Farmers' Reaction to the Decoupling Policy in LFAs: A Farm-Based Study in Northumberland, England

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Abstract

This paper reports an integrated analysis of the influence of a range of policy instruments on farms within Less Favoured Areas (LFAs), including commodity-based payments, area based payments such as Single Farm Payment (SFP), LFA payments and Agri-Environment Schemes (AESs). This provides improved empirical evidence of the impact of policy changes on individual farms. A farm-level case study in the county of Northumberland in North East England suggests that large-scale hill farmers, who entered into AESs after LFA headage payments had been withdrawn, are now willing to accept further reductions in livestock densities, while middle scale moorland farms, which have traditionally been reluctant to participate in such schemes, are now likely to enter the new Entry Level Schemes, although some may expand their land area and pursue more intensive agricultural systems in order to secure their farm incomes and successors. Middle-scale farms outside the moorland line holding between 100 and 200 ha of land are also likely to join the Entry Level Schemes, although their financial condition is likely to be exacerbated by the introduction of the area-based SFP.

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Full Paper

Introduction

The purpose of this paper is to provide farm-level information of the impact of recent policy changes on agriculture in Less Favoured Areas (LFAs). Our main contribution is the presentation of an integrated view of mixed impact of Single Farm Payment (SFP), the decoupling policy and Agri-Environmental Schemes (AESs) by examining farm-level financial conditions. The study reported here calculates not only the changes in agricultural incomes but also highlights changes in land use and livestock numbers that could influence the economy and environment of the countryside. The next section contains a brief review of the literature, followed by a concise description of our case study methodology in Northumberland, North East of England. The results of on-farm interviews are then examined focusing on changes in land use, labour, AESs and livestock numbers with reference to the policy changes.

Researchers have investigated policy impacts before the implementation of SFP (Venus and Cain (1997), Tate and Park (1998), Moxey *et al.* (1999), Parsisson *et al.* (2000)). At present, little empirical evidence exists about the consequences of the introduction of the SFP in LFAs. Seabrook and Darling (2006) conducted a questionnaire survey and concluded that the implementation of the SFP had brought about few changes to farm businesses. 'The Farmer's Voice 2004 Survey' by ADAS in the UK involving approximately 40 LFA cattle and sheep farm respondents concluded that LFA farmers were expected to reduce the number of livestock and livestock density (Temple, et. al., 2005). Moss (2002) used a partial equilibrium model at the EU-level to predict that the number of sheep and suckler cows in the UK would decrease under decoupling. Revell and Oglethorpe (2003) used linear programming models to simulate the impact of decoupling across the UK. Hall *et al.* (2002) calculated income changes under decoupled payments and predicted that SDA cattle and sheep farmers would have significant incentives to reduce livestock numbers by 50 to 80 per cent but that medium-scale farms with around 250 ha of land would have incentives to increase livestock numbers if the prices increased.

Few studies have provided empirical evidence of the impact of AESs at the farm-level rather than at a national or international level, much less for the aggregated effect of commodity specific, regional and environmental policies. Tate *et al.* (2002) examined income changes over three years across seven LFA farms in Wales and concluded that farms under the ESA scheme would maintain their incomes during 1998-1999, while other farms would face negative incomes despite livestock headage payments that have a significant role in income support. Thomson (1997) conducted farm interviews at 29 ESA farms in Northeast Scotland in 1995 and concluded that ESA participants could increase their income, though the associated changes in agricultural practices remained unclear. Other studies (e.g. CEAS, 1997) have raised questions about farmers' participation in AESs under hypothetical future scenarios. Comparisons between participants and non-participants in AESs suggest that younger farmers or those with larger farms are more likely to participate in these schemes (Wilson, 1997a, 1997b; Moss, 1994). In their study, Lingard and Barron (1999) constructed a linear programming model for an average Pennie Dales ESA farm and predicted

that cattle production would decrease sharply, while sheep production would increase. Other researchers (e.g. Froud, 1994; Hughes, 1994) also found certain changes such as reduced livestock densities in AESs. Saunders (1994) suggested that while the number of livestock units on ESA agreement land had not increased, they did increase in the control area.

