

Response from the hills: Business as usual or a turning point?

An update of “Retreat from the Hills”

Author: Steven Thomson

*With contributions from:
John Holland,
Tony Waterhouse
& Clare Morgan-Davis*

November 2011



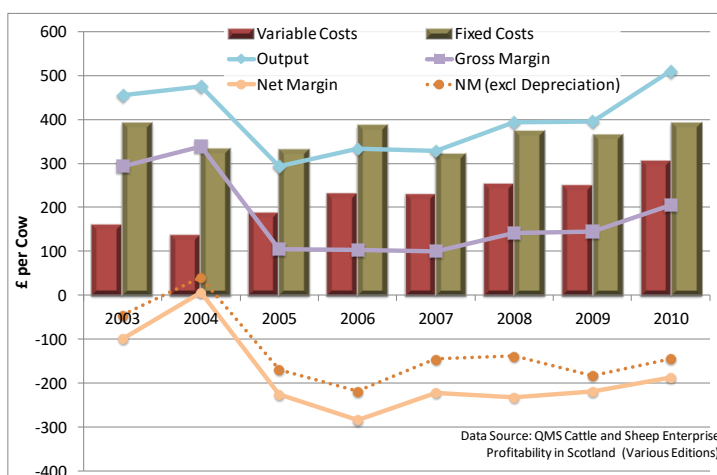
Executive Summary

This report is an update on SAC's 2008 *Retreat from the Hills* report which highlighted significant declines in the sheep and cattle sector across much of Scotland, particularly in the hill, islands and uplands where alternatives to extensive beef and sheep farming systems are very limited. In particular, this report examines if there has been a *Response from the Hills* in recent years as financial returns to beef and sheep have improved and with the completion of the farm level restructuring that occurred immediately following the decoupling of Common Agricultural Policy (CAP) support. The report comes as debates over the newly announced EU Commission's proposals for CAP reform in 2014 continue, and follows the publication of the Pack Inquiry and Scottish Parliamentary Inquiries into the future of farming support and the hill and islands.

Historical Context – This section provides the historical context to the evolution of sheep and cattle numbers in Scotland over the last century, largely in response to farm policy drivers in the form of Deficiency Payments (pre-EU accession) and Common Agricultural Policy support. Financial support for Scottish hill, island and upland producers is not a new concept, having been in place for over 50 years and in particular beef cattle numbers grew rapidly in the 1960s and early 1970s as a result of rising guaranteed prices for beef. Once the UK entered the CAP there was a rapid fall in beef cattle as farms on the East of Scotland substituted beef production with arable production in response to higher support payments for crops offered through CAP.

From around 1980 the sheep headage payments and the headage payments introduced for livestock kept in Less Favoured Areas, dramatically drove up the number of sheep (and to a lesser extent cattle) in the hill and upland farming areas. More recently, the late 1990s saw poor returns to beef and sheep and the 2001 Foot and Mouth crisis led to a large reduction of the Scottish sheep flock. In 2005 the introduction of decoupled CAP support payments (with the exception of the Scottish Beef Calf Scheme) stimulated further restructuring within the industry and sheep numbers continued to decline quite rapidly to the extent that by 2011 the number of Scottish breeding ewes is at the lowest level in over a century.

Economic Context – This section examines the economics of beef and sheep production in Scotland's hill, islands and uplands in the period since CAP support was decoupled. It is shown that Euro : Sterling exchange rates play an important role in the livelihoods of Scottish beef and sheep farmers, as witnessed by the strengthening of Sterling from 1997 to 2000 that led to reduced CAP support payments (in Sterling) per sheep and cow. This was also noticeable from the weakening of Sterling between 2007 and 2009 which meant that the Sterling value of Single Farm Payments and Less Favoured Area Support Scheme payments appreciated considerably, leading to windfall gains for farmers. More generally, sheep and beef prices fell suddenly from 1997, leading to structural changes in the sector, and whilst sheepmeat prices had largely recovered by 2004 the growth in cattle prices was much slower. However, since 2008 both sheep and beef prices have reached record highs as demand for meat has increased (from China, India, etc) whilst supplies have tightened, bringing a renewed confidence to the sector. Against the backdrop of rising prices has been the rapid increase in input costs, with for example feed costs doubling since



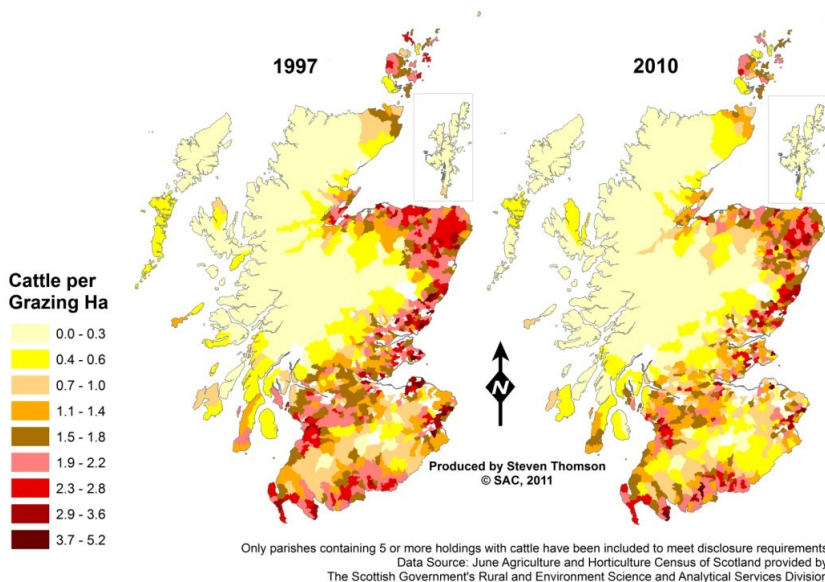
2006, meaning that net margins have remained tight. Hill and upland farmers have undoubtedly had to use both their “decoupled” Less Favoured Area Payments and Single Farm Payment to cross-subsidise their beef and sheep production.

Figures from Quality Meat Scotland show that post decoupling of support payments all LFA suckler cow and sheep producers surveyed returned losses on a per cow or ewe basis. Whilst upland LFA sheep flocks have recently returned to profit it is notable that hill breeding ewes continued to make average losses of about £6 per ewe in 2010 despite rising lamb prices. Hill suckler cow systems fair no better, returning losses per cow of £187 on average in 2010 compared to upland suckler cows that keep calves till around 1 year old where losses per cow were only £21 per cow. With continued losses over a period of 5 years it is of no surprise that farmers have taken the economically rational step to restructure their businesses by withdrawing from sheep or beef production, or downsizing and trying to reduce overhead costs (often at the expense of hired labour).

National, Regional and Local Changes – This section continues the analysis conducted for the *Retreat from the Hills* report looking at 3 time periods, namely: (a) 1997-2004 to represent the pre-decoupling period where structural change occurred as a result of declining payments per animal and post Foot and Mouth Disease; (b) 2004-2007 to represent the period immediately post decoupling when it was anticipated most of the resulting restructuring would have taken place; and (c) 2007-2010 to represent the longer term post decoupling period which has coincided with large increases in beef and sheep prices, considerable input inflation and also substantial exchange rate benefits. The data show considerable regional and local variances in the extent, and timings, of livestock changes.

Beef - The analysis of the June Census data highlights the importance of Dumfries and Galloway and the North East to Scotland’s beef sector. However recent restructuring is ongoing in areas where suckler cows are more commonly kept on farms (e.g. the Borders, Orkney, Dumfries and Galloway) as there have been continuing decreases in the proportion of total holdings that carry suckler cows, a trend that has continued between 2007 and 2010. In areas in the West where High Nature Value farming systems operate the relative

proportion of holdings with suckler cows has increased, perhaps in response to agri-environment schemes and cattle top-up re-introduced recently to LFASS payments. Between 2007 and 2010 there was much more stability in regional suckler cow herds across most of Scotland although there were 12% decreases in Angus and Lochaber with a further 6% decline in the Borders. Data for 2009 to 2010 shows far greater stability in the sector across nearly all of Scotland.

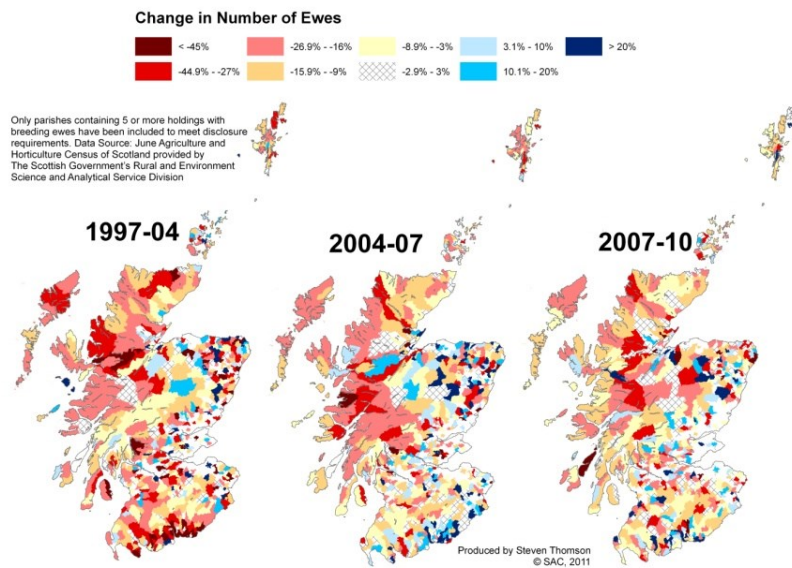


Sheep – The June Census data shows how the Borders is now the most important region for Scottish sheep production, accounting for 16.5% of the national breeding flock. The large withdrawal of holdings carrying sheep that occurred in the pre-decoupling period across most of Scotland have not continued post decoupling, with much greater stability in the

proportion of holdings with ewes with small declines of between 1% and 3% happening in most of the hill and upland areas. However, despite marginally fewer holdings with sheep, the number of ewes has continued to fall resulting in lower and lower average sheep grazing densities.

Whilst in the 2007-2010 period the rate of decline in ewe numbers has slowed there was declines of between 9% and 15% across much of the north and west Highlands and Islands with pockets of higher decline (15%-45%) being found in Lochaber and Wester Ross (that follow significant decline over previous periods). To contextualise the scale of change it is worth considering that between 1997 and 2010 Dumfries and Galloway lost over 200,000 ewes (34.8% reduction), Lochaber, Skye & Lochalsh and Argyll and the Islands have 175,000 fewer ewes (37.1% reduction) and nearly half the ewes in the Western Isles have been removed.

The data shows that there has been widespread downsizing of average flock sizes between 2004-2007 and 2007-2010 as farmers adjusted to the Single Farm Payment.



Labour - Many farmers consolidated their business post decoupling, by shedding labour and downsizing to one-person (or one-family) farms, or at by least reducing any spare labour capacity. The downward trends in the number of occupiers and spouses engaged full-time in agriculture has, however, stabilised since 2008, coinciding with the start of the general economic downturn and improving returns to beef and sheep. Over this same period there has been increased agricultural employment (full-time, part-time and casual and seasonal), perhaps indicating that agriculture has been more resilient to the economic downturn and has the capacity to take on additional labour (e.g. family members that had perhaps been working-off farm).

Impacts beyond the farm gate – this section highlights that decline in beef in sheep numbers whilst having a significant impact on livestock auction market throughput has been more than compensated by the increased average value of prime and store animals. This has meant that the turnover of livestock markets has increased from £340 million in 2002 to £499 million in 2009. The Scottish abattoir throughput figures show that despite the general decline in ewe numbers, prime sheep and lamb throughput has increased since a low point in 2005, suggesting a higher proportion of Scottish lamb is being killed in Scotland (less live exports to England and the continent, etc). However, there has been a significant tailing off of ewes and rams slaughtered in Scotland which is in part related to the smaller national flock (and disposal of ewes as flock sizes were reduced) but also to the higher demand for mutton in England with strong trade for cast-ewes being sold south of the border. Prime beef slaughterings decreased from 2005 to 2008 before stabilising and growing slightly in the last year. This largely mirrors changes that have occurred in the national beef herd.

Local Environmental Impacts – This section examines the local level changes in livestock and the environmental consequences as perceived from farmers, crofters, advisers and agency staff who observe the changes through their daily activities. In each of these localities there has generally been a large reduction in sheep over the last decade, with the

case study area around Lairg witnessing very large reductions in sheep with some localised increase in cattle. A consequence of the changes in livestock numbers as reported by people on the ground include issues such as: higher deer numbers; increased rank vegetation; declining farmland birds; decreases in rabbits and hares; increased tick-borne disease; reduced wetland waders; decreased species diversity; increased buzzards, corvids, goshawks, foxes, etc. In addition, in all areas the lack of available skilled farm labour to undertake certain activities was highlighted.

Implications for Scotland's Beef and Sheep Sectors – this section summarises the findings of the report and considers if the downward trends of the last decade witnessed in many areas of Scotland are continuing or if there has in fact been a turning point where the decline in suckler cows and sheep has either slowed down, stabilised, or even reversed in the hill, island and upland areas. The 2011 June Census results indicate there has been a continuation of the 2010 upturn in beef cows and ewe numbers remained very stable nationally (with total sheep marginally increasing), although the changes from 2009 to 2010 reveal very localised variances. The lack of alternative farming systems in most hill and uplands are discussed as is the increased incidence and opportunity for renewable energy, and the opportunity for woodland given Scotland's ambitious Climate Change targets. The issues raised at local, regional, national and EU levels over the risks and problems of land abandonment and associated impacts on remaining farms/crofts and local biodiversity are discussed, and the anecdotal evidence suggests that abandonment, particularly of the high hill, is a reality in many areas. With decoupling of CAP payments and a move away from headage payments individual farmers and crofters, and the wider industry, have renewed their interest in technical efficiency as they try and maximise returns from their increasingly expensive inputs. A wide variety of initiatives are now in place that aim to either demonstrate how system changes, disease eradication and prevention, or new management techniques or technologies (e.g. EBVs or electronic identification) can lead to improved technical efficiency, reduce greenhouse gas emissions and improve financial returns from beef and sheep. Finally the possible benefits from the new CAP reform proposals for hill beef and sheep producers are considered and a plea is made to use this period of improved returns to review and adjust farming systems to make them more robust and less sensitive to fluctuating input and output markets, further CAP reforms, climate change, exchange rate movements, regulations etc. in the future.

Data Sources

The majority of data used throughout this report comes from the Scottish Government though various editions of publications such as the Economic Report on Scottish Agriculture, the Abstract of Scottish Agricultural Statistics and Scottish Agricultural Output, Input and Income Statistics. In addition data from the June Agriculture and Horticultural Census of Scotland Data aggregated at parish, NUTS3 and NUTS4 level are used extensively throughout this report to provide more detailed geospatial analysis. The parish level data was provided by the Agricultural Census Analysis Team within the Scottish Government's Rural and Environmental Science and Analytical Services.

This work has been undertaken as part of *Theme 4: A Rural Economy Resilient to Global and Local Change* of the Scottish Government's 2011-2016 Strategic Research Programme.

CONTENTS

_Toc3081871301	BACKGROUND
1	
2	HISTORICAL LIVESTOCK CHANGES AND POLICY BACKGROUND.....2
2.1	LONG-TERM TRENDS 2
2.2	HISTORICAL POLICY CONTEXT 3
3	THE ECONOMIC CONTEXT OF HILL AND UPLAND BEEF AND SHEEP PRODUCTION7
3.1	EXCHANGE RATES..... 7
3.2	BEEF AND SHEEP PRICES 8
3.3	INPUT COSTS..... 8
3.4	GROSS AGRICULTURAL OUTPUT 9
3.5	FARM INCOMES AND MARGINS..... 10
3.6	THE PACK INQUIRY PROPOSALS..... 13
4	SUCKLER COW CHANGES IN SCOTLAND – THE EVIDENCE14
5	BREEDING EWE CHANGES IN SCOTLAND – THE EVIDENCE22
6	SOCIAL IMPLICATIONS OF LIVESTOCK CHANGE IN SCOTLAND – THE EVIDENCE31
7	IMPACTS BEYOND THE FARM GATE38
7.1	IMPACTS ON SCOTTISH AUCTION MARTS 38
7.2	IMPACTS ON SCOTTISH ABATTOIRS 39
8	IS THERE A TURNING POINT?41
9	LOCAL ENVIRONMENTAL IMPACTS44
9.1	SOUTH SKYE CASE STUDY 44
9.2	WEST BORDERS CASE STUDY..... 47
9.3	NORTH HIGHLANDS 49
9.4	FUTURE CHANGES AND ASSOCIATED IMPACTS?..... 50
10	IMPLICATIONS FOR SCOTLAND’S BEEF AND SHEEP SECTORS52
10.1	BUSINESS AS USUAL?..... 52
10.2	A TURNING POINT?..... 53
10.3	WHAT ALTERNATIVE? 55
10.4	ABANDONMENT RISK? 56
10.5	IMPACTS BEYOND THE FARM? 57
10.6	TECHNICAL EFFICIENCY IMPROVEMENTS? 59
10.7	LOCAL BIODIVERSITY IMPACTS? 61
10.8	CAP BEYOND 2013?..... 62
10.9	TIME TO TAKE STOCK AND MAKE CHANGE? 62
11	APPENDIX 1: REGIONAL CHANGES IN CATTLE 1959 TO 2008.....64

1 Background

In 2008 SAC published the *Farming's Retreat from the Hills*¹ report to highlight the significant changes to livestock numbers that had occurred in Scottish hill, upland and island farming as a result of: (a) poor financial returns from 1998; (b) weakening of Sterling against the Euro; (c) the Foot and Mouth Disease outbreak in 2001; and more recently (d) the decoupling of Common Agricultural Policy (CAP) support payments from production in 2005, a consequence of the Luxembourg reforms of CAP in 2003. Around the same time of the publication of the *Retreat* report the debate on declining farming activity in many areas was intensified through the Royal Society of Edinburgh's (RSE) *Committee of Inquiry into the Future of Scotland's Hills and Islands Report*² and the National Farmers Union of Scotland's (NFUS) response to the "crisis", their *Manifesto for the Hills*.³

More recently, concerns about the future of CAP post 2013 have led to considerable policy discussions, particularly since publication in November 2010 of the EU Commission's communication: *The CAP Towards 2020: Meeting the food, natural resources and territorial challenges of the future*⁴ and subsequent leaks and publications. 2010 also saw the Scottish Parliament's *Future of Scotland's Hill and Islands Inquiry*⁵ to examine the issues raised in the RSE's report, and the publication of the of the Pack Inquiry's recommendations to Scottish Ministers in *The Road Ahead for Scotland: Final Report of the Inquiry Into Future Support For Agriculture In Scotland*⁶. More recently, in 2011 the Scottish Parliament held their *Inquiry on the Future of Agricultural Support in Scotland*⁷ and the Scottish Government's established the *Future CAP Stakeholder Group*⁸ to provide advice and views on the proposed CAP reform proposals. In October 2011 the European Commission published their proposals for 4 basic CAP regulations on (i) *Direct Payments*; (ii) *the Single Common Market Organisation* (iii) *Rural Development*; and (iv) *a Horizontal Regulation for financing, managing and monitoring the CAP*.

The publication of these reports and inquiries, the upturn in economic returns to beef and sheep plus the on-going debates around the most recent CAP reform proposals provide a timely opportunity to update the original *Retreat from the Hills Report* and examine how livestock production in the hill, uplands and islands have responded over the last three years, and overall since CAP support payments were significantly decoupled in Scotland from January 2005.

¹ SAC (2008) *Farming's Retreat from the Hills*. A SAC Rural Policy Centre report. Available at: <http://www.sac.ac.uk/mainrep/pdfs/retreatreport.pdf>

² Royal Society of Edinburgh (2008) *Committee of Inquiry into the Future of Scotland's Hills and Islands*. http://www.rse.org.uk/enquiries/hill_and_island_areas/full_report.pdf

³ National Farmers' Union of Scotland (2008) *Manifesto for the Hills*. http://www.nfus.org.uk/system/files/Manifesto_for_the_hills_0.pdf

⁴ http://ec.europa.eu/agriculture/cap-post-2013/communication/com2010-672_en.pdf

⁵ <http://archive.scottish.parliament.uk/s3/committees/rae/inquiries/Scotlands%20Hills%20and%20Islands/HillsandIslandsinquiry.htm>

⁶ <http://www.scotland.gov.uk/Resource/Doc/329281/0106448.pdf>

⁷ <http://www.scottish.parliament.uk/s3/committees/rae/reports-11/rur11-04.htm>

⁸ <http://www.scotland.gov.uk/Topics/farmingrural/Agriculture/CAP/regulations>

2 Historical livestock changes and policy background

2.1 Long-Term Trends

Figure 1 reveals how in 2011 the number of breeding ewes in Scotland is at the lowest level (2.641 million) in over a century, with numbers lower than when the Agriculture Acts of 1920 and 1947 were passed with their aims of bolstering food supplies in post war Britain. Total sheep numbers are at similarly low levels, although at 6.752 million they are marginally higher than in the post war eras, due to production efficiencies and improvements to lambing percentages over the last 90 years. Scottish sheep numbers showed 20 years of steady growth in the periods after World War I and World War II but both these periods of gradual expansion were followed by sharp declines in the 1940s (during the second World War) and late 1960s. The 1970s saw sheep numbers remain relatively stable, and this was followed by a period of rapid growth in the 1980s (by 2.14 million sheep or 28.6% between 1980 and 1992). This was followed by a very sharp decline since 1998 (by 3.05 million sheep or 31.1% between 1998 and 2010).

