is at best a weak instrument, further blunted by difficulties in targeting to address heterogeneity in farming systems and circumstances.

Design issues

108. Notwithstanding the problems articulated above, some form of Scottish ANC policy is expected to be required, at least in the short-term. Although detailed consideration of specific designation criteria and payment rate calculations is beyond the remit of this report, some generic observations about design options and choices can be made.
109. First, different constraint criteria will lead to designated areas of different geographical shapes and reach. Inevitably, there will be an imperfect overlap with the current LFA designation. This will lead to the eligibility of some farms changing, both by moving (in either direction) across the external boundary and by moving between categories. Although a degree of change is unavoidable (not least with loss of the Fragility Tiers), attempts are typically made to minimise it and/or deploy transitional arrangements for affected farms.
110. Second, accounting for heterogeneity within the total designated area is difficult. Although imperfect, the current grazing categories (A to D) were a pragmatic solution (as were the Fragility Tiers). Other descriptors, such as the Land Capability for Agriculture (LCA) classes or the individual variables underlying the classes might be more accurate¹⁸ but will give slightly different designation patterns. Retention of grazing categories within the ANC as an already familiar system, and one also essentially adopted for regionalisation of the BPS, would offer greater continuity and avoid additional complexity.
111. Third, however, information to permit calculation of additional costs and income foregone arising solely from biophysical constraints for different degrees of disadvantage/constraint is not generally available. Moreover, such data as are available are generally not collected or reported on the basis of categories likely to be used for sub-dividing the total ANC area.¹⁹ As such, unless bespoke data collection exercises are undertaken, any calculations are likely to be rough

¹⁸ Although the implications of EC requirements for “fine-tuning”, adherence to administrative boundaries and adjustment for “land improvements” (e.g. drainage) will add further complexity. “Fine-tuning”, excluding sites where natural constraints have been overcome by land improvement (e.g. drainage), is itself symptomatic of the conceptual problems with seeking to compensate for negatives rather than reward positives.

¹⁹ Farm performance is usually reported by farm type and/or crude location such as upland or lowland. It is not usually reported by, for example, Grazing Category or LCA class. Moreover, given that the FAS sample is not designed on the basis of finer spatial categories, current attempts to match FAS data to such categories is unlikely to yield representative samples (although the exercise is still worthwhile).

approximations. This may, nevertheless, be adequate for the purposes of proposing payment rates for domestic consultations and for presenting them to the European Commission (EC). That is, provided that data and estimation methods are presented transparently and caveats are noted, crude approximations may be sufficient if supported by stakeholders and verified by independent analysts.²⁰ Subject to observing the minimum payment of €25/ha (c.£18 to c.£20/ha), setting payment rates below calculated costs, as permitted under the regulations, might further ease acceptance by the EC.²¹

112. Fourth, some complexity can be avoided by limiting sub-divisions within the total ANC. For example, at its simplest, the minimum permitted ANC payment of €25/ha could be applied uniformly within the total designated area. Ignoring the current enterprise mix uplift, this would represent an increase for Grazing Category A land everywhere and Category B in Standard and Fragile areas, but a decrease for categories C and D everywhere. If the total area claimed reached the 2007 level, total expenditure would be just within the current budget.
113. Fifth, the numerical example above reveals that sub-categorisation of the total ANC area into different degrees of constraint can be accompanied by differential payment rates only if either the total ANC is smaller than the (claimed) LFA and/or the overall budget rises - paying more than the minimum anywhere will not be possible otherwise. This highlights that changes to the existing distribution of support is inevitable and any design will lead to a degree of change.
114. Sixth, if more than the minimum payment is offered, a degree of degressivity is compulsory – paying a higher rate per ha on the first few ha of a farm but a lower rate on successive ha. It may be possible to use degressivity to impose an upper limit, a cap, on the maximum area that can be claimed by an individual business (i.e. a payment of £0/ha beyond some further threshold), in which case differential payments might be achievable within the existing budget and the likely overall extent of the ANC (i.e. if the area cap excludes sufficient land to allow some budgetary headroom for varying payment rates).²² However, it is not yet clear whether the regulations permit use of such a cap if it leads to an average payment of less than

²⁰ This is essentially the process for any payment calculations based on additional costs or income foregone, albeit that in this case there are some particular issues to address. Given the conceptual and empirical problems identified, it seems unlikely that other Member States will be presenting more robust estimates – in which case there may be some scope for flexibility in calculating and defending payment rates.