Methodology

Survey design

Our interview survey is designed to identify the differences in farming at three points of time in order to obtain a clear view of the impact of policy change. These three historical stages can be noticed in terms of changes of subsidy policy. Until 1999, high levels of commodity specific headage payments were available. From 2000 to 2004, HLCA had been changed into HFA which was based on farmland area, although commodity specific subsidies remained until 2005. Since 2005, there have been no headage payments and only area-based SFP and AES are available to farmers.

Financial condition and livestock density are key elements of investigation since they are important for farms to be sustainable economically and environmentally. Land use, livestock number and involvement in AES are also examined in order to support the findings. Throughout the case study, farm-size-based classification is applied as SFP and AES are likely to have different effect on large and small farms.

Case study area

Northumberland was chosen as the case study area owing to the fact that around half of its land constitutes LFAs (MAFF 2000) and because hill livestock farming with cattle and sheep accounts for the dominant land use. The share of LFA grazing livestock farms in Northumberland is 28.4%; that for England as a whole is 5.9% (DEFRA, June Agricultural Census, 2004). Table 1 briefly summarises the characteristics of the area in terms of land use and livestock numbers. Over the last ten years, the area of rough grazing has continued to decrease and permanent grassland has increased. Both cattle and sheep numbers have declined during the same period.

Table 1. Characteristics of the case study area

	Northumberland			England
	1995	2004	Changes	Changes
Area under Rough Grazing	133,511 ha	110,303 ha	–17%	–10%
Area under Permanent Grassland	116,094 ha	131,725 ha	13%	1%
Number of Breeding Ewes	720,869	614,351	–15%	–17%
Number of Beef	61,403	50,604	–18%	–7%

Source□DEFRA, June Agricultural Census

The Data

In consultation with the Northumberland National Park Authority and the National Farmers Union Livestock Board, a sample of 12 LFA grazing livestock farms were selected and semi-structured interviews were conducted between August and October 2006. Table 2 provides a summary of the interview results. Our sample accounts for 4.9% of the total rough grazing area in Northumberland. Particular attention was

paid to ensuring that a range of different farm sizes were selected and that their geographical distribution was representative (Figure1). Based on the scale and geographical features of each farm, the sample can be clustered into three groups. Group A (farms A1–A3) are large-scale moorland farms of over 1,000 ha. Group B (farms B1–B4) comprises middle-sized moorland farms which have land inside the moorland line. Group C (farms C1–C5) consist of other LFA farms outside of the moorland line.