Figure 1 Number of cattle and sheep in Scotland: 1902 to 2011⁹

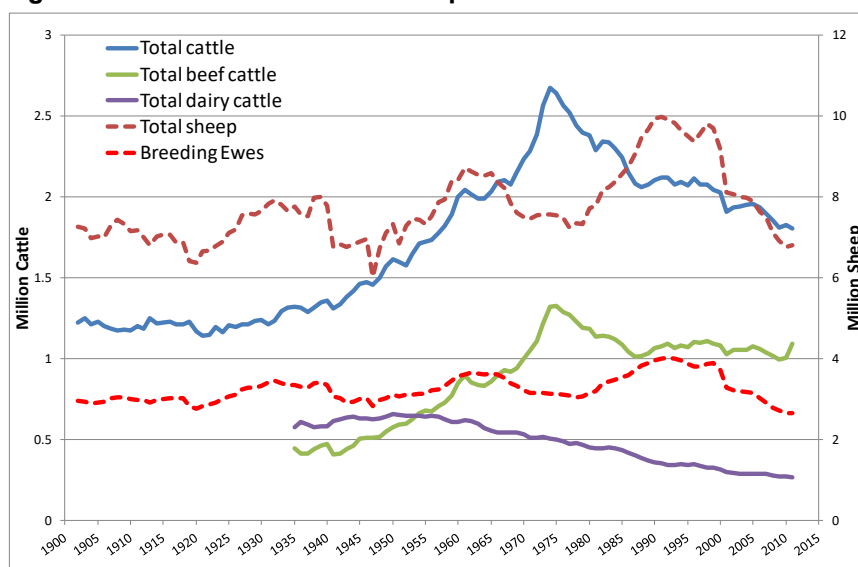


Figure 1 also reveals that a different long term pattern emerges for the number of Scottish cattle. After a period of relative stability between 1902 and 1931 cattle numbers started a long term upward trend that peaked in 1976 (with 2.676 million cattle), largely driven by increased demand for beef as the nation's wealth increased. In the period to 1950 both

dairy cow and beef cow numbers were increasing but subsequently the growth in cattle numbers was due entirely to expansion of the beef herd (peaking at 1.325 million beef cows in 1975). The Scottish dairy herd has been in gradual long term decline since the 1950s, reflecting the efficiency gains in milk yields per cow over the period. Beef cow numbers fell rapidly between 1975 and 1988 (by 311,00 or 23%) before entering a period of moderate growth till 1997 after which there was a general downward trend until 2009 (by 110,00 cows or 10%) before an upturn in 2009 and 2010. The reason that cattle numbers have not declined as rapidly as sheep in recent years is somewhat confusing given their relative economic returns. However, it is possibly due to the longer production cycle for cattle (from conception to weaning to slaughter) compared to lamb and the additional support for cattle through Less Favoured Area Support Scheme and Scottish Beef Calf Scheme, meaning farmers have longer term strategies with regards to cattle compared to sheep and are less inclined to "lose" support payments through reducing cattle numbers.

⁹ Source: Agricultural Census Statistics for Scotland 1912-1978 (accessed through EDINA) and Abstract of Scottish Agricultural Statistics 1982 to 2011

2.2 Historical Policy Context

Post World War II the farming sector in Scotland was supported initially by Exchequer payments then by deficiency payments as post-war controls were lifted.¹⁰ These deficiency payments were designed to support the farming sector (including hill beef and hill sheep production) through price support whilst ensuring cheap food supplies to British consumers, although the cheap food objective was abandoned in the 1960s as the cost of support was transferred from taxpayers to consumers through higher food prices.¹¹ In this post-war period farmers were also offered a suite of grants designed to encourage them to invest in technologies whilst improving production efficiencies with, for example, investments in pasture improvement through field drainage, improvement of marginal land, hill ploughing grants and installation of hill drains, fencing to improve stock control, grants to encourage small farmers to leave the industry, subsidised input (e.g. lime, fertiliser) purchase, subsidised machinery purchases, etc.

Many consider the entering of the European Economic Community (EEC) as a watershed moment in the direction of agricultural policy in the UK. However, under the deficiency payment system annual Farm Price Reviews between the Government and the National Farmers Union were required as the Exchequer fought to keep a check on the burden of farm support payments. Additionally, from the late 1950s as world food supplies increased, and world prices fell, UK farmers were becoming less and less competitive in world markets meaning measures to protect domestic farmers were subsequently introduced, principally through import controls. This meant that, as Bowers¹² phrased it: “*Entry to the EEC can be seen as the logical culmination of UK agricultural policy in the 1960s*” and that “*we would have an import levy system whether we entered the EEC or not*”. In other words, by the time the UK acceded to the EEC we had similar mechanisms in place for supporting the farming sector.

Figure 2 shows a policy timeline for cattle and sheep in the era since the UK’s accession to the EEC. Headage payments for beef and sheep were long established in the UK (through hill and upland cattle and sheep payments) but were introduced across the EU for hill and upland (LFA) ewes and suckler cows in 1975 through Hill Livestock Compensatory Allowances (HLCA) (Directive 75/286). By 1982 the HLCA payments amounted to £44.50 per cow, £6.25 per hill ewe and £4.25 per upland ewe in 1982.¹³ However, by 2002 the HLCA payments in Scotland had been largely decoupled and instead LFA farmers are now compensated through the Less Favoured Area Support Scheme (LFASS) based on the area farmed.

As the LFASS was decoupled, in principle, a payment was made for a farm’s LFA grazing area (adjusted for quality of grazing) but the land was split into quality categories that were based on nothing other than the number of animals carried in the base year of 2001. This meant that farms that had higher stocking densities in 2001 benefited from the new scheme the most (provided they did not exceed the stocking density ceiling). Additionally, in the early years of LFASS higher payment rates were paid to farms that had a mix of cattle and sheep, to encourage beef production and the associated environmental benefits, meaning that LFASS did not fully embrace the decoupling principle. LFASS in the 2007-2013 Scottish Rural Development Programme is now decoupled, being based on the 2006 historic

¹⁰ Bowers, J.K. (1985). British Agricultural policy since the Second World War. In *Agricultural History Review* Vol 33 (1). British Agricultural History Society.

¹¹ Bowers, J.K. (1985). British Agricultural policy since the Second World War. In *Agricultural History Review* Vol 33 (1). British Agricultural History Society.

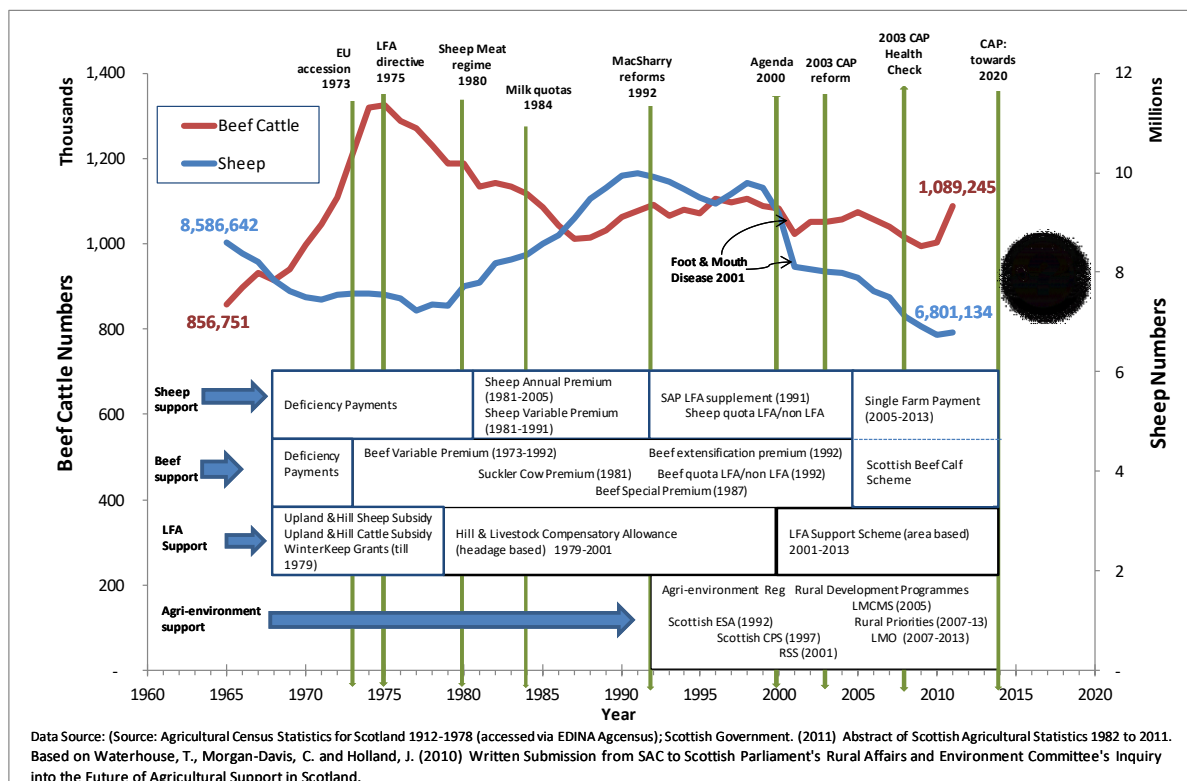
¹² *Ibid*

¹³ SAC’s Farm Management Handbooks (1982/83 and 2000/2001 editions)

payment and accounting for the degree of natural handicap¹⁴ although it was rebased to 2009 stocking levels more recently to ensure payments go to active farmers¹⁵ and a cattle top-up factor was reintroduced.

The Sheep Annual Premium (SAP) introduced in 1981 paid farmers a headage payment based on the number of ewes, gimmers and ewe hoggs in lamb on either of two dates and subsequently kept for a 100 day retention period. Payments were limited to the first 500 ewes in the lowlands (<50% LFA) and 1,000 ewes in the uplands (> 50% LFA) with the remaining ewes receiving only half the premium (for example in 1991 the rate was £9.88 per ewe)¹⁶. In 1991 an LFA supplement (of £3.11 per ewe) was also added to the SAP. In addition to HLCA and SAP payments for sheep if farmers could finish lambs they could also claim the Sheep Variable Premium (SVP) for eligible sheep sold for slaughter. The SVP was the difference between the weekly average market price and seasonally adjusted CAP guide price. The introduction of these headage payments led to many farmers playing a “numbers game” and sheep numbers increased rapidly over the 1980s (34% between 1979 and 1993) until the entitlement quotas introduced in 1992, under the McSharry reforms, started to impact.

Figure 2 Cattle and Sheep Policy Timeline: 1960s - present



Renwick et al (2010)¹⁷ showed using aggregated cattle figures for Scotland for more than a century, that cattle numbers react strongly to agricultural policy and that it is an important driver of both trends and structural change and also a source of divergence amongst

¹⁴ Either “standard areas” with lower transport costs, “fragile mainland” areas of disadvantage and higher transport costs or “very fragile” island areas.

¹⁵ <http://www.scotland.gov.uk/Resource/Doc/310949/0098118.pdf>

¹⁶ SAC's Farm Management Handbooks (1991/1992 edition)

¹⁷ Renwick A; Revoredo-Giha, C., Thomson, S., Leat, P. and Ringrose, S. (2010) Distribution of beef cattle in Scotland: How important is Agricultural policy? 114th Seminar of European Association of Agricultural Economists, ‘Structural Change in Agriculture’, April 15-16, 2010, Berlin, Germany. <http://ageconsearch.umn.edu/bitstream/61101/2/renwick.pdf>

regions. After 50 years of growth in cattle numbers, stimulated by the Hill Cattle and Beef Cow Subsidies and complimented by the Winter Keep Grant, cattle numbers in Scotland fell suddenly after accession to the EEC. The rapid decline of cattle after 1975 was most notable in the Eastern, more fertile, regions of Scotland where there was a substitution of beef to cereal production in response to the improved cereal prices received by Scottish farmers from cereal intervention thresholds and Transitional Compensatory Amounts paid to UK farmers over the 5 year transition to full EU intervention pricing (UK prices tended to be lower than EEC prices).¹⁸ In contrast, the traditional dairy areas in the South West and in the hill and island regions saw much more stability in beef cattle numbers in this period of adjustment post EU accession (see [Appendix 1](#) for regional figures).

Figure 2 shows that from 1973 beef finishers in Scotland were able to claim the Beef Variable Premium, which was paid on each animal slaughtered. This was a fixed headage payment (£14.27 in 1976¹⁹) coupled with a variable premium that was the difference between the weekly average market price and seasonally adjusted CAP guide price. This was replaced by the Beef Special Premium in 1987. However, these support mechanisms had limited direct impact on hill and island beef producers as the vast majority of calves were sold into the store trade (there may have been a small trickledown effect to prices paid by beef finishers to store producers). The Suckler Cow Premium (SCP) introduced in 1980 did however, have a direct impact for hill, island and upland farmers by providing a headage payment to farmers for maintaining a suckler cow herd (providing the farmer kept the cows claimed for at least 6 months) which amounted to £12.37 per cow in 1982 and by 1991 had risen to £52 per cow in LFAs and £47 per cow elsewhere.²⁰ In 1992 the McSharry reforms introduced non-LFA and LFA ring-fenced beef quotas (CAP support entitlement quotas) alongside an extensification premium (e.g. in 2000 this was €33 for stocking densities between 1.6 and 2.0 livestock units per forage hectare and was €66 for stocking densities between lower than 1.6 livestock units per forage hectare).²¹ Whilst these headage payments halted the downward trend in Scottish beef cattle numbers since 1975, they only led to modest increases of 9.14% between 1988 and 1998.

More recently, the large declines in sheep numbers, and to a lesser extent beef numbers, between 1998 and 2009 (as shown in Figure 1 and Figure 2) have been fuelled by a combination of factors, including a general downturn in the economic viability of hill farms (driven by poor beef and lamb prices and the strengthening of Sterling against the Euro), the foot-and-mouth (FMD) disease outbreak in 2001, increased input costs, livestock reductions related to agri-environment schemes, and the major decoupling of livestock support from production. The agreement to decouple EU direct farm payments from production and introduce the Single Farm Payment was formally made by the Council of Agricultural Ministers in June 2003. The European Commission noted that during the pre-reform discussions concerns were raised by some Member States that full decoupling of CAP support may lead to *“abandonment of (agricultural) production, the lack of raw material supply for processing industries, or to social and environmental problems in areas with few economic alternatives”* (EC 2008).²² As such, under the reformed CAP, Member States were afforded scope to retain some coupled support and additionally could use some of their national envelopes to support *“specific types of agriculture which are important for the*

¹⁸ SAC (1976) Farm Management Handbook

¹⁹ *Ibid*

²⁰ SAC (1982 and 1991) Farm Management Handbook

²¹ SAC (2000) Farm Management Handbook

²² European Commission (2008) Proposal for a Council Regulation establishing common rules for direct support schemes for farmers under the common agricultural policy and establishing certain support schemes for farmers. COM (2008) 306 final.

http://ec.europa.eu/agriculture/healthcheck/prop_en.pdf

protection or enhancement of the environment, or for improving the quality and marketing of agricultural products”, otherwise known as Article 69/68 measures.

SAC (2010)²³ in assessing the impact of decoupling farm support payments across EU 15 countries for the Pack Inquiry found that neither the implementation model chosen (historic, static hybrid or dynamic hybrid) or the extent of coupling remaining in the sheep sector appeared to have any significant impact on national sheep breeding flocks across Europe with rapid declines occurring all over the EU15. For beef cows SAC did, however, find that the level of coupling had a minor impact on the direction of change in beef herds with divergence between those that fully decoupled (led to declining herd) and those that maintained some degree of coupled support (led to increasing herd). In Scotland the 2008 Retreat from the Hills report highlighted that the pre-reform concerns over abandonment were in-fact becoming a reality in some Scottish localities in the sheep sector, with decline in the beef sector being perhaps minimised with the Article 69/68 funded Scottish Beef Calf Scheme (SBCS) (although Barnes (2008)²⁴ suggests that the scheme on its own does not support the long term viability of beef enterprises).

²³ SAC (2010) A Review of Literature on the Value of Public Goods from Agriculture and the Production Impacts of the Single Farm Payment Scheme. Report for the Scottish Government's Rural and Environment Research and Analysis Directorate for the Inquiry into the Future of Support for Agriculture in Scotland. <http://www.scotland.gov.uk/Resource/Doc/278281/0093368.pdf>

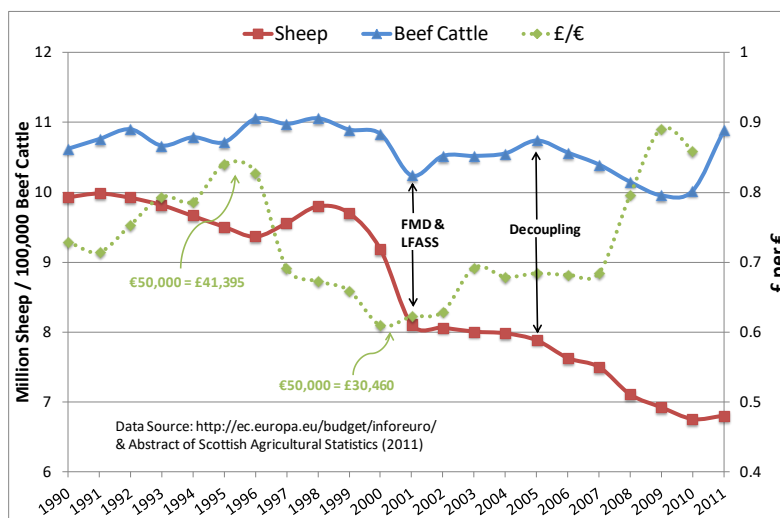
²⁴ Barnes, A. (2008) Special Study Evaluating the Scottish Beef Calf Scheme. Special Study for The Scottish Government's Rural and Environment Research and Analysis Directorate: <http://openscotland.net/Publications/2008/06/05104709/0>

3 The Economic Context of Hill and Upland Beef and Sheep Production

3.1 Exchange Rates

We cannot underestimate the significant impact that the exchange rates have on the economic fortunes of Scottish beef and sheep farmers, particularly since a significant proportion of their farm output in the last 30 years has been in the form of CAP support payments (e.g. Suckler Cow Premium, HLCA, LFASS, SFP, etc) which were/are paid in Euros²⁵. Figure 3 shows the official EU average annual exchange rate between Sterling and the Euro between 1990 and 2010 alongside the trend in livestock numbers. Whilst farmers received headage payments for sheep and beef cows (most notably the HLCA, SAP and SCP for hill farmers) the weakening of Sterling against the Euro in the early 1990s gave farmers a windfall gain per ewe or cow kept which perhaps influenced the increase in sheep numbers between 1996 and 1998. The significant strengthening of Sterling against the Euro between 1998 and 2002 coincided with a period of depressed prices and incomes across most farming sectors, particularly for hill sheep and beef farmers. During that period a farmer that received €50,000 in CAP support payments would have been nearly £11,000 worse off solely due to exchange rate changes. This led many farmers to open Euro accounts so they could choose the most opportune moment to convert their payments to Sterling and therefore try and minimise the effects of exchange rate fluctuations.

**Figure 3 Change in Livestock and Sterling:
Euro Exchange Rate – 1990 to 2011**



The period leading up to decoupling of support (LFA support payments were largely decoupled in 2001) saw a slight weakening of Sterling, and there was relative stability until significant weakening of the Sterling from 2007 to 2009. This latest change to the exchange rate meant that the SFP received by farmers appreciated in Sterling value (by £0.1793 per € or 31% between 2004 and 2009) meaning that farm output grew if, as the economic theory²⁶

suggests, farmers use decoupled payments to cross-subsidise the agricultural enterprises. This means that farmers were cushioned from the financial reality of the SFP at a time when important restructuring decisions were being made by many. Hence the downturn in sheep and cattle may have been more pronounced than without this strengthening of Sterling against the Euro.

²⁵ Prior to the launch of the Euro in 1999 the European Monetary System was in place and its Exchange Rate Mechanism and unit of account – the European Currency Unit (ECU) was the forerunner to the Euro. The ‘Green Pound’ was the exchange rate at which European Union’s farm subsidies set in Brussels were converted to sterling.

²⁶ For an overview of how farmers treat decoupled payments see SAC (2010) A Review of Literature on the Value of Public Goods from Agriculture and the Production Impacts of the Single Farm Payment Scheme. www.scotland.gov.uk/Resource/Doc/278281/0093368.pdf

3.2 Beef and Sheep Prices

Figure 4 Average British sheep SQQ²⁷ deadweight and clean cattle liveweight prices: 1985 to 2011 (52 week moving)

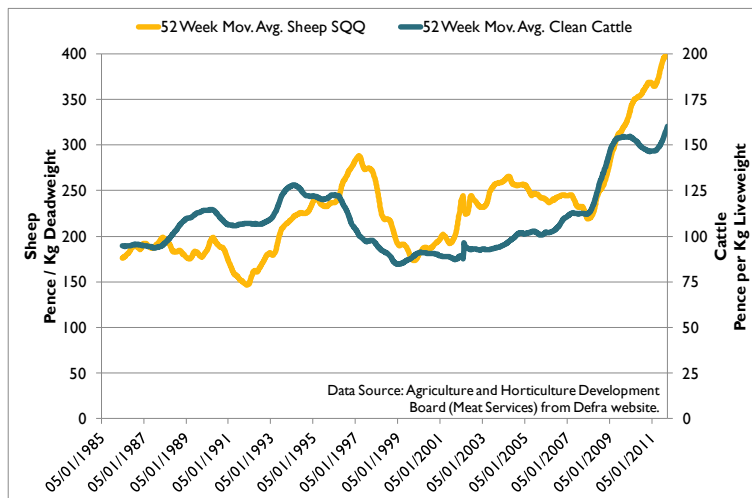


Figure 4 shows the long term (seasonally adjusted) trends in prices for clean cattle and sheep. Whilst beef prices steadily increased during the 1980s and early 1990s they fell sharply between 1997 and 1999. Prices did improve very gradually thereafter it was not until 2008 that prices returned to 1997 levels. After a period of price stability in the sheep sector prices fell by 50p / kg deadweight between 1990 and 1992 before increasing

dramatically (nearly doubling) by 1997 and then falling back sharply by 2000. Sheep prices had recovered somewhat by 2002 where they stabilised around £2.45 per kilo deadweight until 2008. Since 2008 confidence has returned to both the sheep and beef sectors with lamb and beef prices reaching 25 year highs, driven by tightening of global beef and sheep supplies and increased demand in growing economies in China, India and Russia. The SQQ lamb price reached £5.19/kg deadweight in May 2011, whilst liveweight prices for clean cattle have continued to rise, with prices hitting £1.82/kg in September 2011 (latest available prices at time of publication).