²¹ Although the basis for paying only a proportion of calculated additional costs is unclear, other than perhaps to pragmatically reflect budget constraints, interactions with other support arrangements (i.e. Pillar I) and uncertainty over additional cost calculations.

²² Implicitly, degressivity acknowledges that costs or “need” for support depend on scale as well as biophysical considerations, although (again) the basis for calculating the appropriate degree of payment reduction is not stipulated. In addition, excluding some land that happens to be managed as part of a large unit may not be entirely consistent with seeking to encourage land management and avoid abandonment overall.

€25/ha for an individual business – much depends on which area is used as the denominator, all of their ANC land or only their ANC land up to the cap threshold.

115. Seventh, if budget constraints and minimum payment requirements limit the scope for differentiating payments to reflect heterogeneity across the ANC, there seems little merit in seeking overly complex, variegated categories or deploying “other specific constraints” or “mountain area” options.

Conclusions and Recommendations

116. LFA support has a long history within Scotland and LFA payments represent a modest but important component of overall farm income. However, effectiveness in terms of stated objectives has been questioned.
117. Whilst the efficiency of previous headage payments and stocking densities may be debated, the switch to decoupled area payments has undoubtedly reduced the influence that payments can have on land management. Consequently, whilst the advent of ANCs offers an opportunity to redesign payment structures, the decoupled nature of payments will necessarily weaken their effectiveness. In addition, a narrow focus on biophysical constraints and additional costs will limit the degree to which payments can be targeted most effectively to achieve stated policy objectives.
118. The effects of ‘flattening’ and the move to a new BPS scheme will have significant redistributive effects, both from more intensive farmer to less intensive farmer operating similar types of production and from more intensive farming areas to less intensive farming areas. The forecast changes in the BPS distribution show variable but often substantial net gains for areas where there are greater constraints on farming systems. Whether these changes in the distribution of the BPS will be sufficient to sustain current stocking rates and farming practices is unclear given the low financial returns to livestock grazing enterprises, variation in farm business/household circumstances and the limited traction of decoupled payments on management decisions.
119. In this context, if an ANC scheme is to be adopted, it is recommended that further research be undertaken to provide a better understanding of how support needs vary. To comply with the ANC rules, particular attention will need to be paid to disentangling the effects of biophysical constraints from structural (scale) effects and remoteness (transport and local market) effects and, moreover, to account for endogeneity in observed farming systems and land costs. Any scope for flexibility within the ANC rules should be explored and the limitations acknowledged explicitly. Presentation to the European Commission of designation criteria and payment rate calculations should be clear about the data and methods used, including appropriate caveats.

120. Separately, adoption of an ANC scheme is not obligatory. Indeed, other parts of the UK have already moved away from blanket LFA payments in favour of more targeted support mechanisms (e.g. Glastir in Wales). Hence LFASS funding could be switched to non-ANC schemes. For example, to maintain an element of income support, a proportion (or all) of funding could be re-routed through Pillar I²³ whilst other Pillar II measures could be used to address objectives relating to skills or environmental management. Such changes would not be simple to design or non-contentious. Nevertheless, given that a degree of change is inevitable anyway, it is recommended that serious consideration be given to the merits of diverting at least a proportion of current LFASS expenditure to other support measures which can be more clearly targeted – to focus on desired positive outcomes rather than negative constraints.
121. This recommendation is based on the weak effectiveness of decoupled payments as a land management tool, but also on fundamental flaws in the logic of ANCs. In particular, focusing solely on biophysical constraints neglects a number of other important determinants of farm business/household viability. For example, market interactions which affect factor costs (e.g. land prices), access to other regional markets (e.g. for off-farm employment or diversification) and structural constraints (e.g. small enterprise sizes).
122. Moreover, the concept of additional costs is itself problematic. For example, it could arguably be interpreted as the total costs of land management where land has been abandoned. Equally, it could be applied to any activity, not just livestock grazing.²⁴ That is, whereas the focus is habitually on sheep and cattle enterprises because of their historical and continuing presence, a range of activities are possible technically but not economically. That other enterprises (e.g. most dairying, cereals, soft fruit) are not considered for support reveals that implicit judgements have been made about the appropriateness of particular activities. Yet, unless public goods are being targeted effectively, the logic actually flows the other way and undermines the case for supporting any loss-making activities where inertia payments are likely to hinder the structural adjustments and resource reallocations necessary to secure long-term business viability.
123. Although the EU has spent considerable time and effort in devising the ANC framework, overarching EU strategies and priorities emphasise the need to support

²³ Other Scottish commentators have already queried why highly similar decoupled payments operate in parallel under both Pillar I and Pillar II (e.g. Pack, 2010). Merging into one scheme would offer administrative savings to government and recipients whilst also avoiding the need to refer explicitly to additional cost calculations. Due consideration would need to be given to claimants currently in receipt of LFASS but not the BPS, and to how overall funding allocations between Pillars I & II would be managed (e.g. use or not of Pillar I ANC option, full or partial transfer of existing budget, interaction with modulation etc.).