Table 2. Changes of agricultural practices in the interviewed farms

Farm	LFA designations	Area of land	Annual working days □+hired□	AES	Livestock numbers			Other significant changes
					1998 (1990-)	2006 (1999-)	Near future	
A1	Moorland	RG 1000ha	900	ELS(05)		E1600	E1200▼	
	SDA	PG 700ha		HLS(07)	C120	C80▼(01)	C50▼	
					Y45	Y30▼(01)		
A2	Moorland	RG 950ha	750	CSS(99)	E1750	E1400▼(99)		
	SDA	PG 220ha		ELS(05)		C40		
	NonSDA	PG 35ha□(99)		HLS(f)		Y5		
A3o	Moorland	RG1400ha	750	CSS(99)	E1850	E1550▼(99)		
	SDA	PG50ha		OFS(99)	C15*	C20□(99)		
				HLS(f)	Y0	Y20□(99)		
B1	Moorland	RG350ha▼(96)	320	CSS(03)	E850	E650▼(03)		
	SDA	PG170ha□(96)	+750		C122	C96▼(01,03)		
	NonSDA	PG10ha□(96)			Y54	Y36▼(01,03)		
B2o	Moorland	RG200ha	400	CSS(99)	E530	E470▼(99,02),□(05)		Started farming
	SDA	PG80ha		OFS(01)	C0	C22□(02)	C□30	(93)
	NonSDA	PR20ha□(05)		HLS(f)	Y0	Y44□(02)	Y□60	
B3	Moorland	RG110ha	700□(01)	ELS(05)	E400□(94)	E700□(99,01)		
	SDA	RG170ha□	+0▼(01)		C50	C70□(99)	C□80	
		PG50ha□(94,99)						
B4do	Moorland	RG150ha□(99)	420	CSS(99)	E320□(97)	E520□(99)		Direct marketing
	SDA	PG130ha□(99)	+2000	OFS(99)	C30□(97)	C40□(99)		(98)
			□(98,05)			Y108□(99)		
C1	SDA	RG40ha	700	ELS(05)	E500	E600□(05)		
		PG165ha	+80		C140	C110▼(01)		
					Y38	Y30▼(05)		
C2	SDA	RG100ha	420	ELS(06)	E550	E650□(01)		
		PG100ha□(01)			C60	C40▼(04)	C30▼	
					Y16	Y10▼(04)	Y8▼	
C3	SDA	PG136ha□(89)	400	ELS(06)	E660	E600▼(02)		
					C40	C24▼(04)	C0▼	
C4	SDA	RG35ha▼(f)	400▼(06)	ELS(06)		E320	E360□	
		PG70ha				C50	C0▼	
C5d	NonSDA	PG100ha	615	CSS(92,02)	E550▼(92)	E450▼(99)		Direct marketing
	□DA□	▼(99)□(92)			C25▼(92)	C0▼(99)		(99)

Source: interview surveys by authors from 30th August to 4th October, 2006. '□' represents an increase in the year indicated in parentheses, whereas '▼' represents a decrease. 'f' represents near future. The suffix letters 'd' indicate direct marketing farms and 'o', organic farms.

Moorland: SDA inside of the moorland line; SDA: SDA outside of the moorland line; NonSDA: outside of SDA; None of interviewed farms has common land.

RG: rough grazing; PG: permanent grassland.

AES: Agri-environment Schemes; CSS: Countryside Stewardship Scheme; OFS: Organic Farming Scheme,

ELS: Entry Level Scheme; HLS: High Level Scheme.

E: ewes; C: cattle; Y: cattle between one- and two-years old.

Before 1999 A3 used to accommodate 80+ summer grazing cows from a neighbouring farm.

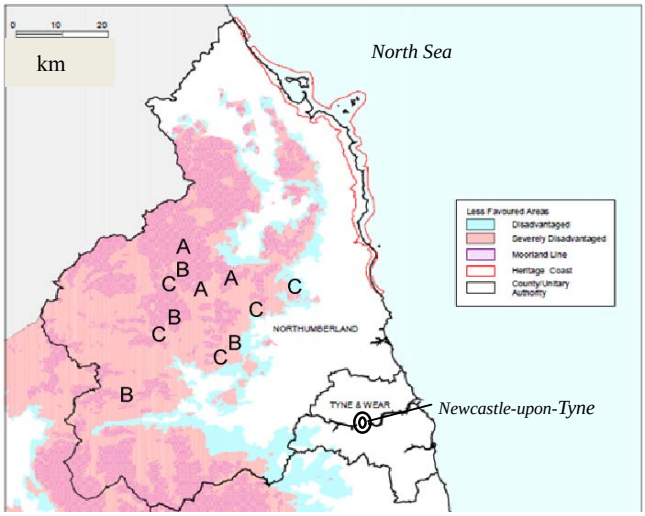

Fig.1. Location of sampled farms

Note: A, B and C indicate farm location.