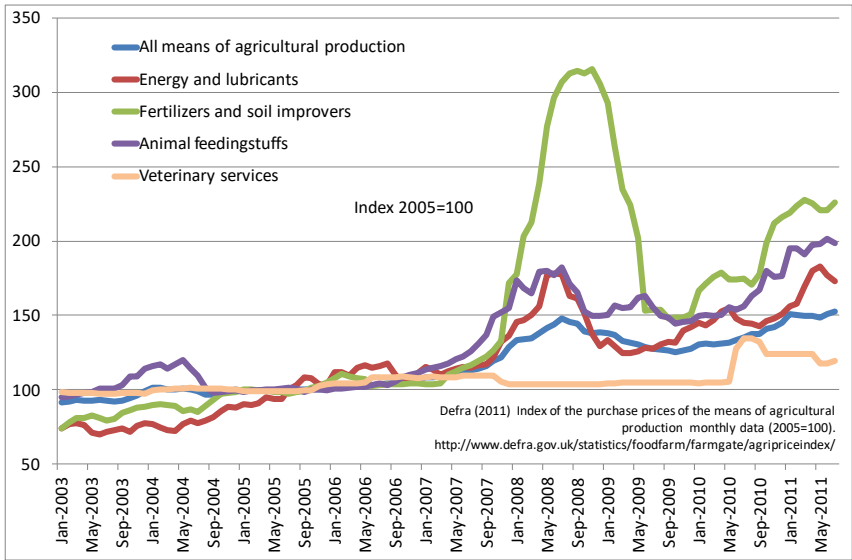
These price trends (alongside Sterling : Euro fluctuations) help explain the national trends in livestock numbers, particularly for pre-decoupling sheep numbers which increased alongside rising prices and then fell sharply after 1997 when the price collapsed (particularly for small hill lambs). The move from headage payments to area based LFA payments in 2001, coupled with FMD impacts and subsequent restructuring, meant that the incentive to keep large amounts of sheep was reduced (although the Sheep Annual Premium remained). When it was announced that future CAP support was to be decoupled then despite improved returns many farmers took the opportunity to restructure, reduce sheep numbers further and perhaps reduce labour input to the farm (you need to sell a lot of lambs to pay for a shepherd). In the beef sector cattle numbers grew gradually in the 1990s until they started to gradually fall from 1998 in response to falling prices. The impact of FMD is clearly apparent and despite some recovery in the beef herd by 2004 there was further decline post decoupling between 2005 and 2009. The upturn in beef cow numbers in 2010 and 2011 suggests that there is a lag of a couple of years for farmers to fully react to these much improved beef prices whilst the high sheep prices recently seen may be the cause of the sheep flock decline apparently bottoming out.

3.3 Input Costs

Whilst returns to beef and lamb have vastly improved in recent years, a major worry for farmers is the rapidly rising input costs they face. The index of agricultural input costs shown in Figure 5 shows that after a period of relative stability livestock farmers have been faced with significant increases in input costs since 2007. Particularly noteworthy is the 75% increase in feed costs between April 2007 and September 2011, with fertiliser prices more than doubling over the same period and a 50% increase in fuel costs.

²⁷ SQQ - Standard Quality Quotation (the quote for a standard quality lamb)

Figure 5 Index of agricultural input prices (2005=100)



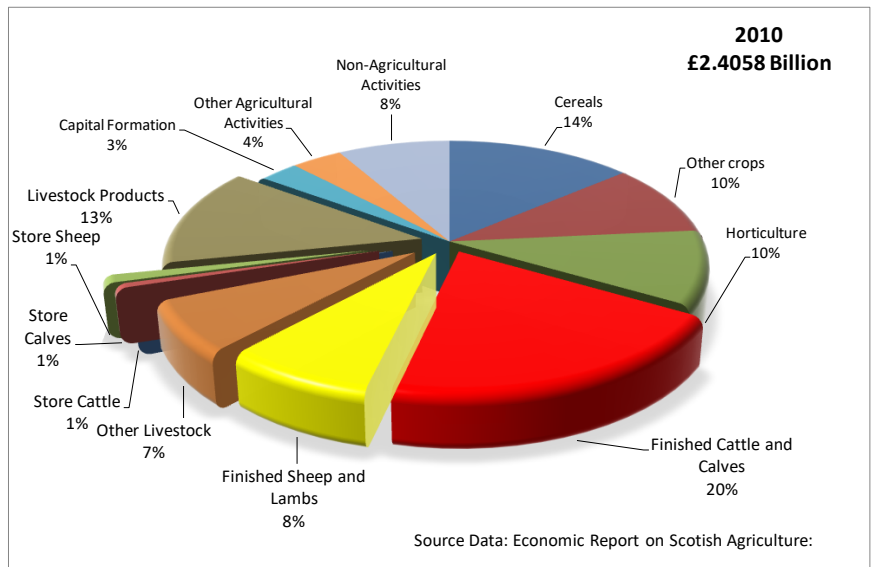
These increased costs (particularly feed costs) remain an issue for many farmers who would undoubtedly increase beef and sheep production if these higher costs were not such a constraint. This is particularly the case as beef prices are expected to remain buoyant over the next few years since additional beef supplies from Ireland and South America are not anticipated for 2011 and 2012 and there is

increased demand from the continent, reduced dairy stock entering the beef chain (lower national herd and TB culls), etc. meaning that domestic supplies are likely to remain tight in the foreseeable future.²⁸ Additionally, world sheep supply has been tight in recent years and this has driven up prices, and expected falls in production in France, Ireland and New Zealand²⁹ coupled with low lambing percentages caused by harsh recent winters mean that tight supplies are expected to continue in the short term.

3.4 Gross Agricultural Output

Figure 6 Scottish Gross Agricultural Output, 2010

Livestock production in Scotland remains the principal component of Scotland's £2.4 billion agricultural output in 2010. Figure 6 shows how finished cattle and calves accounted for 20% with finished sheep and lambs accounting for a further 8% of farm output. Livestock products are primarily made up of milk and egg and these contribute 13% whilst store beef and sheep contribute about 3% of total output.

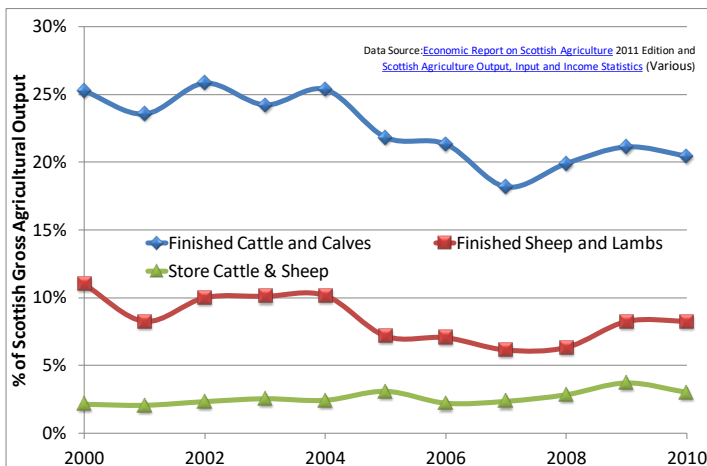


Despite returns in both the sheep and beef sectors improving recently the relative importance of these sectors to total Scottish farm output has declined since decoupling of CAP support payments (see Figure 7).

²⁸ http://www.yorkshirepost.co.uk/news/country-view/farming/beef_prices_hit_record_but_farmers_still_wary_1_3675915

²⁹ <http://www.hccmpw.org.uk/medialibrary/publications/March%202011.pdf>

Figure 7 Beef and sheep contribution to Scotland's gross agricultural output: 2001 to 2010

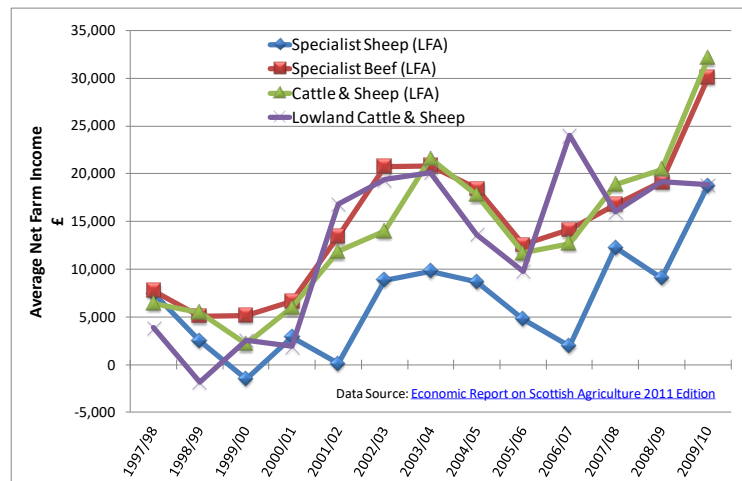


Finished beef's contribution fell from over a quarter of Scottish farm output in 2002 and 2004 to only 18.2% in 2007 (the 2007 FMD standstill may have had some impact here, but it is more likely to be due to buoyancy in the arable sector that year) before changing fortunes in the sector and higher prices has meant that it has recovered to around 20%. A similar pattern is seen for finished sheep, where the contribution to total gross output fell from 11% in 2000 to 6.1% in 2007 before settling around 8% after the economic fortunes of the sheep sector improved.

3.5 Farm Incomes and Margins

Figure 8 Average Net Farm Incomes by Farm Type: 1997 to 2010

The strengthening of the Euro and improvement of prices received by Scottish sheep and beef farmers has offset some of the increases in input costs (described above) resulting in improved average Net Farm Incomes (NFI)³⁰ across each of the specialist beef and sheep farm types (see Figure 8). These figures also help explain the decline in livestock numbers pre-decoupling, where returns to the farmer and spouse were particularly low, and in some instances negative. The fortunes of NFI across all these farm types appear to subsequently follow the trend in sheep prices (shown in Figure 4). Recently LFA Specialist Beef and LFA Cattle and Sheep farms have been out-performing lowland cattle and sheep producers, who do not benefit from LFASS payments and may be faced with higher feed costs from more intensive finishing of livestock, meaning their margins are squeezed.

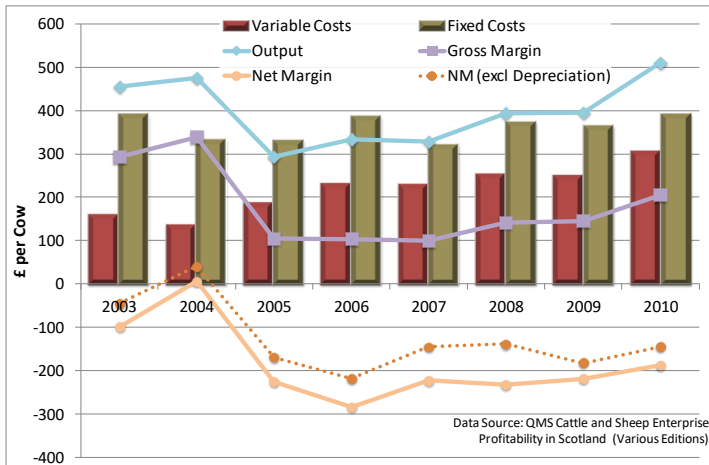


Economic convention suggests that a business will continue to operate in the medium term if its income exceeds the variable costs it faces (since at least some of the fixed or overhead costs are met). However, should income fall below the variable costs then rational businesses should consider withdrawing from production or downsizing to minimise losses in the short term (hoping that prices will recover and the enterprise can return to positive gross margin). Figure 9 to Figure 11 show the average returns and margins per cow in LFA hill suckler cow systems, LFA upland suckler cow systems with extensive and extended rearing (where the former sell calves at weaning and the latter sell around a year old) as reported by QMS. It should be noted that this data is not from a continuous sample of farms meaning some of the observable annual change may be attributable to changes in participating farms.

³⁰ Net Farm Income is a measure of return to unpaid farmer and spouse (an imputed wage is paid to any other unpaid family labour) activity on the farm, with the underlying assumption that the farm is tenanted. For an overview of NFI and other measures of income see <http://www.scotland.gov.uk/Resource/Doc/933/0041874.pdf>

In all cases if depreciation is not accounted for by farmers (dotted line) it actually means that a slightly lower level of (cash) loss is made per cow, although not by enough to give positive returns. The problem of not accounting for depreciation is that in the longer term it means that there is a lack of cash to pay for investment into fixed capital (buildings, machinery, handling facilities, etc) in the future.

Figure 9 LFA Hill Suckler Cows – Outputs, Costs and Margins: 2003 to 2010



These figures highlight the uneconomic nature of average hill suckler cow herds in Scotland, even prior to the decoupling of most CAP payments in 2005. Average output fell between 2003 and 2005 due to the coupled CAP payments (e.g. Suckler Cow Premium, etc) being withdrawn from the output per cow and being replaced with the smaller SBCS payment. As discussed previously, returns per cow increased from 2007, particularly in upland areas compared to hill areas.

Figure 10 Upland Suckler Cows – Extensive Rearing– Outputs, Costs and Margins: 2003 to 2010

Figure 9 shows how output per hill cow has struggled to cover the fixed costs associated with it over the period, although variable costs are covered by the output meaning each cow contributes something towards the fixed costs (which are significant) associated with that cow. Whilst the situation is not as bleak for both the upland systems (Figure 10 and Figure 11) the overall picture for these suckler cows systems is that gross margins are inadequate to cover overhead costs.

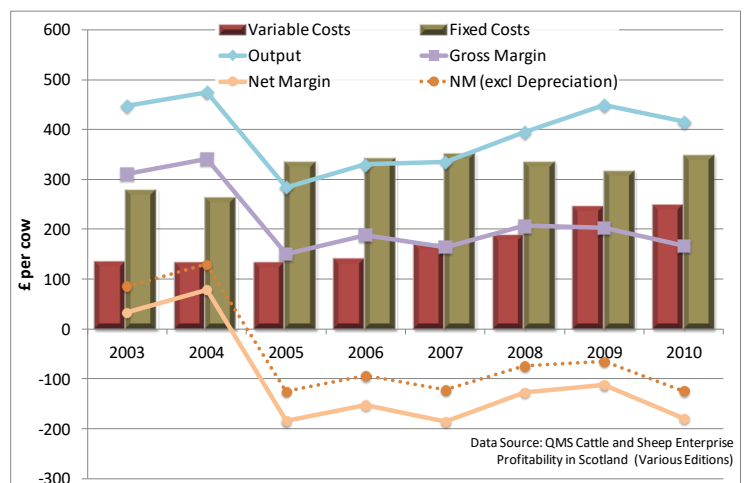
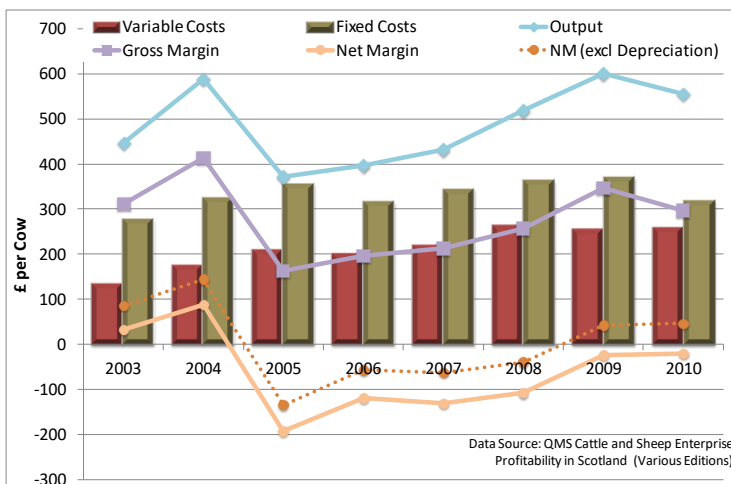


Figure 11 Upland Suckler Cows – Extended Rearing: Outputs, Costs and Margins: 2003 to 2010



Thus in 2010, despite improved output an average suckler cow returned a net loss of £187 in hill systems, £180 in extensive upland systems and £21 in extended upland systems. If depreciation is excluded, losses per suckler cow are reduced, and in the case of extended rearing upland systems there was cash profit of £46 per cow in 2010. With higher returns 2011 profitability should have improved further, meaning increased confidence in the sector where the top performers will likely be making positive net margins, perhaps with the exception of hill

producers.

Figure 12 and Figure 13 show the average returns and margins per ewe for LFA upland breeding flocks (running crossbreds) and for LFA hill breeding flocks (running Blackface or Cheviot ewes) as reported by QMS. It should be noted that this data is not from a continuous sample of farms meaning some of the observable annual change may be attributable to changes in participating farms.

Figure 12 LFA Upland Sheep – Outputs, Costs and Margins: 2003 to 2010

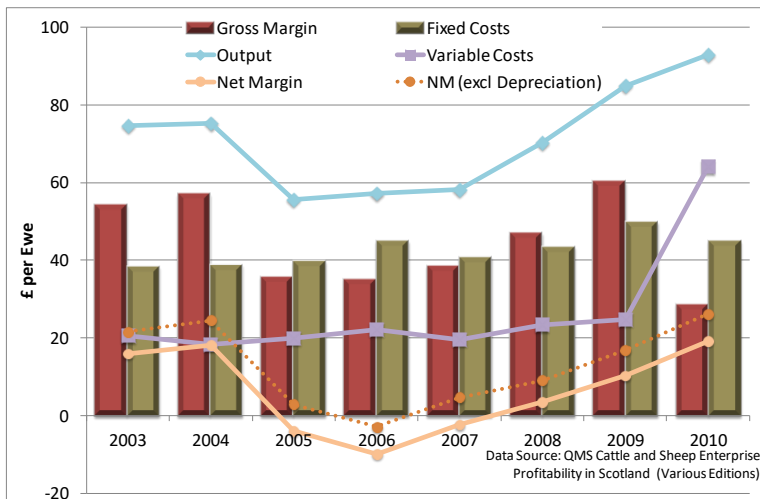
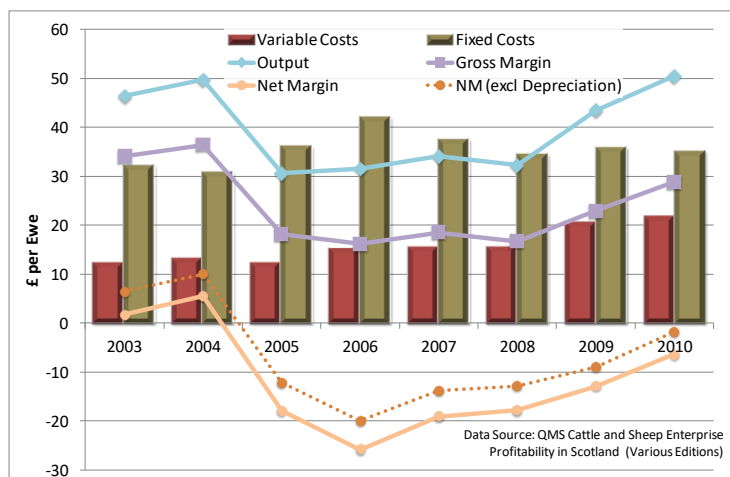


Figure 12 shows how, as with suckler cows, the output per ewe fell in 2005 as a result of the Sheep Annual Premium being decoupled from production and amalgamated into the Single Farm Payment. This, combined with rising costs, meant that the average upland crossbred ewe returned negative net margins (albeit small at -£9 in 2006) until sheep prices recovered from 2007 leading to positive net margins per ewe in 2008, 2009 and 2010. If farmers do not account for depreciation it means that the (cash)

net margins per ewe were only negative in 2006 and by 2010 each ewe was returning £26 cash profit to the farm. Not accounting for depreciation, however, in the long term could lead to problems when reinvestment in fixed capital is required (especially if cash the surplus is withdrawn to pay for unpaid family labour).

Figure 13 LFA Hill Breeding Flock – Outputs, Costs and Margins: 2003 to 2009

In contrast to upland sheep systems Figure 13 shows a bleaker picture for hill breeding flocks which have been faced with average negative net margins since decoupling occurred (falling to -£25.86 per ewe in 2006). Between 2005 and 2008 output per ewe was lower than the fixed costs associated with that ewe and in 2006 to 2008 the returns per ewe were barely enough to even cover the variable costs associated with each ewe. Despite improved returns in 2009 and 2010 hill ewes were, on average, still returning losses of £6.32 each in 2010. If depreciation is not accounted for it does reduce the losses per ewe, and by 2010 the cash loss per ewe, on average, was only £1.68.



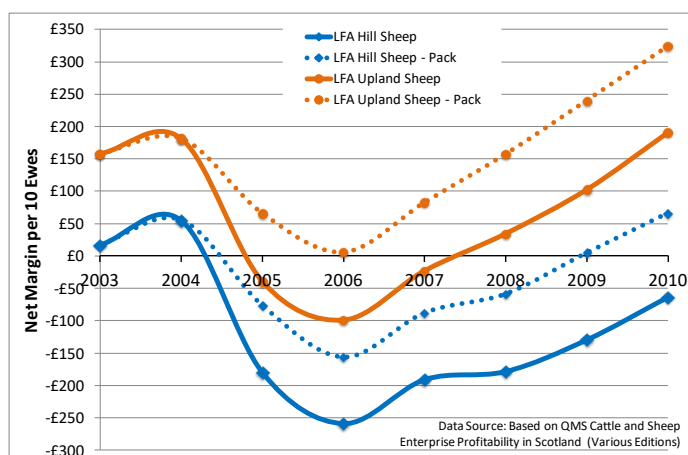
These gross and net margins go a long way to explaining why there have been reductions in the number of suckler cows and breeding ewes kept by farmers and crofters in many hill and upland areas across Scotland since CAP support was decoupled. The economics of production has become a stark reality for farmers and crofters in this era of decoupled support payments. Farmers and crofters have had to take tough decisions about how much of their SFP and LFASS payments they should use to cross-subsidise uneconomic

production of sheep and beef, and how much they should downsize or withdraw from production to minimise production losses.