²⁴ For example, by extension, given geographical variation in solar, wind and water resources, ANC logic implies that farmers in less sunny, windy or riparian locations should be compensated for income foregone from constrained renewable energy production.

sectors and communities in coping with long-term pressures for change. This requires a balance between insulating against shocks and encouraging gradual adaptation to different ways of working and living. Hence, the strategic emphasis on (e.g.) innovation, skills development and collaborative organisation, and the increasing emphasis on evaluation tied to outcomes and impacts achieved. Denying and attempting to avoid pressures for structural adjustments cannot continue indefinitely and sustainable rural development is unlikely to be achieved through decoupled payments alone

Appendix A: Information sources provided via SG as primary basis for evaluation

SG Project 1 – Land Abandonment

Aitkenhead, M. (2015) Remote sensing and land abandonment. JHI report to SG. (Word document).

SG (2016) Summary Report on Land Abandonment (Word document).

SG (2016) Land Abandonment Tables – Parish level statistics (Excel workbook).

SG (2016) Land Abandonment – change in livestock units 1992 to 2014 (pdf map).

SG (2016) Land Abandonment – SLRs by Parish, 2014 (pdf map).

SG (2016) Businesses with holdings in more than one parish (Word document).

SG (2016) Changes in all land cover types - Parish level statistics (Excel workbook).

SG (2016) BRN level changes (Excel workbook).

SG Project 2 & 3 - Payment distributions

SG (2016) LFASS payments distribution (Word document).

SG (2016) LFASS Scheme Data by Parish (Excel workbook).

SG (2016) Illustrative Pillar I payment distribution by Parish (Excel workbook).

SG (2016) BRN level changes (Excel workbook).

SG Project 4 – Sustainable Farming

SG (2016) Sustainable Farming Systems Working paper (Word document).

SG Project 5 – Income foregone and additional costs

Reid, G., Bell, J., Sheehan, M. & Thomson, S. (2015) Remoteness: cost impact study. SRUC AA211 report to SG. (pdf document).

SG (2016) Summary of margin information (Word document).

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Appendix C: LFASS Payment Rates

Headline payment rates £/ ha (£/weighted ha), 2007 & 2013, by grazing category & fragility tier

Year	Fragility tier	Grazing Category	
		A & B	C & D
2007	Standard	£39.00 (£6.5 & £13.0)	£33.50 (£22.3 & £26.8)
	Fragile	45.00 (£7.5 & £15)	£39.50 (£26.3 & £31.6)
	Very Fragile	£47.00 (£7.8 & £15.7)	£41.50 (£27.7 & £33.2)
2013	Standard	£52.16 (£8.7 & £17.4)	£34.12 (£22.8 & £27.3)
	Fragile	£62.10 (£10.4 & £20.7)	£54.51 (£36.4 & £43.6)
	Very Fragile	£71.35 (£11.9 & £23.8)	£63.00 (£42.0 & £50.4)

Grazing categories with weights

Category	Stocking Density	Ha value
A	up to 0.19 lu/ha	0.167
B	0.2 to 0.39 lu/ha	0.333
C	0.4 to 0.59 lu/ha	0.667
D	0.6 or more lu/ha	0.800

Enterprise mix multiplier

Enterprise mix	Ha multiplier
If 50% or more livestock units (lus) are cattle	1.70
If 10% or more, but less than 50% of lus are cattle	1.35

Note: Enterprise mix calculated using historic rather than current livestock numbers, but historic base was updated to 2009 for LFASS2010-13.

Approximate BPS payment rates per hectare

<u>Region 1 (Non-LFA)</u>	<u>Region 2 (LFA B, C or D)</u>	<u>Region 3 (LFA A)</u>
€145 (£106)	€25 (£18)	€7 (£5)

Source: LFASS 2006 and 2010-2013 Explanatory Notes (Updated); Basic Payment Scheme Guidance



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