The impact of policy change

Land use

A2, B1, B2o, B3, C2 and C5d have all increased their areas of permanent grassland for the last decade. They tend to prefer relatively better quality land rather than large areas of less favoured land. Such preferences might have been encouraged by the introduction of the SFP which has considerably lower payments for land classified as moorland as compared with normal SDA land[1)]. Since moorland is defined as 'predominantly semi-natural upland vegetation used primarily for rough grazing' and the definition depends on the current state of the land, it could be assumed that any rough grazing just inside the moorland line is likely to be up for conversion into permanent grassland due to the difference in payment rates. Such a conversion was observed in the case of B1 who had improved his moorland from rough grazing to a permanent grassland which would otherwise have been inside the moorland line, while A2 had been able to reclassify an area of his farm as normal SDA land because he had insisted that the current land use was not consistent with the definition of moorland.

Agri-Environmental Schemes

As for participation in AESs, some Group A and B moorland farms had entered into CSS after 1999 when it was announced that the HLCA was to end. Although most of the Group C farms commented that CSS was too restrictive for them, most of them had already joined the ELS. Changes in livestock numbers vary between farms despite the overall decline in livestock numbers across the county. In the next part, this issue is examined more closely through the analysis of financial data and livestock densities.

Financial conditions and livestock densities

Information on farm-level financial conditions and livestock densities help us understand the recent changes in farm activities. In Figure 4, farm turnover is reported for 1997, 2005 and the near future such that each calculation relates to the three phases of policy change mentioned earlier. The 2005 figures are

based on interview data and are supported by financial documents where ever available. Turnover for 1997 was calculated on the basis of livestock numbers and the corresponding output price level (DEFRA, 2006). The headage payments calculation is based on DEFRA rates following the work of Tate *et al.* (1998). The prediction of future turnover depends on the assumption that only livestock numbers, land area and SFP payments[2)] would change in near future: input prices, output prices and productivity are assumed to be fixed. The level of future HLS payments are based on each farmer's application where ever available and is otherwise set at the same level as the existing CSS payments. To calculate the agricultural income level, we consider the agricultural input in 2005 excluding the family wages alongside each farmer's turnover figures. Historical changes in inputs were not analysed due to the difficulty in collecting reliable data[3)]. In Figure 5 we illustrate the livestock density changes in each farm. Cattle over two-years old are counted as 1LU (livestock unit), that from 1- to 2-years old accounts for 0.6 units, while an ewe accounts for 0.15 units.

In Group A (large scale extensive farms), A2 is running deficits in agricultural activities for 2005. Because of the large area of the holding and the SFP payments, however, the total farm income is predicted to increase and attract successors into the farm business. When both headage payments and HLCA were available, farms would try to maximize the amount of payments with more intensive livestock grazing. But when the HLCA was withdrawn, it was relatively easy to comply with the conditions of the CSS because of the existing extensive farming practices. Now that all the headage payments have ceased, farmers are willing to reduce the stocking density further in order to join the HL scheme of the ESS. Consequently, their dependence on the subsidy tends to be heavier and this symptom might deteriorate farmers' entrepreneurship. For example, A2 receives £47,000 of SFP, £36,000 of AES and £10,000 of LFA compensation (HFA); ironically, he commented that he would rather produce more sheep and plough more land than sit on a couch which he described as an 'exciting' life. He also claimed that environmentalists insisted that agriculture damaged the environment which according to A2 is not the case.

Both B2 and B3 have expanded their land areas and increased livestock densities, particularly for cattle. Both farms have increased incomes from agricultural production of up to £18,000, with incomes including subsidy increasing to around £50,000 which is sufficient to keep the enterprises viable. Despite some farmers complaining about the unprofitability of cattle production, these two farmers believe that high quality beef can achieve a price that will generate an adequate level of income. On the other hand, B1 has a negative agricultural income and has reduced the numbers of sheep and cattle because of the high input costs (chiefly labour). B4 is unusual as the farmer runs a butchery and a retail business as well as his own farm. Since his agricultural enterprise was unprofitable, he diversified into a retail-oriented business in which he buys in 40 per cent of his beef from other organic farms. Apart from B4, attitudes in Group B toward AESs had been generally neutral or negative until the cessation of headage payments. For example, B1 had considered CSS too restrictive but joined the scheme in 2003 in advance of the introduction of ESS and SFP. Now most of the group intend to join ELS once current agreements have ended.