3.6 The Pack Inquiry Proposals

The recent Pack Inquiry made ambitious recommendations that LFA farmers receive recoupled support through a “top up fund” of €6,400 per standard labour requirement (SLR) (tied to activity) followed by an additional headage payment for beef calves and lambs. The proposed revised Scottish Beef Calf Scheme would be tiered with 5 payment levels ranging from €220 per head for 1-5 calves to €135 for over 40 calves with 75% beef genetics (a flat rate of €135 per calf was proposed for calves with 50-75% beef genetics). The proposed Scottish Lamb Scheme would pay €8 per lamb on LFA farms. Adjusting for average annual exchange rates SLRs per cow and ewe were used to calculate the SLR component of the scheme. After adjusting for average beef herd sizes and average calving and lambing rates (reported in the QMS Cattle and Sheep Enterprise Profitability in Scotland Guides) the headage payment per calf and lamb were calculated for each year since decoupling was introduced in 2005.

Figure 14 Sheep Net Margins under Pack Scenarios: 2003 to 2009

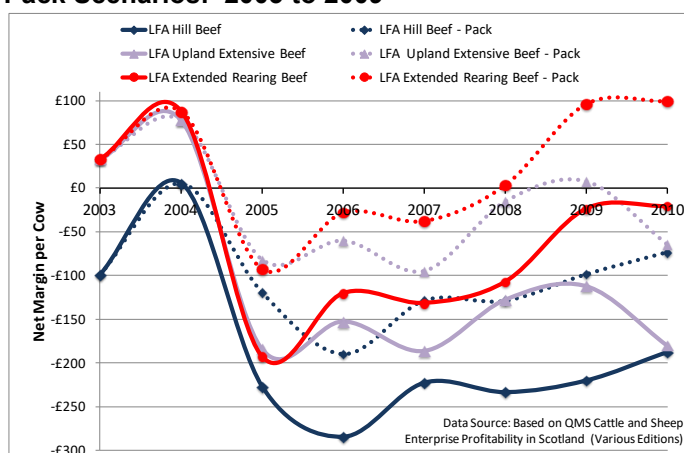


Under the Pack scenarios Figure 14 clearly shows that compared to the situation that has occurred since decoupling (the solid lines) the proposed Pack top-ups would have meant that upland crossbred ewes would have returned a positive net margin for each of the years following decoupling. Under Pack’s proposals the net margin for 10 ewes would have increased from £191 in 2010 to £324, thus making upland breeding flocks a much more attractive proposition. For hill breeding flocks the Pack scenarios would also have reduced

the net losses made per ewe, although the net margins would still have been negative up until 2009. For example if Pack’s proposals had been in operation in 2006 the net margin per 10 ewes would have increased from -£258 to -£155.

Figure 15 Suckler Cow Net Margins under Pack Scenarios: 2003 to 2009

Figure 15 shows the net margins for different suckler cow systems under the Pack scenario. As with sheep, this scenario would have reduced the losses made per cow and would have made upland suckler herds more attractive (giving positive margins to extended rearing herds in 2008 and 2009 and extensive rearing herds in 2009). Again, whilst the Pack scenario would have reduced losses per hill suckler cow the Pack scenario still would not have been adequate to provide positive net margins per cow (-£73 per cow instead of -£187 per cow in 2010). So, even had the Pack Inquiry recommendations been in situ from the moment that CAP support payments were decoupled

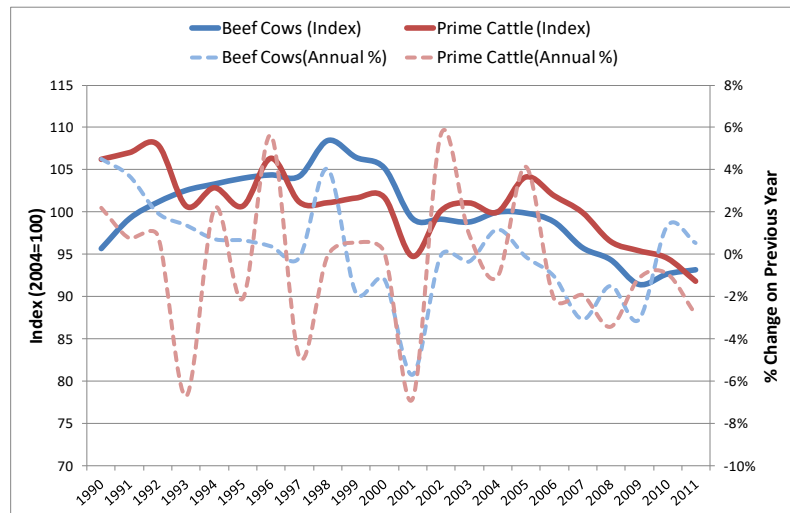


it is unlikely that it would have stemmed the flow of sheep and beef cows being removed from Scottish hill areas. However, with Pack's top-ups Scottish upland sheep and beef production would have been financially more attractive and unlikely to have declined to anywhere near the same extent.

4 Suckler Cow Changes in Scotland – the Evidence

Figure 16 Annual Change and Index of Scottish Suckler Cow and Prime Cattle Numbers 1990 to 2011³¹

Figure 16 reiterates the story regarding recent changes in beef cattle numbers described earlier (Figure 1). This index shows how the Scottish suckler cow herd grew gradually in the early 1990s, with a reversal in that trend post 1997 when exchange rates and beef prices led to decreased profitability and rationalisation of the herd. The decreasing suckler cow herd was of course hit by the FMD crisis in 2001 (when the national herd contracted by 5.9%) after which there was stability until CAP was decoupled in 2005.

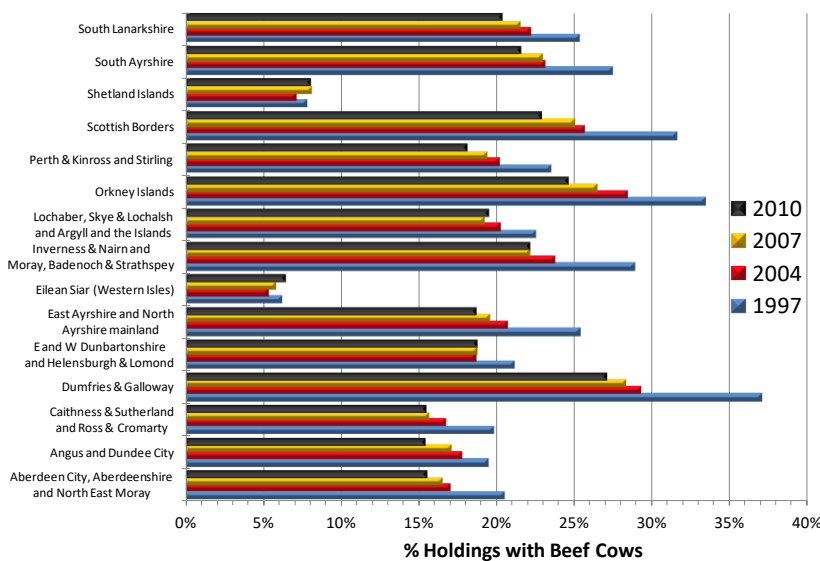


The decreasing suckler cow herd was of course hit by the FMD crisis in 2001 (when the national herd contracted by 5.9%) after which there was stability until CAP was decoupled in 2005. The switch from coupled “headage” CAP payments to a decoupled SFP in 2005 led to further decreases in the number of beef cows in Scotland (by 5.5% between 1995 and 1998) with the largest annual declines (about 3%) occurring between 2006 and 2007 and between 2008 and 2009. With improved beef prices in recent years there has been improved confidence in the sector that has led to growth in the national suckler herd in the last couple of years (by 8,542 cows or 1.9%). Prime beef numbers have shown more annual variability than beef cows, but generally follow a similar pattern to suckler cows, particularly since decoupling. The upturn in beef cow numbers seen in the last couple of years has not yet filtered through to the prime beef sector, although the annual change figures in Figure 16 (dotted lines) show a lag of a year in prime beef numbers when changes to the suckler herd occur (due to the length of time from weaning to slaughter).

The proportion of holdings carrying suckler cows varies quite widely across Scotland's regions. Figure 17 shows how, for example, few holdings in the Western Isles (6%) or Shetland (8%) have suckler cows compared to Dumfries and Galloway, the Borders, Inverness and Nairn, Moray Strathspey and Badenoch, South Lanarkshire and South Ayrshire where over a fifth of all holdings in the region carry suckler cows. Figure 17 also reveals how there have been significant decreases in the proportion of holdings carrying suckler cows between 1997 and 2010, with the most significant changes occurring between 1997 and 2004. Whilst the FMD crisis (and the cull associated with it) obviously had a role to play in this decline in areas such as the Borders (-9%) and Dumfries and Galloway (-10%), in areas that were not directly affected by FMD large changes also occurred as a result of the poor economic performance in the beef sector, decoupling of the LFA payments, the knock-

³¹ Source: Final results of the June 2011 Agricultural Census and Abstract of Scottish Agricultural Statistics 1982 - 2010

Figure 17 Proportion of holdings with suckler cows for selected years and NUTS 3³² regions: 1997 to 2010



on effects and dent in confidence post FMD, and pre-emptive restructuring prior to the decoupled SFP being introduced. Most areas continued to have fewer holdings carrying suckler cows between 2004, 2007 and 2010 although between 2007 and 2010 there was stabilisation or reversal of the decline in areas such as Lochaber, Skye and Lochalsh and Argyll Islands, Inverness and Nairn, Moray Strathspey and Badenoch,

Dunbartonshire and Helensburgh and Lomond. In these areas, as well as the Western Isles and Shetland, which could largely be described as having High Nature Value (HNV)³³ farming systems, the stabilisation and increase in the proportion of holdings with suckler cows may be due to incentives provided through agri-environmental schemes that encourage cattle grazing for biodiversity reasons (such as the SRDP's "Summer Grazing Cattle"³⁴ option through Land Managers Options or "Grazing Management of Cattle"³⁵ through Rural Priorities) or the re-introduction of the cattle top-up in LFASS.

Figure 18 and Figure 19 map the change in the proportion of holdings with suckler cows³⁶ by NUTS4 region and parish respectively to show the wide regional and local variation that exists in the change in number of farmers that carried suckler cows on their holdings between 1997 and 2004, 2004 and 2007 and 2007 and 2010 (representing the periods: (a) pre-decoupling and depressed prices; (b) immediate post decoupling restructuring, and; (c) post longer term decoupling restructuring and reaction to improved returns). These maps clearly show the large declines in the proportion of holdings carrying suckler cows between 1997 and 2004 that took place across the South of Scotland, but also in the areas surrounding Inverness. The parish maps show the wide range of changes that occurred within the regions, with some parishes (particularly in the South of Scotland where beef production was relatively more prevalent) having more than 15% reductions. During that period there were some sporadic increases in the proportion of holdings with suckler cows, but these can probably related to parishes with low absolute numbers of holdings with suckler cows, where dairy holdings have been reduced or areas where cattle have been introduced from historic agri-environment schemes.

³² Nomenclature of Territorial Units for Statistics (NUTS) present statistical information for standard sets of geographical areas across the whole of the European Union. See <http://www.restore.ac.uk/geo-refer/35236ceurs00y19880000.php>

³³ See Beaufoy, G. (2008) HNV farming: explaining the concept and interpreting EU and national policy commitments. European Forum on Nature Conservation & Pastoralism. <http://www.efncp.org/download/EFNCP-HNV-farming-concept.pdf>

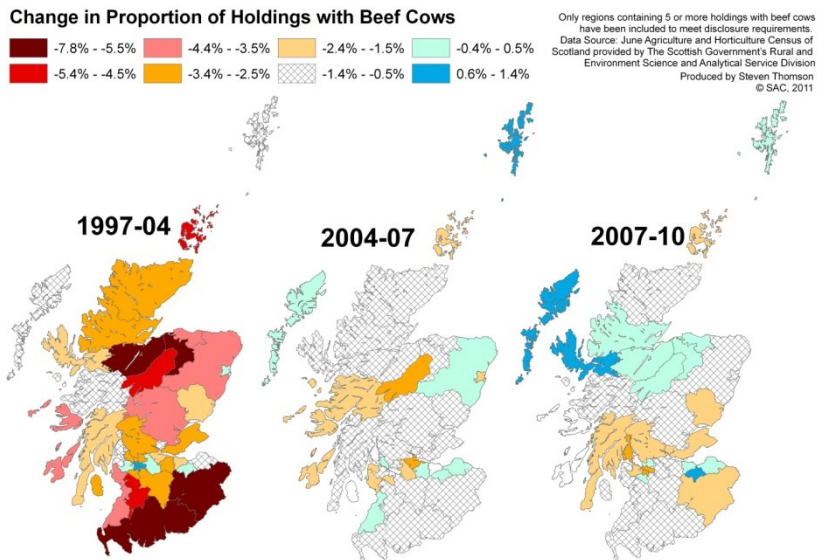
³⁴ <http://www.scotland.gov.uk/Topics/farmingrural/SRDP/Land-Managers-Options/Availableoptions/Summercattlegrazing>

³⁵ www.scotland.gov.uk/Topics/farmingrural/SRDP/RuralPriorities/Options/Nativeortraditionalcattle

³⁶ This gives the change to the relative importance of suckler cow holdings to an area and does not show the absolute change (i.e. if total holdings have been reduced through abandonment or amalgamation even if the absolute number of holdings carrying suckler cows fell then the change in the proportion of total holdings with suckler cows may in fact increase).

In the 3 years after decoupling there was a much reduced decline in the proportion of holdings with suckler cows across most regions (less than 1% decrease) with slightly higher decline in Badenoch and Strathspey and more generally across the west central Highlands. At parish level there was again a wide variation in the changes, although in the North West there was general stability, with changes in many neighbouring parishes across Scotland being in opposing directions, showing how localised changes have occurred³⁷.

Figure 18 Change in proportion of holdings with beef cows by NUTS4 region: 1997 to 2010



More recently, between 2007 and 2010 there has been even more stability in suckler cow holdings although there were some large localised declines in the Borders. As with the previous period, there was a tendency for growth in the more HNV farming regions (e.g. Glenelg, Mull, Skye, Kintail, Applecross, etc.) with the proportion of holdings carrying suckler cows continuing to fall in other local areas (e.g. around Stranraer and Breadlabane).

Figure 19 Change in proportion of holdings with beef cows by parish: 1997 to 2010

This highlights that across most of Scotland (with few exceptions) whilst the proportion of holdings carrying suckler cows has declined sharply since 1997, during the recent period when returns to beef production have been improving the decline has stabilised and reversed in some instances, particularly where agri-environment schemes and LFASS payments are influential in the HNV farming areas.

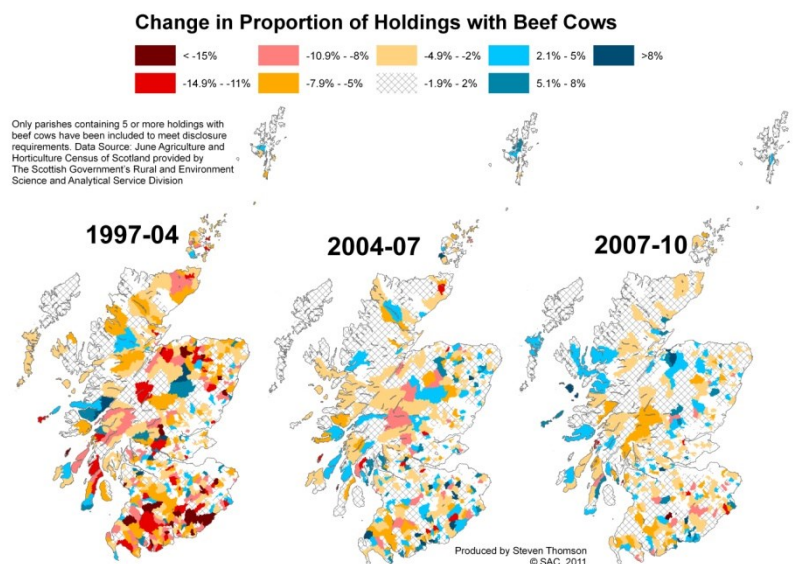


Figure 16 above showed how Scottish suckler cow numbers fell from 1997 to 2001 and again from 2005 to 2009 before growing in 2010 and 2011. Figure 21 reveals the importance of Dumfries and Galloway and Aberdeenshire and NE Moray to Scotland's suckler herd and how absolute suckler cow numbers have changed across NUTS3 regions for selected years between 1997 and 2010. What is most noteworthy is that when proportional changes across regions are examined it

³⁷ This may partially be related to farms with multiple holdings that cross parish boundaries and changes in the holding where the cows were located occurring at the time of the census).

must be recognised that a 10% change in the areas important for beef production such as Dumfries and Galloway (e.g. 8,502 in 2010) is significantly higher than in areas where beef production is minimal such as Shetland (which corresponds to only 192).

Figure 20 Cattle grazing density: 1997 and 2010

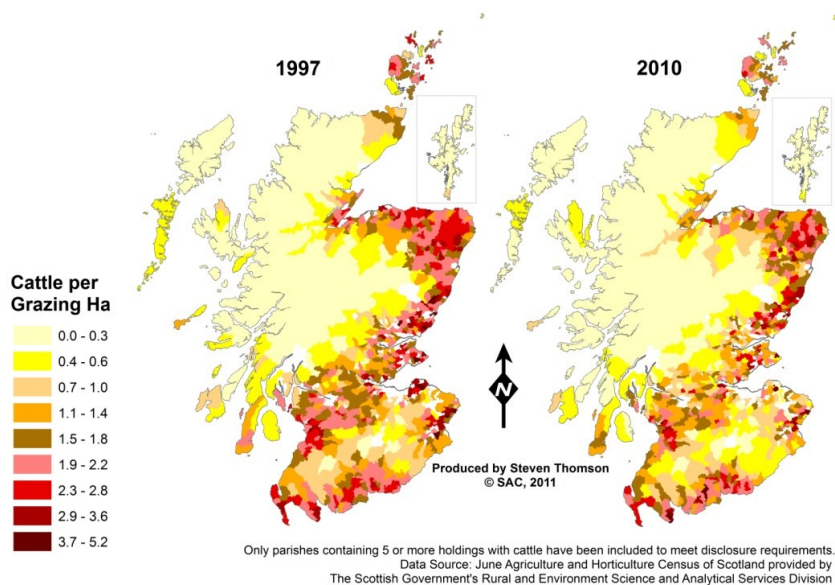
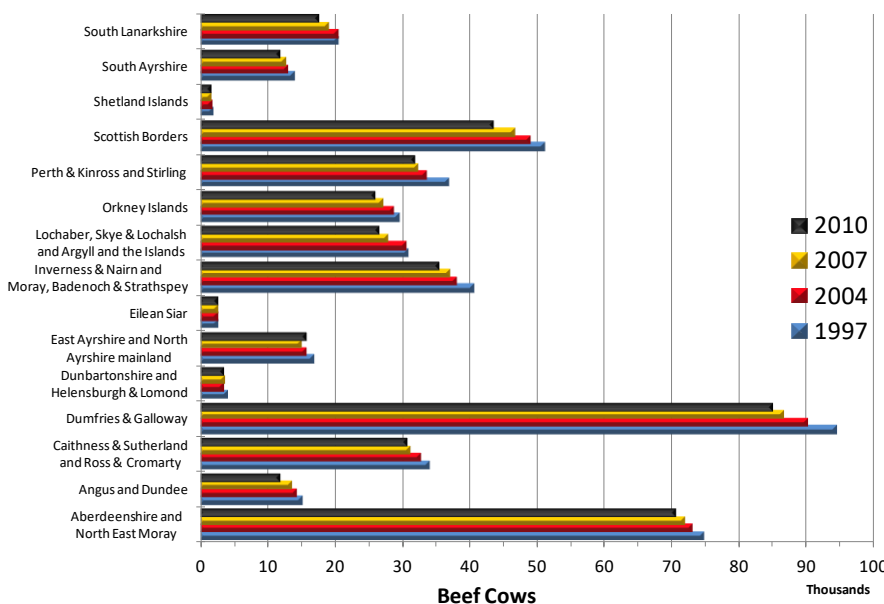


Figure 20 shows the total number of cattle per grazing hectare³⁸ across Scotland. From this it can be seen that the Z shape from Moray across to Aberdeenshire, down through Tayside, the central belt, and Ayrshire and along the South of Scotland are the key areas for beef having the highest grazing densities. As elevation and peripherality increase cattle grazing densities fall considerably. It is immediately noticeable that across Scotland there has been a general decline in cattle per

grazing hectare between 1997 and 2010, not just in the marginal fringe areas of the productive belt, but also in the heart of cattle producing areas, particularly in NE Moray and Aberdeenshire.

Figure 21 Number of beef cows by selected NUTS3 region: 1997 to 2010



It is evident from Figure 21 that the largest absolute declines in suckler cow numbers from 1997 to 2004 came in Dumfries and Galloway, the Borders, Inverness and Nairn, Moray Strathspey and Badenoch and Aberdeenshire and North East Moray. These 4 regions happen to be the most important for the Scottish beef sector, accounting for 51.4% of suckler cows in 2010). These decreases continued between 2004 and 2007 and 2007 to

2010 (although at a much reduced rate). Similar trends are observable for the other Scottish

³⁸ In calculating "grazing hectares" rough grazing has been adjusted using a conservative factor of 4:1 following findings by Tiley, G. E. D., McClelland, T.H and Waterhouse, A. (1986) Herbage Production from Different Hill Sward Types Grazed by Sheep, 169-174, in Pollot, G.E. (ed). Efficient Sheep Production from Grassland. British Grassland Occasional Symposium No 21.

regions over the period with the exception of the Western Isles, Shetland and Dunbartonshire and Helensburgh and Lomond where there are relatively few suckler cows (albeit important numbers in terms of biodiversity, cultural heritage and landscape feature).