In Group C (middle-scale LFA farms), farmers originally grazed sheep and cattle at a density of around 0.8 to 1.0 LUs in the 1990s. These have no room to increase livestock densities and suffer the repercussions of

the SFP's decline. All the samples in this group reduced the number of cattle rather than sheep. C2 and C4 provided the financial results of each animal enterprise and demonstrated that for them, cattle production was less profitable than sheep. While sheep achieved a positive profit of £2,700 and £4,500, respectively, both farms suffered losses from their cattle enterprises of £4,200 and £5,200, respectively, even though the proportions of each cost item in the total input do not differ significantly between cattle and sheep. C4 gave up passing his business on to his son who had worked in the farm for eight years. Similarly, C2's son, a wool shearing contractor, faces negative agricultural production income and decided to start working overseas for six months a year. Although subsidy payments help C2 and C4 achieve positive incomes of around £20,000 this may not be sufficient to ensure succession. With regard to the CSS, most of this group found it too restrictive despite the payment levels. Now that headage payments have been withdrawn, most are willing to participate in the ELS. C5's farm, a direct marketing farm, achieves a positive agricultural income but relies on the labour input of other family members who attend farmers' markets 10 days a month in the winter, without any additional hired labour.

The two farmers engaged in direct marketing—B4 and C5—are able to maintain profitability although their labour inputs are higher than that of other farms of a similar size. Despite their lower productivity, the two organic farms of A3 and B2 achieve positive agricultural incomes due to their lower input costs. Their farms' financial status and stocking densities have more in common with other farms in their groups than with organic farms in general. This reflects their moorland location and the nature of their original agricultural production which required relatively little adjustment during the conversion process.

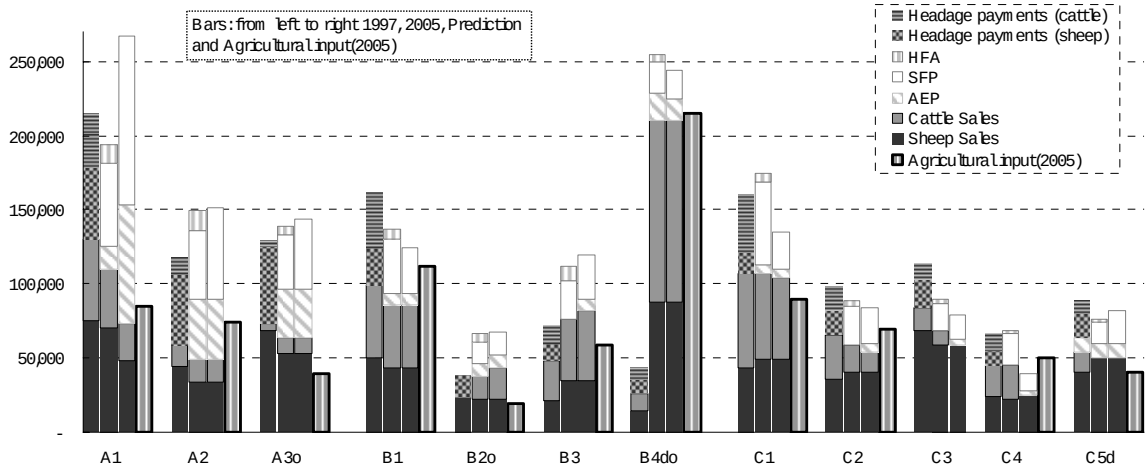

Fig. 2. Changes in the financial condition of the interviewed farms

Source: Interview surveys by authors. Input costs of the farm C3 were not available.

The sales and costs for B4 only show his on-farm related figures and exclude the retail-only sector (40 finished cattle).