Figure 22 Change in number of beef cows by NUTS4 region: 1997 to 2010

Figure 22 and Figure 23 map at NUTS4 and parish level how the number of suckler cows changed over the three periods between 1997 and 2010. Between 1997 and 2004 the largest proportionate changes occurred in Stirling where the suckler cow herd fell by over 14%. Falls of between 6% and 9% happened in the central Highlands, Argyll, Perthshire and Tayside, with smaller proportional changes having occurred in most other regions, with growth of 8.6% in Lochaber and 9.1% in Skye (albeit from small starting bases). In Dumfries and Galloway (which represents 18% of the Scottish suckler cow herd) there was a 4.5% decline. At parish level there were wide variations within the regions with some local areas seeing growth whilst others saw decline (e.g. this is obvious in Skye, Wester Ross, or the Borders).

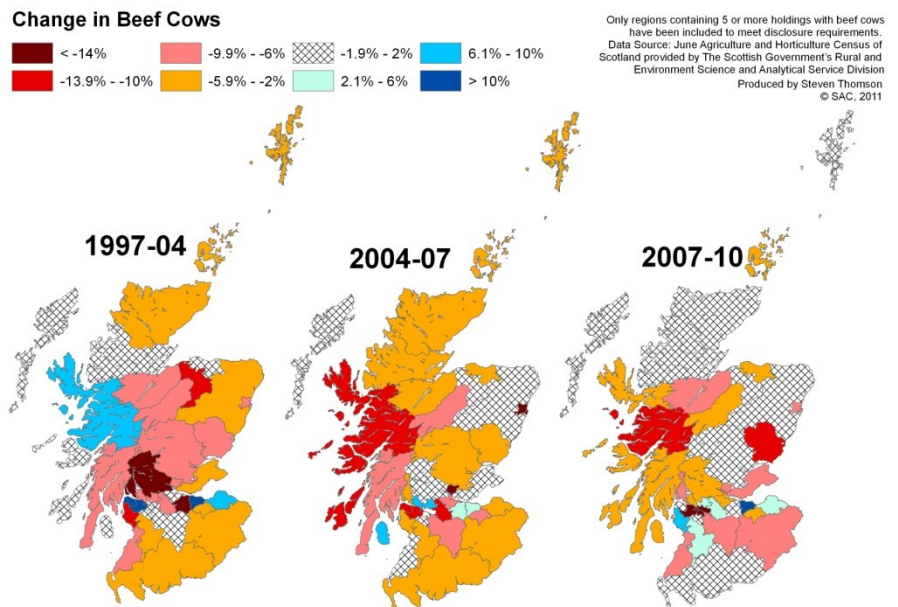
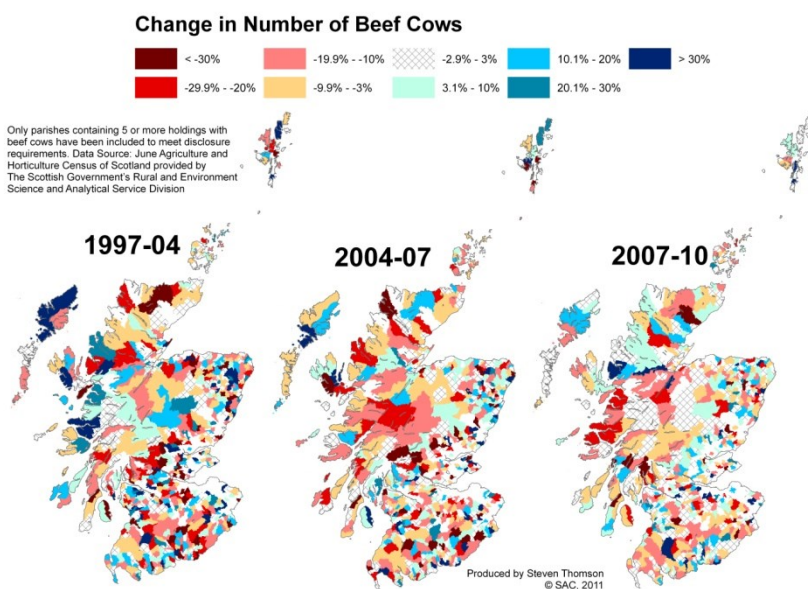


Figure 23 Change in number of beef cows by parish: 1997 to 2010



Between 2004 and 2007 the steady decline continued in the south of Scotland (4%, 5% and 7% decline in Dumfries and Galloway, the Borders and South Lanarkshire respectively). In Stirling there was stability following the rapid decline between 1997 and 2004 and in Skye and Lochalsh (-13%), Lochaber (-13%) and the Argyll and Bute Islands (-10%) suckler cow herd decline followed the period of stability or growth pre 2004. Again, at parish level Figure 23 shows wide variations within these

regions, although there is an area of general decline in suckler cows in the west-central Highland holdings (from the Cairngorms across through Lochaber and into the islands).

Between 2007 and 2010 there was much more stability in regional suckler cow herds across most of Scotland although there were 12% decreases in Angus and Lochaber with a further 6% decline in the Borders. Perhaps importantly for the Scottish herd there was only minor decline (-1.7%) in both Dumfries and Galloway and Aberdeenshire with growth in Ayrshire (as some former dairy holdings increase their beef herd). The parish map in Figure 23 again shows within the regions the local level changes to suckler cows between 2007 and 2010 and how there is considerable variance therein.

Table 1 reveals the parishes where the largest increases and decreases in suckler cows occurred since decoupling between 2004 and 2010. One very notable point is that whilst Leswalt and Closeburn in Dumfries and Galloway had some of the largest absolute decreases in suckler cows, at the same time within the region there were 4 parishes where the largest increases across Scotland occurred over the period. Generally speaking the largest absolute changes have occurred in the areas where suckler cow intensity is greatest.

Table 1 Parishes with largest increases and decreases in suckler cows: 2004 to 2010

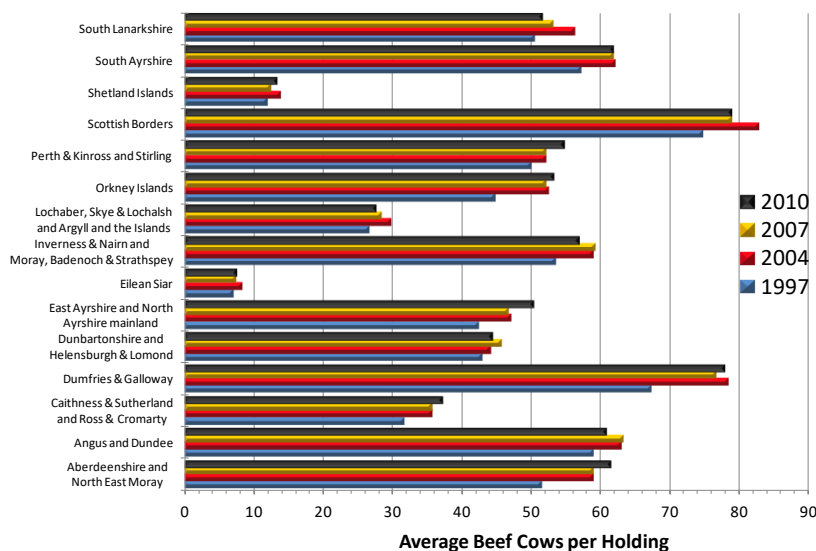
	Parish	NUTS4	Change in Beef Cows				2004, 07, 10 Average	
			2004-07	2007-10	2004-10	Farmed Ha	Beef holdings	
Largest Decrease 2004-10	Carnwath	South Lanarkshire	-185	-541	-726	-29%	8,952	37
	Leswalt	Dumfries & Galloway	-531	-117	-648	-39%	4,331	16
	Killarow & Kilmeny	Argyll & Bute UA Islands	-527	-103	-630	-25%	27,441	30
	Closeburn	Dumfries & Galloway	-561	-53	-614	-69%	7,160	12
	Strichen	Aberdeenshire	-346	-241	-587	-42%	5,106	16
	Avondale	South Lanarkshire	-400	-162	-562	-29%	9,099	47
	Marnoch	Aberdeenshire	-566	9	-557	-30%	5,737	28
Largest Increase 2004-10	Urr	Dumfries & Galloway	-219	1546	1327	61%	5,620	19
	Old Luce	Dumfries & Galloway	1436	-541	895	28%	10,042	32
	Blairgowrie	Perth & Kinross	537	276	813	152%	5,771	8
	*	Dumfries & Galloway	669	119	788	525%	3,391	5
	Whithorn	Dumfries & Galloway	329	303	632	42%	4,261	17
	Tyrie	Aberdeenshire	97	486	583	47%	4,285	24
	Westruther	Borders	601	-120	481	27%	6,393	9

* Unnamed for disclosure requirements

It is uncertain if the decline in the total number of cattle (Figure 21) is wholly attributable to a proportion of farmers and crofters withdrawing from production or if remaining suckler cow producers have also restructured and changed the scale of production (i.e. extensifying or intensifying).

Figure 24 Change in suckler cows per holding by selected NUTS3 regions: 1997-2010

The relative intensity of suckler cows per holding across NUTS3 regions is shown in Figure 24, revealing that the largest average herds are found in the Borders followed by Dumfries and Galloway at 79 and 78 cows respectively. In contrast, holdings in the Western Isles have average herd sizes of less than 10 suckler cows. It is notable that most regions saw increased suckler herd sizes



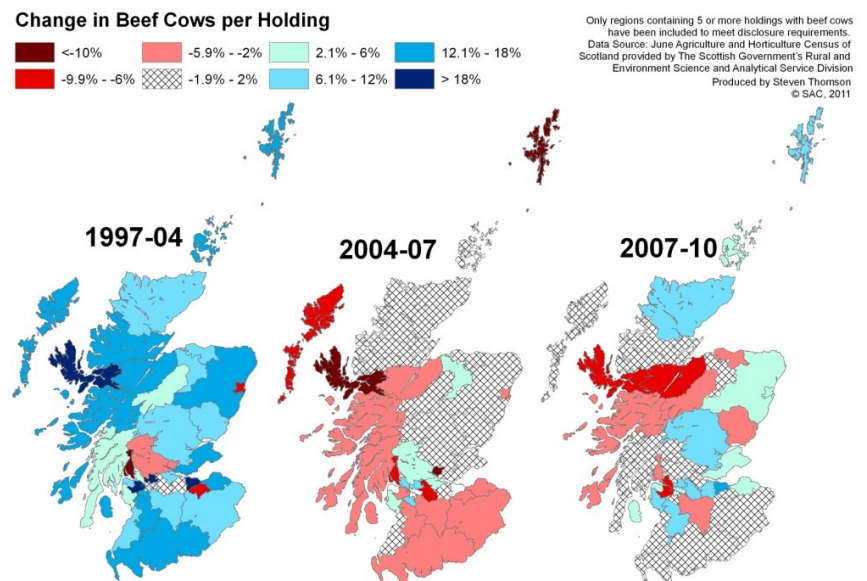
on the remaining holdings between 1997 and 2004, particularly in both Dumfries and Galloway and the Borders. Whilst herd size has decreased marginally since decoupling in 2005 in Dumfries and Galloway, this fell back further in the Borders, as it did in South Lanarkshire as farmers perhaps adjusted to the decoupled CAP support mechanisms. In contrast, many regions (e.g. Aberdeenshire and NE Moray, Orkney, Caithness and Sutherland and Ross and Cromarty, etc) have seen average suckler cow herds grow between 2004 and 2010. Additionally in the dairy regions (particularly in Ayrshire) herd sizes have grown.

Figure 25 Change in number of suckler cows per holding, NUTS4 regions: 1997 to 2010

Figure 25 and Figure 26 map how the average suckler herd size has changed across NUTS4 regions and their constituent parishes over the three periods covering 1997 to 2004, 2004 to 2007 and 2007 to 2010 as described previously. In the period between 1997 and 2004 there was a general intensification in average suckler cow herd size across Scotland as farmers restructured in the light of reduced market returns, lower CAP payments (from exchange rate movements), decoupling of LFA support, the aftermath of FMD and the initial adjustments

prior to decoupling. This suggests that many of the holdings that gave up suckler cows during the period were smaller producers, meaning that the average herd size on remaining holdings adjusted upwards without physical intensification on farms and crofts. Skye and Lochalsh stands out as an area where the average suckler cow numbers per croft holding grew rapidly during this period, but the change is from a very low starting base (10 cows per holding). Holdings in Stirling did, however, buck this trend by having a 6% decrease in herd size, meaning that either (a) some of the larger holdings withdrew from suckler cow production, or (b) there was general downsizing amongst the larger herds. The parish level map in Figure 26 shows the local level changes that occurred where it is evident that in most of the key production areas of Dumfries and Galloway and Aberdeenshire average herd size increased with few parishes witnessing declining herd sizes.

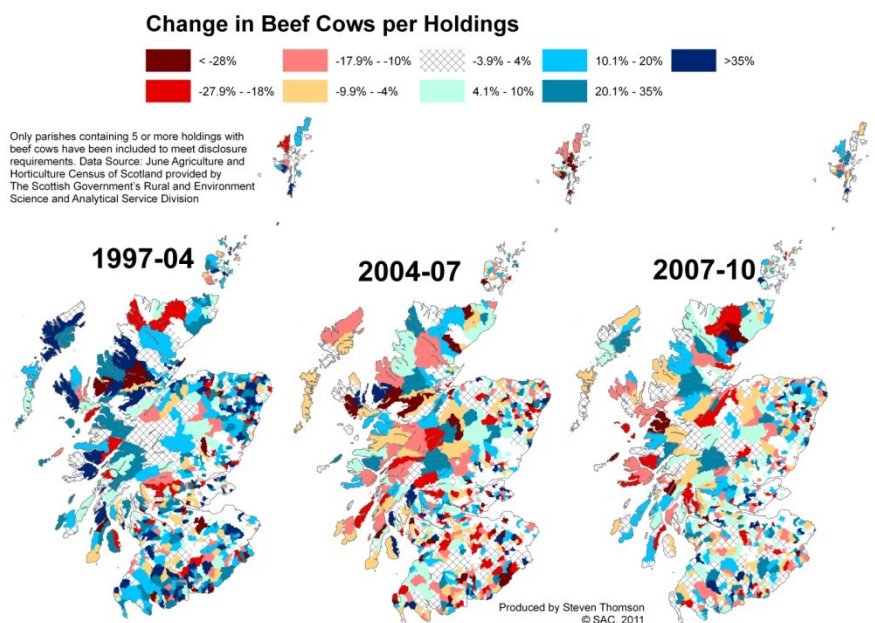
2004 to 2007 saw a general reduction in suckler cow herd sizes across most of western Scotland of between 2% and 6% (with the exception of Ayrshire, Sutherland and Wester Ross). Again, Skye stands out as having the largest change (from a low starting base) but in the opposite direction from the 1997 to 2004 period. In addition, in the other areas where suckler cow intensity is low (namely the Western Isles and Shetland) there were also larger decreases. In this post-decoupling period the figures suggest that whilst some farmers withdrew entirely from suckler cow production more generally there was restructuring in the industry with downsizing of herds as farmers reacted to the new decoupled CAP support regime. The parish level maps reveal more locally where the significant changes have occurred (probably as a result of withdrawal from production of some holdings, or reduction in some of the larger suckler herds in the locality).



The SBCS that was introduced in 2005 through Article 69³⁹ in order to protect and enhance the environment through cattle grazing and also to improve the quality and marketing of agricultural products. This scheme pays farmers £70 on the first 10 calves claimed, and then £35 per calf thereafter with the justification of the higher payment on the first 10 calves being that it supports smaller herds. Barnes (2008) in his evaluation of the SBCS reported that the largest numbers of recipients of support are in the North-West of Scotland, “*although the bulk of the funds have been directed towards the North-East and South-West.*” Barnes concluded (as shown in Figure 9 to Figure 11) that “*that net margins per cow (which take into account fixed costs) for all enterprises are negative regardless of support provided by the Scottish Beef Calf Scheme. This suggests that the SBCS on its own does not support the long term viability of beef enterprises. Some structural change will be needed to improve fixed costs.*” Whilst costs faced by beef farmers have actually increased in recent times the market returns have also increased substantially meaning restructuring does appear to be continuing in many upland areas as farmers react to market oriented production systems.

Figure 26 Change in number of suckler cows per holding by parish: 1997 to 2010

In the most recent period, from 2007 to 2010 suckler herd sizes remained relatively stable in the South of Scotland, with slight growth in Aberdeenshire and NE Moray, with more modest growth in Perth and Kinross (7%) and Caithness and Sutherland (6%). Decreasing herd size has continued in the West-central Highlands in a band from Inverness down to the Cairngorms across to the Argyll Islands and up to Skye. The parish map in Figure 26 shows that whilst there continued to be large variance in local level changes in suckler cow herds there was generally more stability (the hashed areas) or growth as farmers reacted to improved returns within the sector.



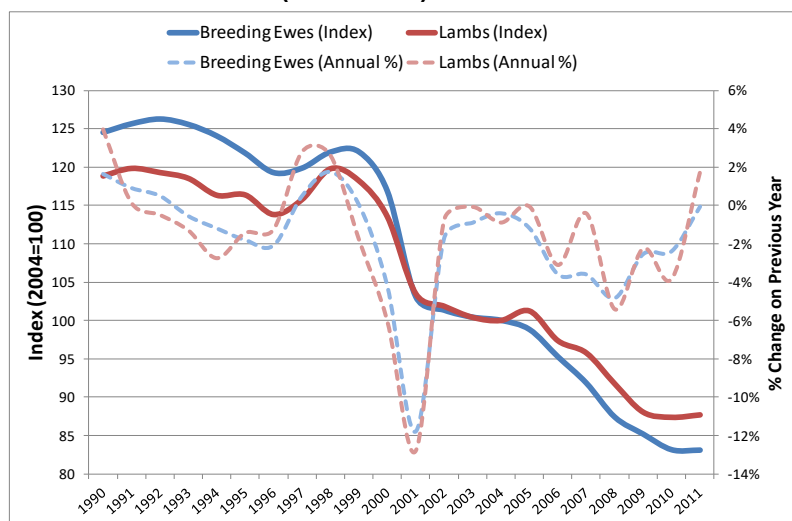
³⁹ SBCS was first implemented in 2005 using Article 69 of Council Regulation (EC) 1782/2003. The scheme reallocates 10% of the Single Farm Payment Scheme ceiling corresponding to the beef sector to support beef production in Scotland.

5 Breeding Ewe Changes in Scotland – the Evidence

Figure 1 and Figure 2 revealed that Scotland's sheep flock has changed significantly since the early 1980's with large changes continuing post decoupling of CAP support in 2005. In the 1980s in reaction to headage payments the sheep flock expanded quite rapidly leading to concerns of overgrazing in the uplands that ultimately lead to, for example, the introduction of The Heather Moorland (Livestock Extensification) (Scotland) Regulations 1995⁴⁰ in an attempt to overcome this problem.

Figure 27 shows how following the decline in sheep numbers following the McSharry reforms of the CAP there was a small upsurge between 1996 and 1998 before poor market returns led sheep farmers to start rationalising their flocks for economic reasons (reduced prices, poor Euro : Sterling exchange rate affecting CAP payments, etc) leading to large declines in the number of ewes carried, and consequently the lamb crop. 2001 saw the large decrease in sheep numbers due to the FMD crisis and associated cull of sheep in many parts of the Borders and Dumfries and Galloway. After a period of relative stability (marginal decline) post 2001 the Scottish sheep flock entered a period of rapid decline from the introduction of the decoupled Single Farm Payment in 2005 up until 2011 where the decline appears to have bottomed out as a result of improved profitability in the sector.

Figure 27 Index of Scottish Sheep Numbers from June Census (2004=100)⁴¹



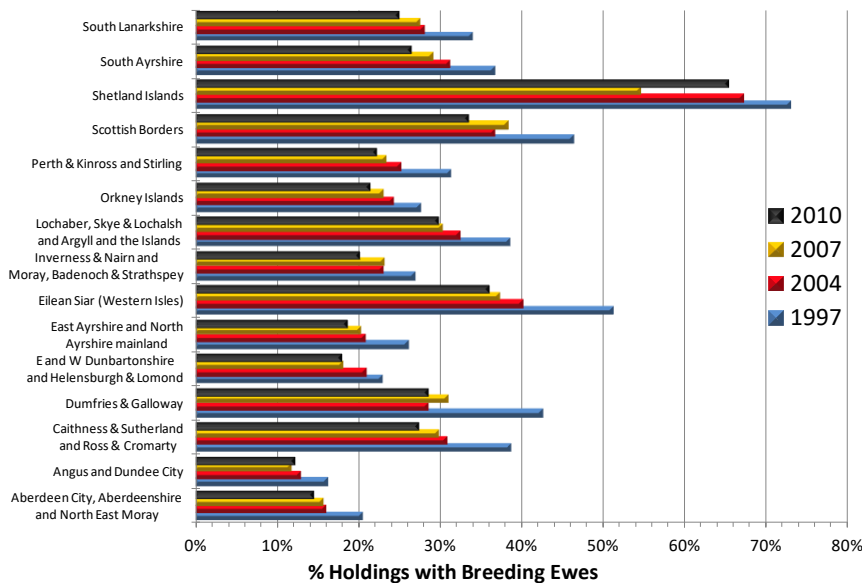
Since the introduction of decoupled support the breeding flock fell at an average annual rate of 3.4% between 2005 and 2010, falling by half a million ewes (15.9%). There are now more than 1 million less sheep (13.7% reduction) in Scotland over the same period. With a much reduced decline (-0.06%) recorded between 2010 and 2011 it would appear that at national level the breeding flock has perhaps stabilised (although regional divergence is still occurring). Perhaps it is too early to tell if the sheep flock is going to

stabilise around the 6.8 million mark (from its peak of 9.9 million in 1990) but if market prices for lamb and cast ewes remain buoyant in the next couple of years this may well be the case. However, farmers' reaction to the new EU electronic identification (EID) rules for sheep may have a significant bearing on this. The annual rate of change shown in Figure 27 reveals years where lambing percentages are good or bad by simply seeing if the rate of change in lambs is above or below that of ewes. This clearly shows the poor lambing that many faced in 2010 as a result of a cold wet winter and spring, and the much improved 2011 lambing where despite another cold winter, it was drier with more frost and springtime conditions were favourable.