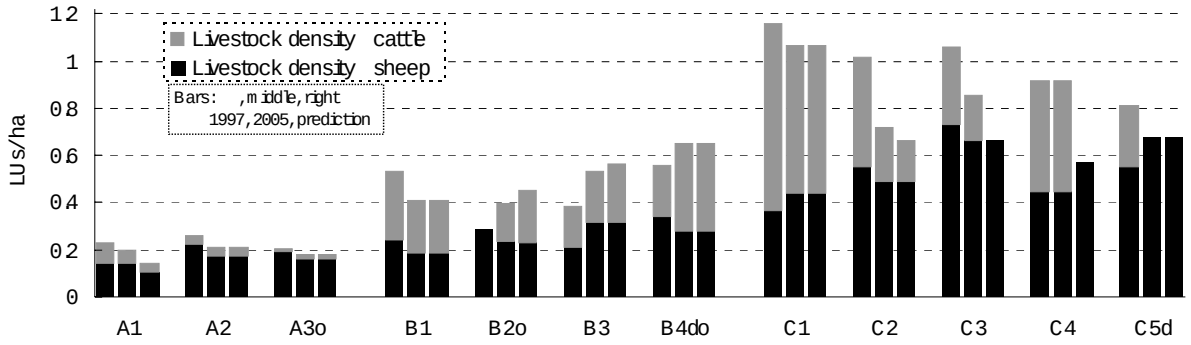

Fig. 3. Changes in the livestock density of the interviewed farms

Source: Interview surveys by authors.

Conclusions

The farm-based emphasis of this study has provided some useful evidence of the impact of policy reforms. As previous researchers (Drake et al., 1999; Wilson, 1997a, 1997b; Moss, 1994) have pointed out, large farms are more likely to participate in AESs. This assumption becomes clearer with our three-phase policy analysis. In the first phase, from the 1992 McSharry reforms until 1999, when both commodity-based headage payments and HLCA were available, not many farmers were willing to reduce livestock numbers. However, because of the withdrawal of headage payments, AESs, which used to counteract those payments, will now be more welcome in most LFA farms.

Large-scale extensive hill farms that had been willing to be participate in CSS since HLCA was replaced by HLA now welcome the reduction in livestock densities more and are encouraged to join the HLS not only because headage payments are no longer available but because they can secure enough income from the SFP even if they decrease livestock numbers. However, we suspect that the heavy dependence on subsidy may reduce the entrepreneurial tendencies of farm managers who might otherwise be encouraged to diversify. In addition, any reduction in agricultural production implies an increase in the ratio of rental payment to agricultural input costs, which would be further exacerbated if rental values increased.

Although we can observe an overall decline of agricultural activities in LFAs from census data, it is left to farm-based studies to reveal that some farmers are still increasing livestock densities with the intention of providing high-quality agricultural products in the post-SFP world. As Hall *et al.* (2002) suggested, some of the middle scale moorland farms with between 300 to 500 ha of land are trying to increase their livestock numbers and production intensity to achieve a positive agricultural income. SDA farms holding 100 to 200 ha of land will suffer from the policy reforms since they have been engaged in fairly intensive livestock production and cannot expect any increase in revenues from the SFP. Owing to the intensive nature of their agriculture, most of these middle-scale SDA farms found the CSS too restrictive. Most will now join the ELS, although HLS could prove too restrictive for them even if they were eligible for the payments. It is worth noting that the recent increase in farmers' participation in agri-environmental schemes is not simply due to farmers becoming more concerned about environmental management but is also due to the acceleration in decoupling policy. If policy makers do not account for this effect, then LFAs could become

more extensive than expected.

1) Until 2012, area-based SPS rates per hector will have been set as; Moorland:□30, non-Moorland SDA:□120, elsewhere:□220 (DEFRA, 2004).

2) The predicted rates are set for 2012; Moorland:□30, non-Moorland SDA:□120, elsewhere:□220 (DEFRA, 2004)

3) Unfortunately, to collect financial records for 1997 were impossible for most farms. Instead, we only use farm- based information about the number of livestock, AES participation and land area.

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