⁴⁰ See http://www.opsi.gov.uk/si/si1995/Uksi_19950891_en_1.htm#end

⁴¹ Final results of the June 2011 Agricultural Census and Abstract of Scottish Agricultural Statistics 1982 - 2010

Figure 28 Proportion of holdings with breeding ewes for selected years and NUTS 3 regions: 1997 to 2010

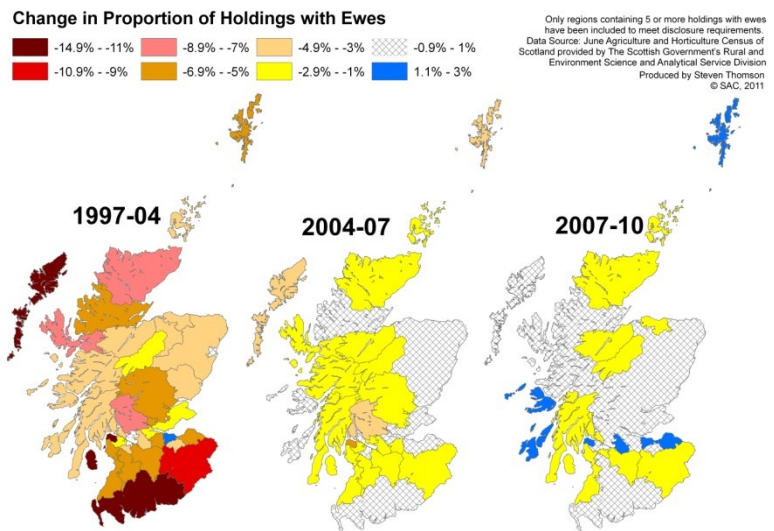


There are wide regional variations in the relative importance of sheep breeding on farms and crofts. Figure 28 shows that in 2010 around 65% of all holdings in Shetland carried breeding ewes, with more than 30% in both the Borders and Western Isles, compared to only 12% in Aberdeenshire and NE Moray. It is evident that across all regions the proportion of holdings carrying breeding ewes declined sharply between 1997 and 2004, and

continued to fall (albeit at a slower rate) to 2007. More recently, between 2007 and 2010 there has been a continued decline in many areas but there has been stabilisation in Dumfries and Galloway, Dunbartonshire, Helensburgh and the Lomond, Lochaber, Skye and Lochalsh and Argyll Islands with increase in Shetland (which is partially a result of reduction in the total number of holdings).

Figure 29 Change in proportion of holdings with ewes by NUTS4 region: 1997 to 2010

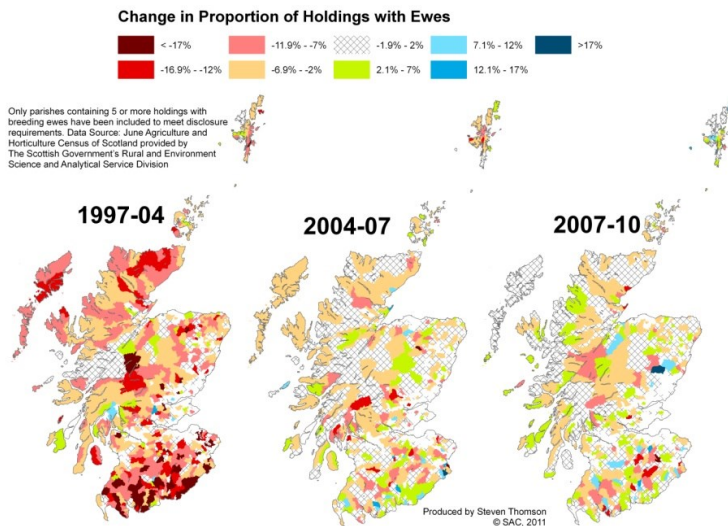
Figure 29 and Figure 30 map how the proportion of holdings carrying breeding ewes⁴² has changed in NUTS4 regions and parishes between 1997 and 2010. Between 1997 and 2004 there were declines in the proportion of holdings carrying ewes across all of Scotland as farmers reacted to poor returns for sheep, the impact and aftermath of FMD and also some pre-emptive restructuring once the baseline for the SFP had been announced. Most notable are the large decreases in holdings with ewes in the Borders (-9.7%) and Dumfries and Galloway (-13.9%) with Arran and the Cumbraes (-11.1%) and Western Isles (-11%) both also seeing large declines. Badenoch and Strathspey was one of the few areas that had declines of less than 3%, meaning only a marginally smaller proportion of holdings with ewes remained there by 2004. Figure 30 reveals how within these regions there were wide variances in the structural change occurring in the sheep breeding sector with, for example,



⁴² This gives the change to the relative importance of breeding ewe holdings to an area and does not show the absolute change (i.e. if total holdings have been reduced through abandonment or amalgamation then even if the absolute number of holdings carrying ewes has fallen the change in the proportion of total holdings with ewes in the area may in fact increase).

many parishes in south of Scotland having decreases of over 17% in the proportion of holdings with ewes. Across much of the north of Scotland and Western Isles there were also quite large declines (of between 7% and 17%) in many of the parishes in these areas, meaning fewer farmers and crofters chose to keep breeding ewes on their holdings.

Figure 30 Change in proportion of holdings with ewes by parish 1997 to 2010

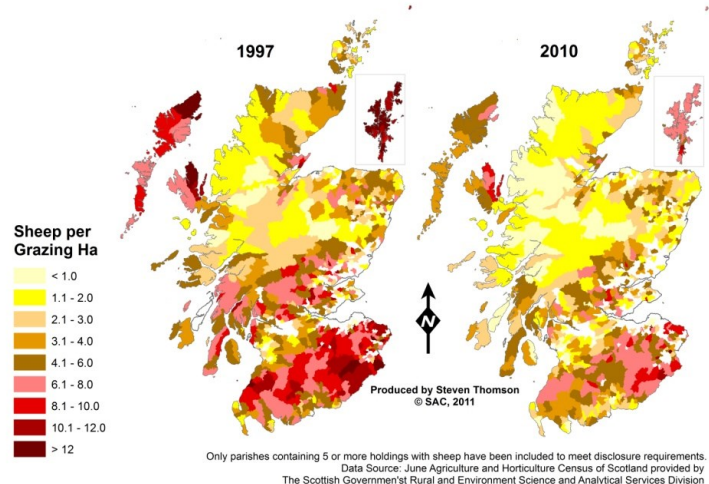


Post decoupling, between 2004 and 2010, Figure 29 shows that at regional level there was much more stability in the proportion of holdings with ewes across Scotland, with declines of between 1% and 3% in most of the hill and upland areas, with marginally higher declines having occurred in Stirling. Figure 30 shows that despite the regional stability in the post-decoupling period the parish level changes were quite different within those regions with some local areas showing decline, some stability and some

even having growth in the proportion of holdings with breeding ewes. In the more recent period, between 2007 and 2010, when returns from sheep started to improve there is even more regional stability in the proportion of holdings with ewes (Figure 29), with fewer regions showing declines of more than 1%, with some growth in the proportion of holdings with ewes in Argyll and Bute Islands and in Shetland. As in previous periods there were wide variances within these regions and again this is true with more parishes having increases (green and blue colours) in the proportion of holdings with ewes than in the previous periods (Figure 30), although they often sit alongside parishes where there was decline.

Figure 31 Sheep grazing density: 1997 and 2010

Figure 31 shows the total number of sheep per grazing hectare⁴³ across Scotland in 1997 and 2010. From this it can be seen that sheep grazing intensities are greatest in the Borders, followed by Dumfries and Galloway and the central belt of Scotland and into Argyll. Whilst there appears to be high sheep grazing densities across the key crofting areas of the Western Isles, Shetland and Skye this is as a result of common grazings being largely excluded from the June Census, meaning an over reporting of densities. The change between 1997



⁴³ For "grazing hectares" rough grazing has been adjusted using a conservative factor of 4:1 following findings from research by Tiley, G. E. D., McClelland, T.H and Waterhouse, A. (1986) Herbage Production from Different Hill Sward Types Grazed by Sheep, 169-174, in Pollot, G.E. (ed). Efficient Sheep Production from Grassland. British Grassland Occasional Symposium No 21.

and 2010 is abundantly apparent, with decline across the whole of Scotland, and considerably fewer sheep per hectare.

Figure 32 Sheep per 2 Km²: 1976, 1988, 1997 and 2007

Changes in sheep densities are not new and have occurred over the last century as the structure of Scotland's sheep sector has changed and adapted to policy and market signals. Figure 32 reveals sheep densities per 2 Km² grids across the whole of Scotland. It is noteworthy that the number of sheep in the North West Highlands has contracted each decade despite, for example, considerable intensification of sheep in Aberdeenshire and the Borders up until 1997. The general intensification in Aberdeenshire since was partially reversed in the last decade up until 2007, and it is also noteworthy that there has been a large decline in sheep densities in upper Stirlingshire and Perth and Kinross since 1988, and also in many areas in the Southern Uplands. Overall it is apparent that there has indeed been a sheep retreat from the North and West, whilst there has been some intensification in the East and South over the last 30 years (although it has fallen back since 1997 for reasons discussed previously).

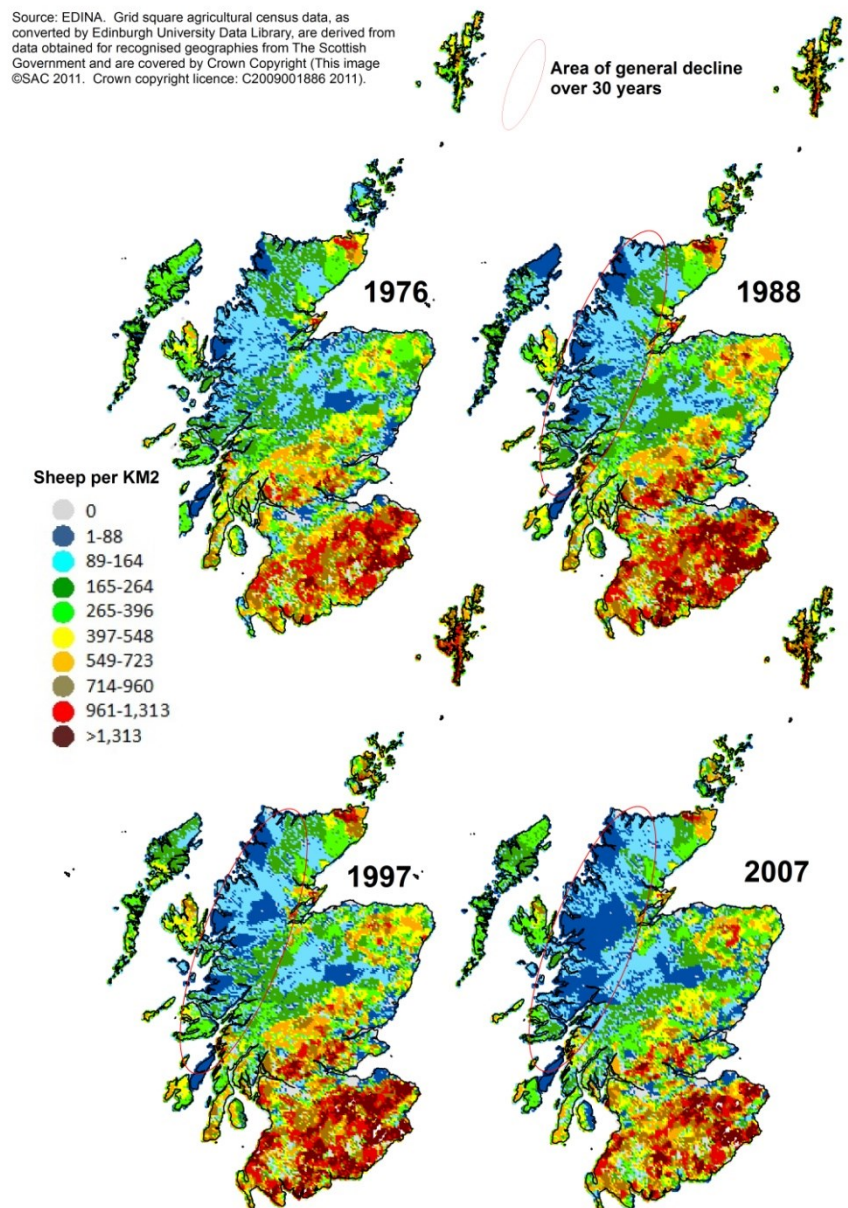


Figure 33 shows the importance of the Borders, Dumfries and Galloway, Perth Kinross and Stirling and Lochaber, Skye and Lochalsh and the Argyll Islands to the Scottish sheep breeding flock, accounting for 52.8% of the national breeding flock in both 1997 and 2010. Despite proportionately similar decreases in the number of ewes occurring across much of Scotland, the Borders is now the most important area for sheep production (16.5% of national flock in 2010) taking over from Dumfries and Galloway (from 15.4% to 14.5% of the national flock) which was badly affected by the FMD crisis in 2001. The table attached to Figure 33 reveals the extent of the total decline in breeding ewes over the 1997-2010 period, with Dumfries and Galloway losing over 200,000 ewes (34.8% reduction), Lochaber, Skye & Lochalsh and Argyll and the Islands over 175,000 ewes (37.1% reduction). Over this period nearly half the ewes in the Western Isles have been removed.

Figure 33 Number of ewes by NUTS3 regions 1997 to 2010 and total change

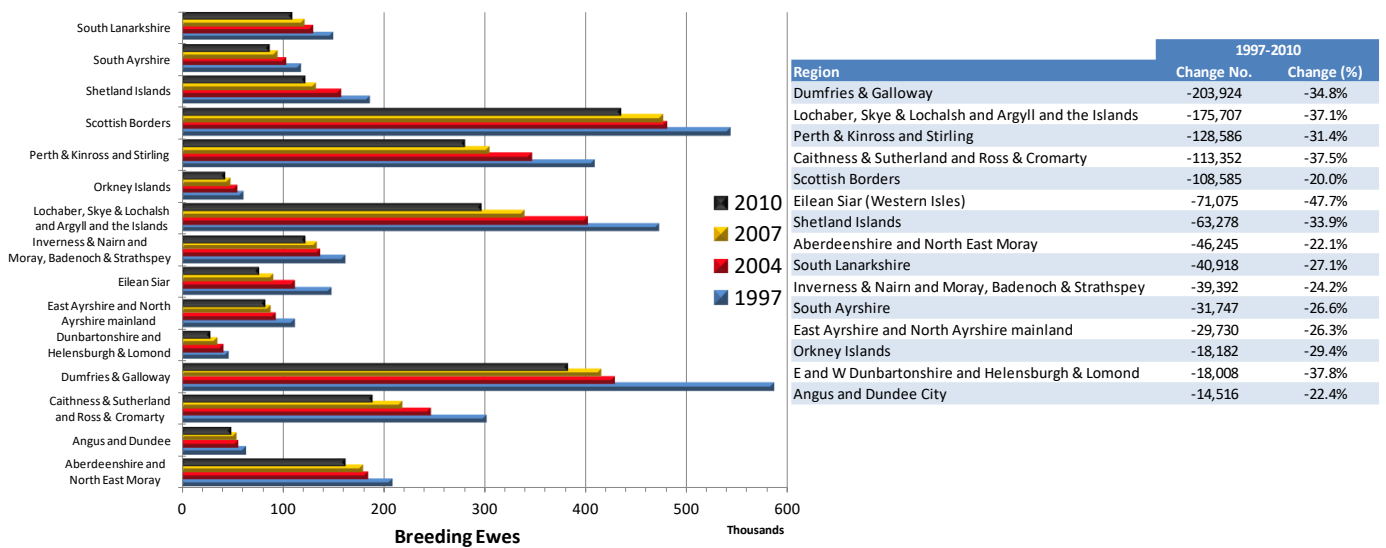
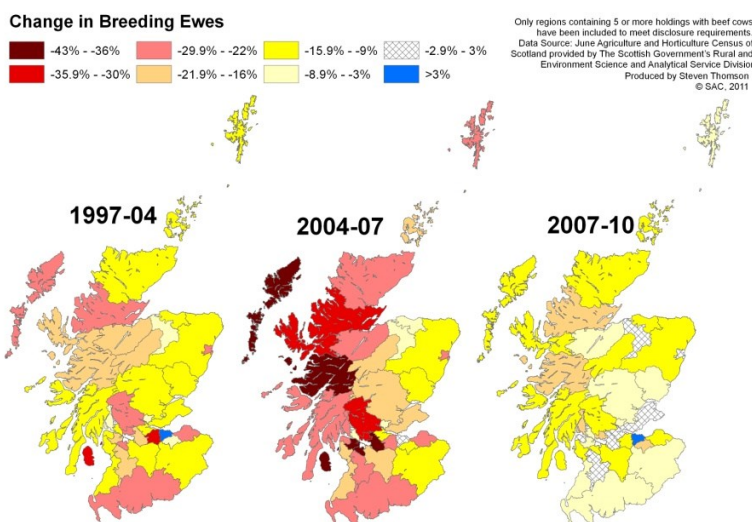


Figure 34 and Figure 35 map the changes in ewe numbers at NUTS4 and parish level to show the regional and local trends that have occurred in ewe numbers. Between 1997 and 2004, as previously explained, the large decline in ewe numbers in Dumfries and Galloway (-27%) is related to the FMD crisis and associated cull, with Stirling (-22%) also seeing larger than normal decreases, perhaps due to larger declines occurring in the hill areas of Stirling (as shown in Figure 35). Equally in Ross and Cromarty (-23.6%) and the Western Isles (-24%) there were also large decreases in the ewe flock, probably as a reaction to the very poor returns to store/small lambs at the turn of the century. These trends can be seen when examining the parish level maps with the biggest losses in Dumfries and Galloway along the Solway Firth (FMD), with large general declines across most of the North and West and more sporadic changes elsewhere.

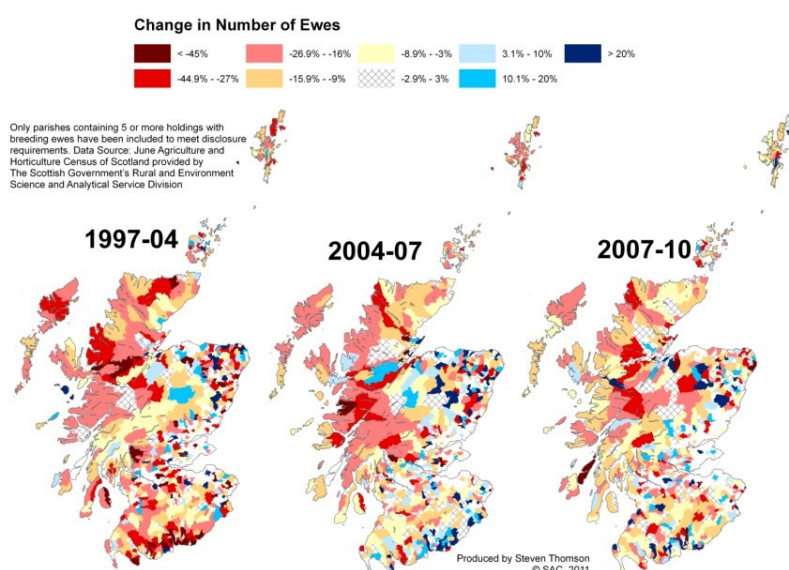
Figure 34 Change in breeding ewes by NUTS4 regions: 1997 -2010



Post decoupling, there were more widespread and larger declines in the ewe flock between 2004 and 2007, with the exception of Aberdeenshire, Angus and the Borders where the declines remained between 9% and 16%. The Western Isles had another 38% decrease that followed the large drop in between 1997 and 2004, whilst there was a 37% fall in ewes in Lochaber. Stirling again had large decreases (-34%) as was the case in Skye and Lochalsh (-32%) and Ross and Cromarty (-31%). There certainly seemed to be an East – West split

in the trends immediately after decoupling, something that is observable from the parish level map which shows some southern and eastern localities intensifying ewe numbers during that period.

Figure 35 Change in breeding ewes by parish: 1997 to 2010



From 2007 to 2010 the level of decline in ewe numbers has tailed off across the whole of Scotland, although in many hill and upland areas there continued to be declines of between 9 and 16% with Lochaber (-18%) and Ross and Cromarty (-16.2%) continuing to have larger decreases. It is interesting from the parish level maps that where there were large decreases between 2004 and 2007 there tends to have been more stability between 2007 and 2010, with the opposite holding true for areas that showed more stability in the

period immediately after decoupling. This suggests that farmers in some areas are quicker to respond to policy and market signals, whereas others may be more set in their ways, taking longer to make strategic decisions about their sheep enterprise.

Table 2 reveals the parishes where the largest increases and decreases in breeding ewes have occurred since decoupling between 2004 and 2010. In contrast to the inter regional variance that was shown for suckler cows (see Table 1) it is notable that the major increases have all occurred in the Borders, Dumfries and Galloway and Aberdeenshire, which are more accessible and have better grazing, than the parishes where the largest declines have taken place. It is noticeable that in Killin and Kilmonivaig, there was consistent decline over the two periods. For all of the Western Isles parishes listed here (and also in Killin) there were also large decreases in the 1997 period, meaning that these figures do not show the sheer extent of the decline since the peak in numbers in 1997.

Table 2 Parishes with largest increases and decreases in breeding ewes 2004 to 2010

	Parish	NUTS4	Change in Breeding Ewes				2004, 07, 10 Average	
			2004-07	2007-10	2004-10		Farmed Ha	Ewe holdings
Largest Decrease 2004-10	Killin	Stirling	-6,671	-4,591	-11,262	-48%	38,850	18
	Kilmonivaig	Lochaber	-4,134	-5,949	-10,083	-49%	73,500	43
	Harris	Western Isles	-5,407	-1,449	-6,856	-31%	22,330	244
	Fortingall	Perth & Kinross	-4,150	-2,170	-6,320	-29%	85,084	22
	Uig	Western Isles	-4,007	-1,972	-5,979	-37%	17,432	295
	Barvas	Western Isles	-2,964	-2,505	-5,469	-39%	3,853	415
	Urquhart & Glenmoriston	Inverness & Nairn	-3,831	-1,500	-5,331	-56%	43,388	34
Largest Increase 2004-10	Stow	Borders	4,212	401	4,613	31%	13,090	19
	Hownam	Borders	3,475	369	3,844	50%	6,336	10
	*	Dumfries & Galloway	2,331	435	2,766	474%	3,391	4
	Canonbie	Dumfries & Galloway	3,396	-650	2,746	47%	5,770	27
	Ewes	Dumfries & Galloway	3,473	-1,285	2,188	26%	11,242	9
	Huntly	Aberdeenshire	2,416	-304	2,112	99%	3,355	11
	Ednam	Borders	1,076	730	1,806	133%	1,398	7

* Unnamed for disclosure requirements

In addition to the changes in ewe numbers in recent years there has also been an increased tendency for game estates to using sheep (often wethers) on the hills as tick mops⁴⁴ to reduce the impact of ticks on grouse. This means that in some areas where the number of ewes has been depleted there has been an increase in sheep kept that are classified as older than a year and for non-breeding purposes that are not shown in this analysis.

With many holdings across Scotland having given up carrying ewes over the last 14 years (Figure 29) it is uncertain if the decline in the ewe numbers (Figure 34) is wholly attributable to these farmers and crofters withdrawing from production or if the remaining producers have also restructured and changed their intensity of sheep farming (i.e. extensifying or intensifying). To investigate this further the relative intensity of ewes per holding across NUTS3 regions and parishes was examined (see Figure 36).

Figure 36 Change in number of ewes per holding by NUTS3 Region: 1997 to 2010

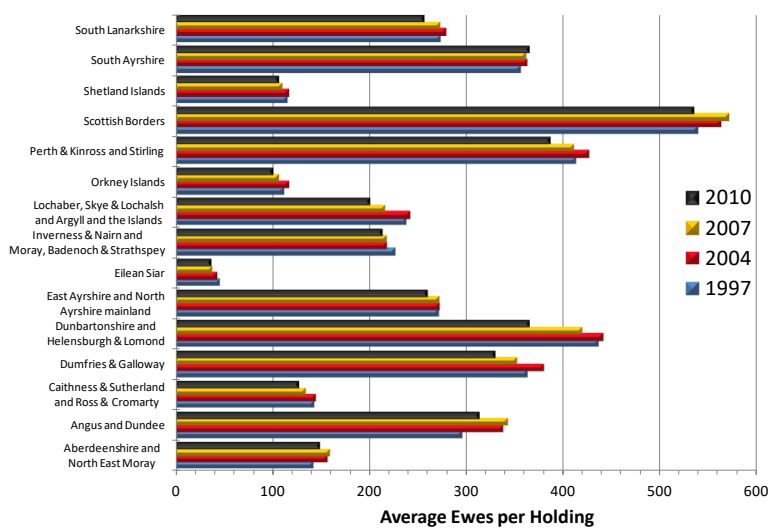


Figure 36 clearly reveals that average breeding ewe flock size in the Borders (536 ewes in 2010) is significantly larger (by more than 100 ewes) than other regions, with flock sizes in the Western Isles at the other extreme (37 ewes in 2010). In all the areas where average ewe numbers are over 300 (in 2010) after the large decrease in holdings with ewes and in ewe numbers between 1997 and 2004 there was an increase in average flock size, meaning that either: (a) on average smaller producers left the sector, or; (b) remaining

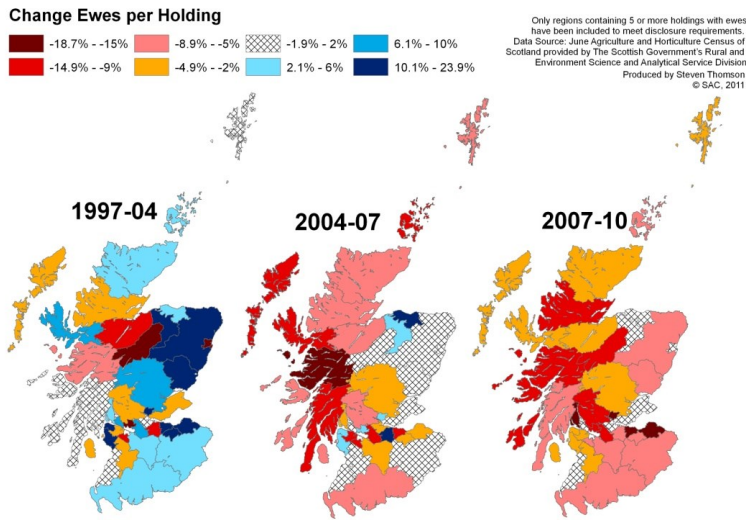
holdings increased their flock size. In these regions with larger flocks the trend generally continued immediately after decoupling (2004-2007) before falling back more recently (2007-2010) as some of the larger holdings made stocking changes. In most other regions there was relative stability in the flock sizes, fluctuating within a 20 ewe range.

Figure 37 and Figure 38 map the changes in average breeding ewe flock size across NUTS4 regions and parishes. Between 1997 and 2004 the largest percentage increases in flock size took place in the North East, with growing flock sizes of 2% to 6% also occurring across most of the South of Scotland and in Caithness and Sutherland, as a high proportion of those withdrawing from sheep production were the smaller holdings. During this period there was a general decline in flock size in Badenoch and Strathspey (-17%), Inverness and Nairn (-10%) and Lochaber (-8.5%) perhaps as a result of some general downsizing, or as result of a some larger holdings significantly restructuring and reducing stocking levels. Figure 38 shows at parish level the changes that are occurring within the regions, with regional figures strongly influence by local changes, for example by the Ardnamurchan and Moidart peninsulas in Lochaber.

In the immediate post-decoupling period, Figure 37 clearly shows a reduction in average breeding ewe flock size on the North and West coast as farmers and crofters adjusted to decoupled CAP support payments.

⁴⁴ See www.gwct.org.uk/research_surveys/species_research/birds/red_grouse_bap_species/279.asp and www.snh.gov.uk/news-and-events/press-releases/press-release-details/?id=256

**Figure 37 Change in number of ewes per holding
NUTS4 regions: 1997 to 2010**

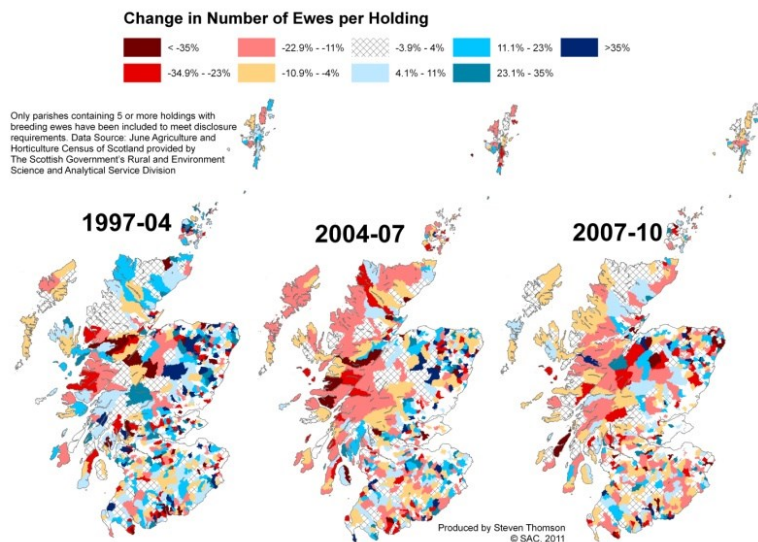


These flock reductions were largest in Lochaber (-17%) the Western Isles (which had a very low starting base), Skye and Lochalsh (-10%) and Argyll (-11%). In the East of Scotland and in the Borders there was relative stability in the average breeding flock. Figure 37 shows that post decoupling the largest changes in flock sizes took place in the coastal regions of the west Highlands and the North West, where crofting prevails. This may suggest that crofters reacted quickly to the changing policy

signals and prevailing market conditions of the time. The map also shows a wide dispersal of parishes where flock sizes increased, showing some local variation to the general trend.

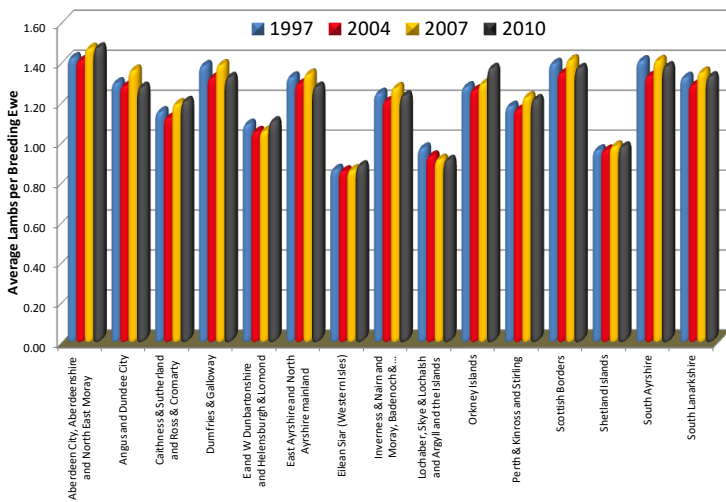
**Figure 38 Change in number of ewes per holding
by parish: 1997 to 2010**

Between 2007 and 2010 there has, however been a much broader decline in average breeding flock sizes, with larger declines once again seen in Lochaber, Ross and Cromarty, Badenoch and Strathspey and Stirling and Argyll and the Bute Islands. At parish level Figure 38 clearly shows where the largest decreases in flock size have been occurring and how these areas are interspersed with parishes where flocks are increasing.



Across Scotland sheep production appears to have intensified recently after a period where the average size of breeding flocks grew. Whilst many regions saw flock sizes increase from 1997 to 2007 only South Ayrshire had growing flock size over the period examined. Whilst Lochaber has seen large declines in sheep holdings and in total breeding ewes there has also been a significant downsizing of the remaining sheep holdings with the average number of breeding ewes falling by 35% between 1997 and 2010 from 254 to 166 ewes. A large decline has also occurred in the Argyll and Bute Islands where ewe numbers fell by 24.6% from 231 to 174 ewes. Within these NUTS4 regions at local, parish, level it is once more apparent that there are large variations in changes in production intensity with those remaining sheep producers with many parishes have had average flock sizes fall by over 20%. This means that it can be concluded that apart from a few pockets of intensified sheep production in Scotland the general trend has been for some farmers to retreat altogether from sheep production whilst the remaining farmers downsize their flocks.

Figure 39 Average number of lambs per ewe by selected NUTS3 regions: 1997-2010



As smaller, perhaps less efficient producers withdraw from sheep production and there is a trend of moving from hardy breeds on the high hills to more in-bye crossbreeds it might be expected that production efficiency on remaining holdings would improve over time. Figure 39 shows, unsurprisingly that the most productive areas for sheep production are the areas with lower average elevation and better quality land (e.g. South Ayrshire, South Lanarkshire, Dumfries and Galloway, Aberdeenshire, etc.).

The areas with lowest productivity per ewe are unsurprisingly in the crofting strongholds of the Western Isles, Lochaber, Skye and Lochalsh and Argyll Islands and Shetland (all less than 1). Despite a number of (smaller / less efficient?) holdings withdrawing from production between 1997 and 2004 there was a general decline in productivity as farmers were perhaps less market oriented. Between 2004 and 2007 in many regions there was increased productivity per ewe (as more producers moved to crossbreeds, more in-bye, etc) which continued in many areas (the North East, the far North and Orkney) from 2007 to 2010 although the cold wet winter and spring in 2010 meant that there was an apparent drop in ewe productivity in many regions in this last period. Improved conditions in 2010/11 meant ewe productivity increased at national level in 2011 (shown in the latest June Census figures) returning to the upward trend of ewe productivity.

Figure 40 Parish level ewe productivity 2007 and changes: 2004 to 2010

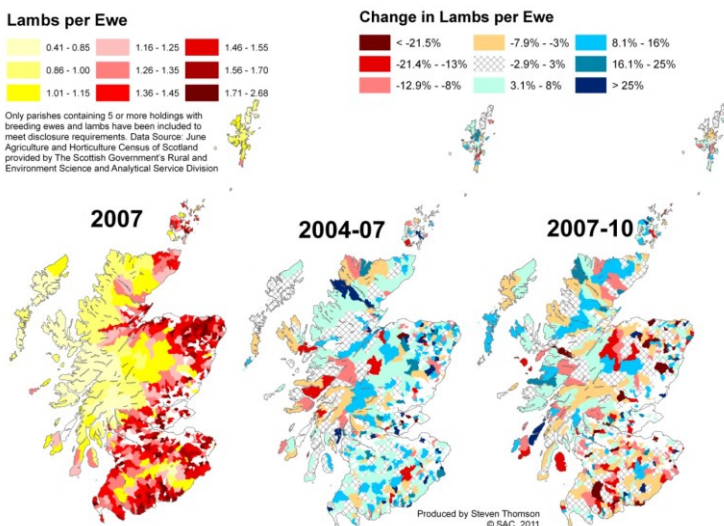


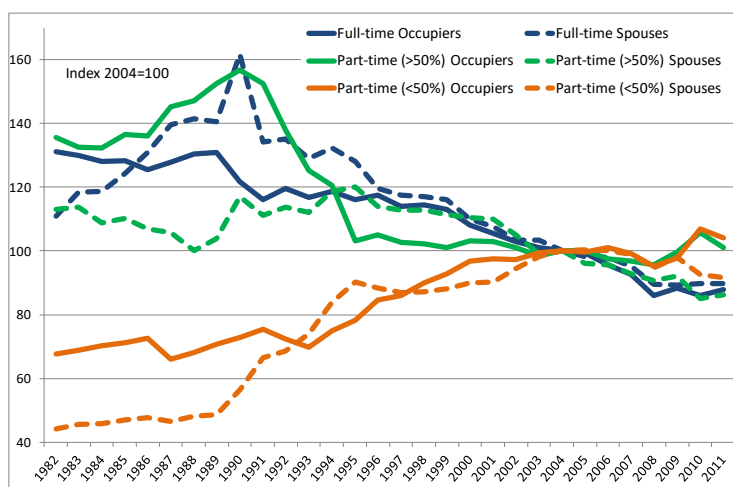
Figure 40 shows the average ewe productivity per parish across Scotland in 2007 and reveals significant difference between the Highlands and Islands and the rest of Scotland. The most productive areas are in Aberdeenshire, the Borders and Dumfries and Galloway whilst the least productive areas are in the extensive hill farms in Lochaber, Skye and Lochalsh and the Western Isles. The maps also show how in most areas (with the exception of Lochaber) there was an increase in ewe productivity in the period after decoupling (2004

to 2007) with much more variability between 2007 and 2010 (for reasons relating to poor weather conditions in 2010 as detailed above).

6 Social Implications of Livestock Change in Scotland – the Evidence

The number of full time (FT) occupiers of agricultural holdings has been in long term decline across much of Scotland and it has fallen from 14,493 in 1982 to 9,499 in 2010 (a fall of a 34.5%) before rising by 2.3% (215) between 2010 and 2011. Since the introduction of the decoupled Single Farm Payment in January 2005 Scottish FT occupiers have fallen by 12% to 2011. Part time (PT) occupiers engaged in agriculture for more than 50% of their time have also experienced long term decline, falling by 25.5% from 5,222 in 1982 to 3,891 in 2011, whilst PT holders engaged in agriculture for less than 50% of their time have increased by 54% since 1982, rising from 9,031 to 13,908.

Figure 41 Index of Scottish Agricultural Occupiers and Spouses from June Census (2004=100)



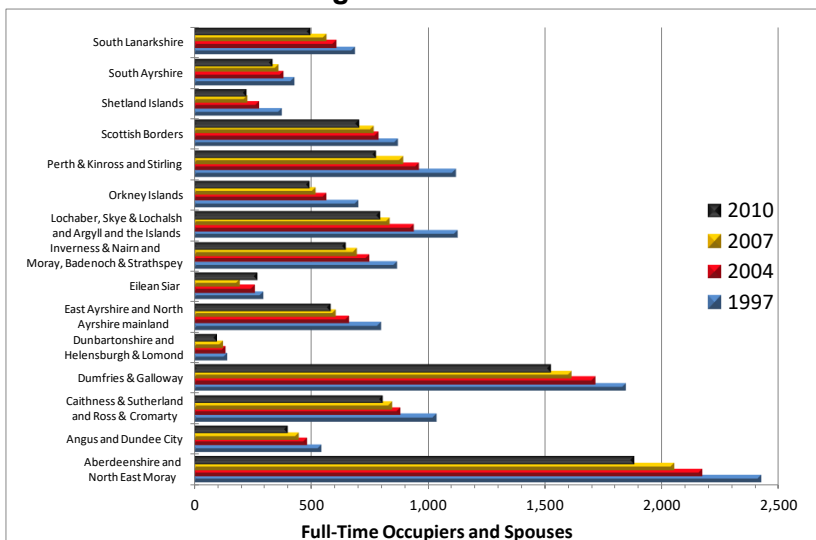
Since the decoupling of CAP support there has been increases in both part time holder categories, rising by 1% for those PT with over 50% engagement and by 4.1% for those PT with less than 50% engagement in farming after some initial decline until 2008. The trends for occupiers are largely replicated for spouses and Figure 41 confirms the general trends during the last 30 years of fewer and fewer FT and PT (> 50% engaged in farming) occupiers and spouses and increasing occupiers and spouses engaged in agriculture

for less than half their time. These trends are largely due to the economic squeeze that farming has been under for some time, leading to many farmers partially withdrawing from the industry due to difficulties making an adequate living from full time farming.

Equally, there have been a proportion of Scottish farmers that have looked for opportunities to expand and benefit from economies of scale and increased production capabilities (or to buy land to ensure grazing livestock units per hectare did not breach the limit set for extensification payments). A result of this type of restructuring is that many “full time farms” sold over this period were fragmented or “lotted” to extract the maximum value for the vendor. This meant that often the farmhouse was sold with some of the land for residential purposes (perhaps to a “hobby” farmer, or commuters) whilst much of the remaining land would be sold to neighbouring farmers who took the “chance in a life-time” to expand locally. This meant that the FT holding’s land amalgamating into other FT holdings with the residential element of the holding becoming a PT unit.

Recently, the downward trend has continued after the advent of decoupled payments as farmers downsize to minimise losses and utilise their “freedom to farm” whilst still receiving their historically based Single Farm Payment. The combination of the general economic downturn and improved economic fortunes in the farming sector since 2008 has meant that in the last four years the number of FT operators and spouses has stabilised, and even seen an slight up-turn as some professionals have returned to farming to earn a living and students leaving further and higher education have fewer opportunities available to them off farm.

Figure 42 Change in full time occupiers by selected NUTS3 regions: 1997 to 2010

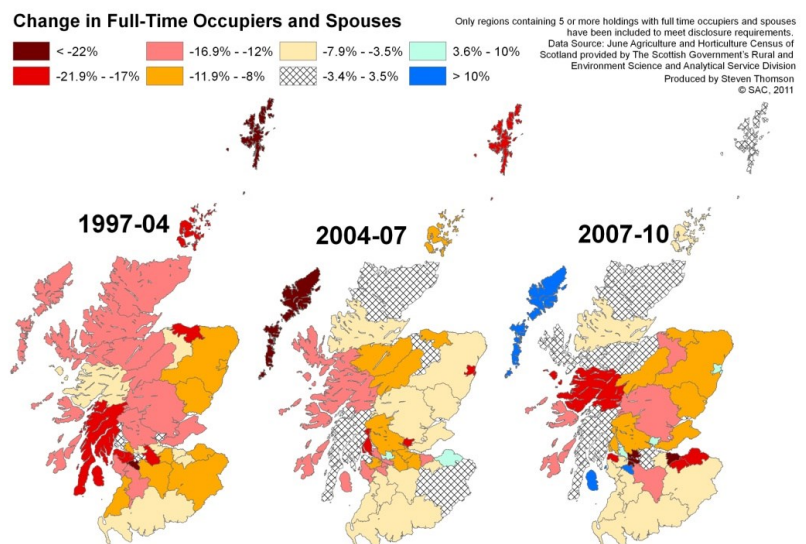


As with changes in sheep and cattle numbers the restructuring of FT occupiers is not uniform across the whole of Scotland and Figure 42 reveals that Aberdeenshire and North East Moray and Dumfries and Galloway have the largest number of FT occupiers and spouses, accounting for about 30% of the Scottish total. At the other extreme Dunbartonshire, Helensburgh and Lomond (~1%), the Western Isles (~2%) and Shetland (~2%) have very few FT occupiers and spouses.

Figure 42 also shows how Aberdeenshire and North East Moray has had the largest absolute change (-542 or -22.4%) in FT occupiers and spouses between 1997 and 2010, whilst there have also been large changes in Perth, Kinross and Stirling (-340 or -30.2%), Lochaber, Skye & Lochalsh and Argyll and the Islands (-329 or -29.1%) and Dumfries and Galloway (-319 or -17.3%). Since decoupling in 2005 the largest absolute decreases have also taken place in these regions. The large decline in sheep numbers coupled with the significant decline in FT occupiers and spouses in Lochaber, Skye & Lochalsh and Argyll suggest this area has seen significant structural changes occur as hill sheep farmers responded to depressed incomes and then reacted to decoupled support payments since 2005.

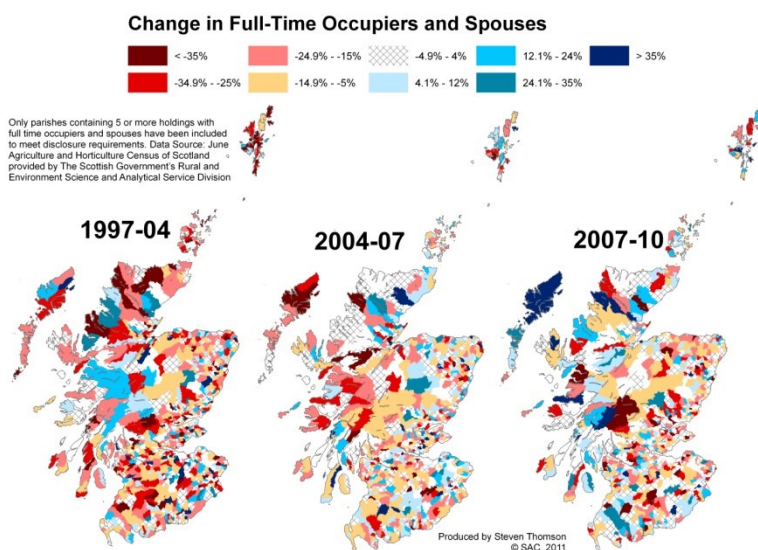
Figure 43 Change in full time occupiers by NUTS4 region: 1997 to 2010

Figure 43 shows that at NUTS4 regional level between 1979 and 2004 there were large declines in FT occupiers and spouses in Shetland (-25.6%), Orkney (-19.4%) Argyll and the Islands (-22%) and Arran and the Cumbraes (-18.6%) with slightly lower levels of decline (between -12% and -17%) in the rest of the Highlands and Perthshire, with the exception of Lochaber where there were only modest declines (-4.5%). Despite the 2001 FMD crisis levels of FT engagement in farming in Dumfries and Galloway did not fall as much as across most of Scotland in the 1997-2004 period. This is perhaps a result of confusion and disturbance during the crisis and restructuring process, with the availability of compensation meaning that restructuring did not take place to the same extent as elsewhere in Scotland.



Over the three periods depicted in Figure 43 the decline in FT occupiers and spouses in Dumfries and Galloway was relatively constant at around 6%. With the exceptions of Lochaber, Western Isles and Helensburgh and Lomond the extent of the decline in FT occupiers and spouses between 1997 to 2004 was greatly reduced post decoupling (perhaps due to the different length of period examined). From 2007 to 2010 there was increased decline in FT occupiers and spouses in the North East, Tayside and Perthshire, perhaps as structural changes in the arable sector took place with continued large decline in Lochaber (-18%) and Argyll & Bute Islands (-13%). However, in areas such as Skye and Lochalsh, Caithness and Sutherland and Argyllshire there was much greater stability in FT occupiers and spouses with growth in the Western Isles (increased by 76 or 38%). This perhaps indicated that the major restructuring in these areas is over and with improved returns to the sheep and beef sector the prospects for the immediate future are brighter.

Figure 44 Change in full time occupiers by NUTS4 region: 1997 to 2010

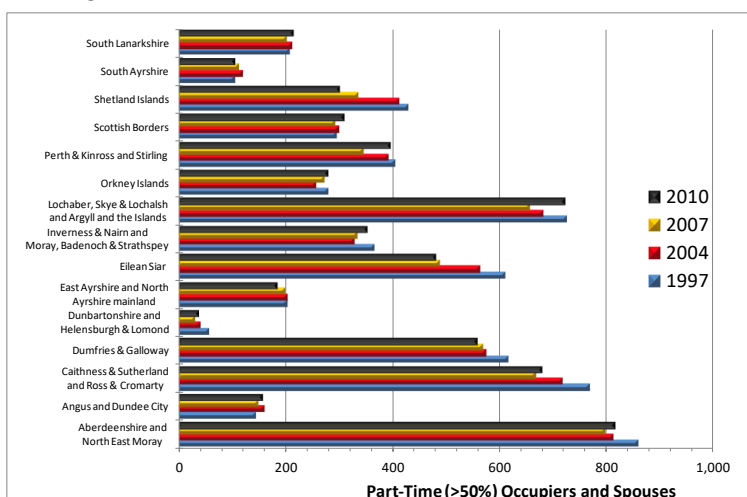


Within these regions Figure 44 reveals the significant variance that occurs in the change in FT occupiers and spouses at parish level. It is noteworthy that in parishes there are relatively few FT occupiers and spouses (much of the central, north and west Highlands) the percentage changes can be very large (despite being small in absolute change) due to the small starting base. At parish level, it is however noticeable that often there are fluctuating numbers of FT occupiers and spouses. For example in Lairg

(in Sutherland) in 1997 there were 24, falling to 20 in 2004 before increasing to 25 in 2007 and falling back to 21 in 2010 whilst in Glenorchy and Inshail the numbers fluctuated from 13 to 15 to 11 to 16 over the same periods. However there are many areas where there has been steady decline in FT occupiers and spouses over the period, with for example numbers in Callander falling from 13 in 1997 to 9 in 2004 to 8 in 2007 and only 7 in 2010, or in Killarow and Kilmeny in the north of Islay where numbers fell from 32 to 26 to 24 to 21 over the period.

Figure 45 Part time occupiers (>50%) by selected NUTS3 regions: 1997 to 2010

Figure 45 shows that between 1997 and 2004 and from 2004 to 2007 there were general reductions in the number of significant (>50%) PT occupiers across most NUTS3 regions (with the exception of areas where historically there have been fewer part-time holdings, such as South Lanarkshire and Orkney).



reductions in the number of significant (>50%) PT occupiers across most NUTS3 regions (with the exception of areas where historically there have been fewer part-time holdings, such as South Lanarkshire and Orkney). Whilst that trend was reversed in many regions between 2007 and 2010 in areas such as Shetland, the Western Isle and Dumfries and Galloway, the numbers continued to decline.

Figure 46 Change in part time occupiers and spouses (>50%) by parish: 1997 to 2010

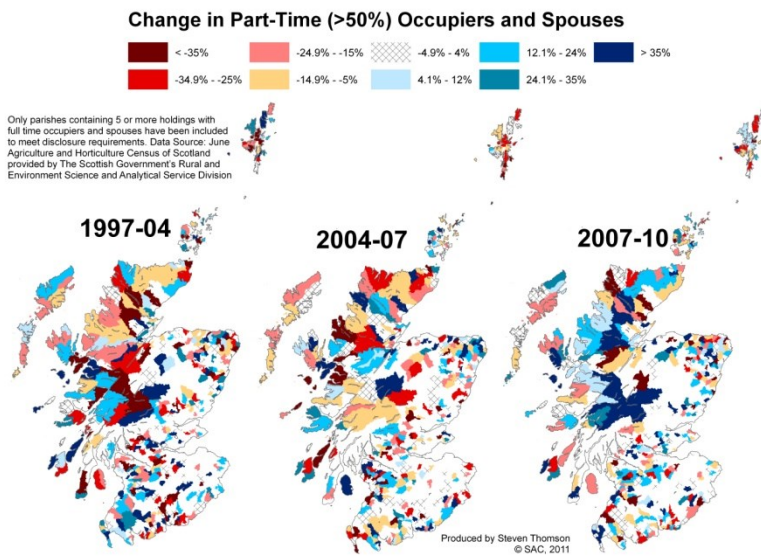
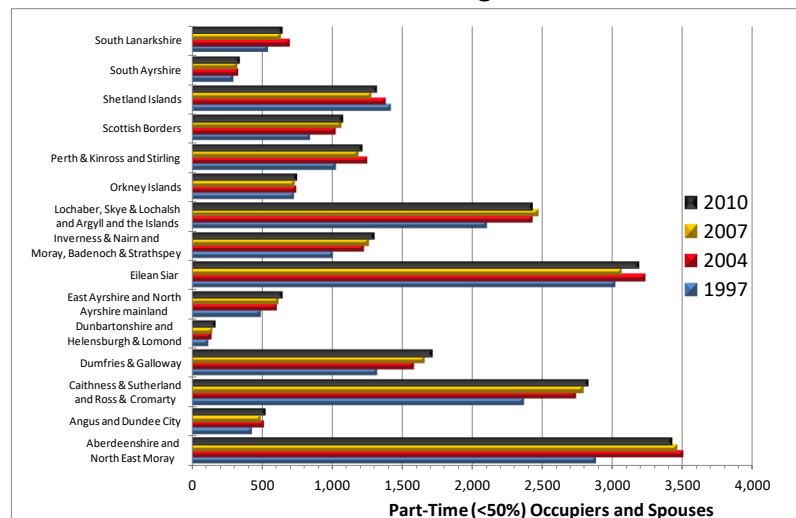


Figure 46 reveals that for many areas in Scotland there are fewer than five holdings containing PT occupiers and spouses engaged in farming for more than 50% of their time (white areas excluded for disclosure requirements). What it does show in the areas where PT farming is more common is that there is again wide variance within the regions with no obvious trends occurring. For example in Wester Ross many parishes saw decline in PT occupiers and spouses (>50%) both between 1997 and 2004 and again from 2004 and 2007, before that trend was reversed

between 2007 and 2010. It is worth remembering that whilst large proportionate changes are observable here, the change in absolute numbers is relatively low due to the relatively small number of PT occupiers and spouses (>50%) in these areas.

Figure 47 Part time occupiers (<50%) by selected NUTS3 regions: 1997 to 2010

Figure 47 reveals that Aberdeenshire and NE Moray is the region with the largest proportion of minor PT occupiers⁴⁵ in Scotland (14.5% of Scottish total in 2010). However, the traditional crofting areas in the North and West (that include the Western Isles (13.6%), Lochaber, Skye and Lochalsh and Argyll and the Islands (10.4%), Caithness and Sutherland and Ross and Cromarty (12.1%) and Shetland (5.6%)) accounted for over 44.3% of Scotland's minor PT occupiers in 1997 falling to 41.7% in 2010. As previously discussed, most regions have seen FT and PT (>50%) occupiers downsize to minor PT occupiers, particularly between 1997 and 2004 and this is reflected in the rapid increase in minor PT occupiers during that period in many areas (e.g. by 627 or 21.7% in Dumfries and Galloway or by 374 or 15.7% in Caithness & Sutherland and Ross & Cromarty).



⁴⁵ Engaged in farming for less than 50% of their time

Figure 48 Change in part time occupiers and spouses (<50%) by NUTS3 region: 1997 to 2010

Figure 48 confirms the increase in minor PT occupiers and spouses that occurred across Scotland (with the exception of Helensburgh & Lomond) between 1997 and 2004 as farmers downsized and reacted to the poor economic returns to farming during that time. Between 2004 and 2007 whilst there was general stability across much of Scotland and continued growth in minor PT occupiers and spouses (in Argyll and Badenoch & Strathspey) some areas saw decline probably as a result of some farmers and crofters withdrawing from farming in the period following decoupling (particularly noticeable in South Lanarkshire and Perthshire and Tayside and in the Western Isles and Shetland). This period of restructuring appears somewhat lagged in Arran and the Cumbraes and the Argyll Islands, coming in the 2007 to 2010 period where across Scotland there was more stability or some growth in minor PT occupiers and spouses.

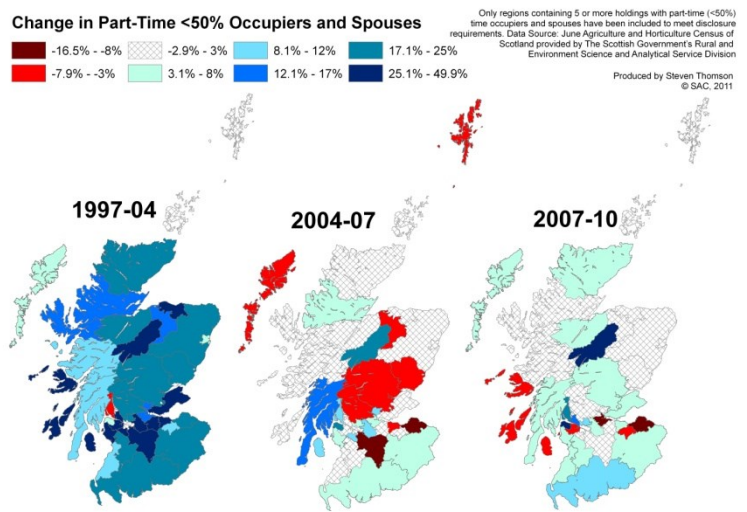


Figure 49 Change in part time occupiers and spouses (<50%) by parish: 1997 to 2010

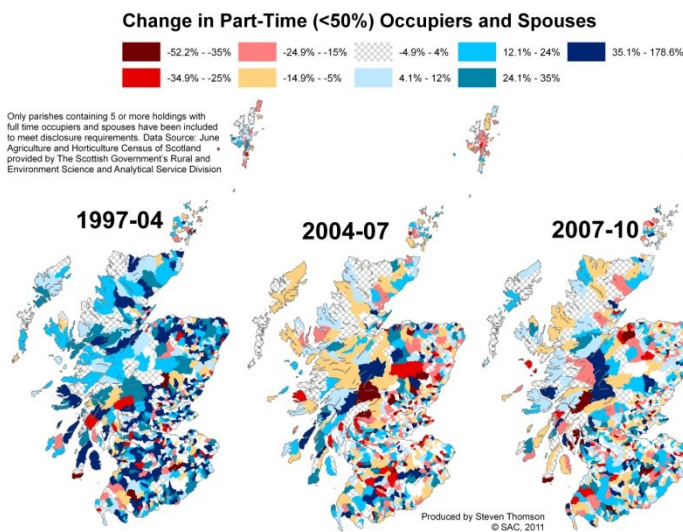
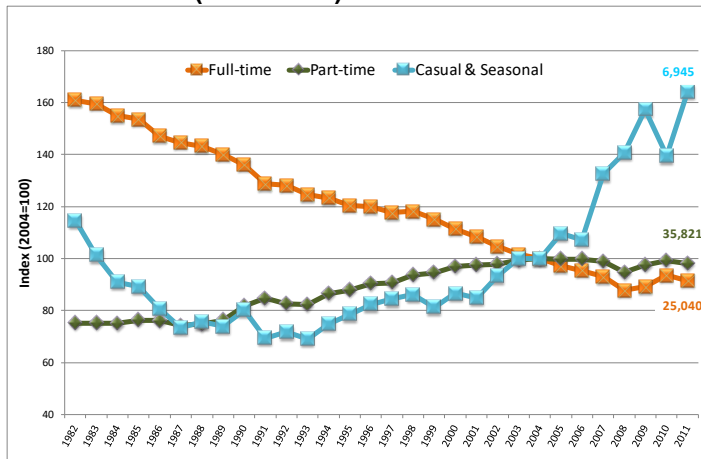


Figure 49 once again confirms the level of variance in the changes that occur at local (parish) level. It should be recalled that as the absolute number of minor PT occupiers and spouses is small per parish it can lead to high proportionate, yet low absolute changes. However, between 1997 and 2004 very few parishes saw declining numbers of minor PT occupiers and spouses with most areas seeing them increasing as the industry restructured. However, between 2004 and 2007 that trend was

reversed in many localities as some minor PT occupiers and spouses left the industry following decoupling. The parish maps also show that whilst a region may show stability during this period (e.g. Skye and Lochalsh) there are wide changes that occur at local level with for example the number of minor PT occupiers and spouses in Portree falling from 106 to 89 whilst the numbers increased in the neighbouring parish of Strath from 128 to 143 (with the trends reversed in these two parishes in 2007 to 2010). These variances perhaps show how farming and crofting families in some localities are faster to adapt to changes than others, perhaps due to factors such as levels of advice provision, following farming leaders, etc.

Figure 50 Index of Agricultural Employees from June Census (2004=100)

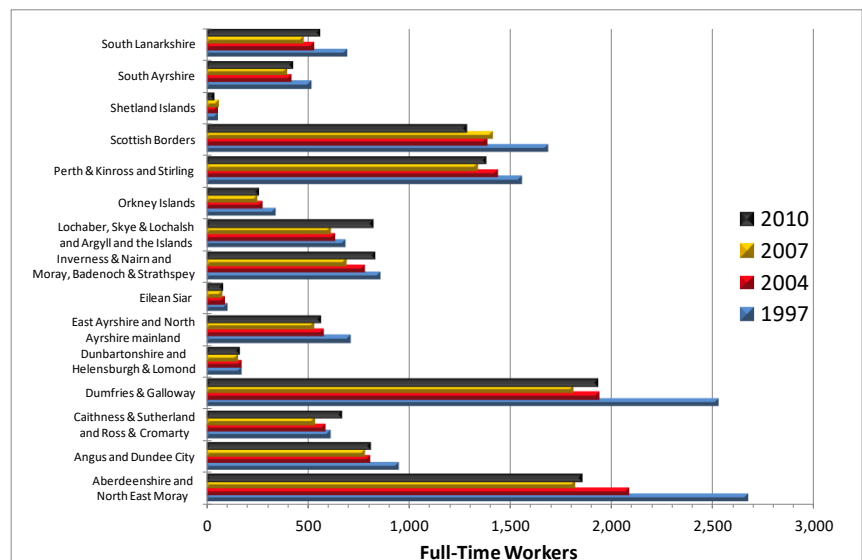


Linked to the decline in livestock and reduction in full time holdings is the reduction in full time employees on holdings (see Figure 42) with PT employment remaining relatively stable over the last decade whilst the reliance on casual and seasonal employment has increased sharply. The continued decline in FT employees continued post decoupling and anecdotal evidence suggests that part of this directly relates to the decline of sheep and cattle numbers, as farmers

consolidate by restructuring through reducing costly labour input (shepherds and stockmen) and concurrently reducing flock and herd size to mean the holding can be run as a one-man (farmer) unit. However, since 2008 with the general economic downturn, improved returns for beef and sheep and Sterling : Euro exchange rate benefits accruing to farmers the decline in FT employees stabilised and FT employment levels actually increased for the first time (2009 and 2010) in 30 years, whilst the post decoupling reduction in part-time employees was also reversed (although 2011 figures show these have both fallen slightly once more). What is noticeable post decoupling is the rapid increase in the amount of casual and seasonal labour employed on farms, particularly since 2007. This is perhaps in relation to the boom in cereal prices at the time, but also due to increased requirement to take on seasonal shepherds, shearers, etc due to the shortage of FT and PT employees in many hill and upland areas.

Figure 51 Change in Full Time Workers by Selected NUTS 3 Regions 1997 to 2010

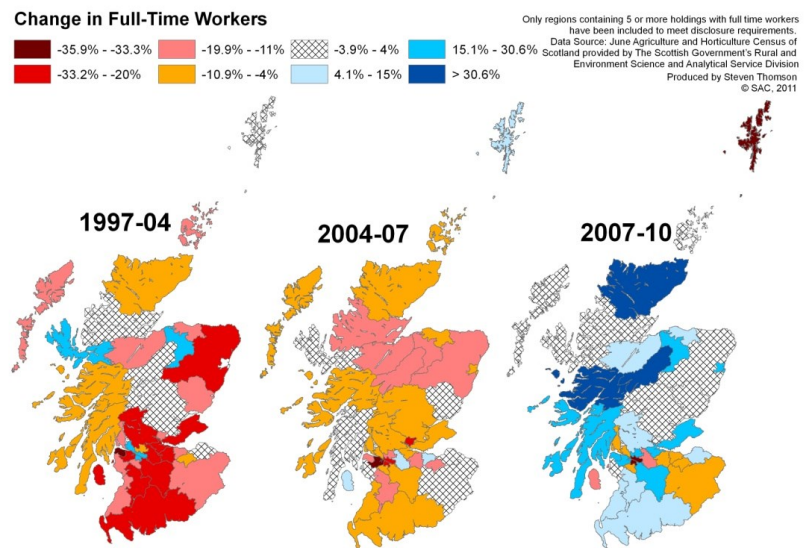
Figure 51 reveals how historically Dumfries and Galloway and Aberdeenshire & NE Moray have been the most important regions for FT agricultural employment (accounting for 30% of the Scottish total in 1997) with the Borders and Perth & Kinross and Stirling also playing an important role (19% in 1997). At the other extreme there are very few FT agricultural employees in Shetland and the Western Isles (meaning proportional changes may appear very large). Figure 51 shows that while there has been general decline in the number of FT farm employees between 1997 and 2004 and 2004 to 2007 the decreases in Aberdeenshire & NE Moray and Dumfries and Galloway are noticeably large, falling by 593 in both regions (or by 22.1% and 23.4% respectively) between 1997 and 2004. Whilst the decline slowed in the post decoupling period (2004 to 2007) in most regions (with the exception of the Scottish Borders where there was marginal growth) FT farm employees in Aberdeenshire & NE Moray by another 264 meaning a decline of 32% over 1997 levels. In the period between



2007 and 2010 as farm returns improved, exchange rate benefits were felt and the general economic downturn took place, the number of FT farm employees grew again (with the exception of the Borders where it fell). Examination of the June Census statistics show that between 2009 and 2010 at national level the largest absolute increase in FT workers was in hired employees (837 or 10.4%), followed by partners (349 or 14.2%) and then family members (284 or 12.6%). Between 2010 and 2011 it is notable that the FT family workers returned to below 2009 level whilst FT partner workers only fell back by a third of the 2010 increase (by 118 employees) with FT hired employees also declining by about 42% of the 2010 increase (351 workers).

Figure 52 Change in Full Time Workers by NUTS4 Regions 1997 to 2010

Figure 52 maps the changes in FT farm workers by NUTS4 regions. Whilst there was decline in most of Scotland between 1997 and 2004 the largest of these came on low ground livestock regions such as the South West, central belt and North East. During this period there was stability in Ross and Cromarty and the Central Highlands, with some increase in West Moray (from 156 to 180 employees) and Skye and Lochalsh (from 42 to 52 employees). The largest declines were in Dumfries and Galloway (-593), Aberdeenshire (-529) and the Borders (-301). Post decoupling there was continued decline of between 4% and 20% across most of Scotland with stability in Angus, the Borders, Argyllshire and Skye and Lochalsh. From 2007 to 2010 much of the western regions saw increases with decline only really seen in the South East and small regions such as Helensburgh & Lomond and Arran & the Cumbraes and Shetland. FT farm employment in some areas increased dramatically although it was from small starting bases. For example FT employees increased in Caithness and Sutherland from 269 to 403 employees (49.8%), whilst in Badenoch and Strathspey it increased from 72 to 119 (68%), and in Lochaber from 73 to 182 (149%) over the period. Regular part time employment appears to be falling across much of Scotland, particularly in the West and Highlands, whilst farmers in many areas are becoming more reliant on casual and seasonal employment (which anecdotal evidence suggests is becoming more difficult to find with the appropriate skills, such as shearing, shepherding, calving, lambing, etc).

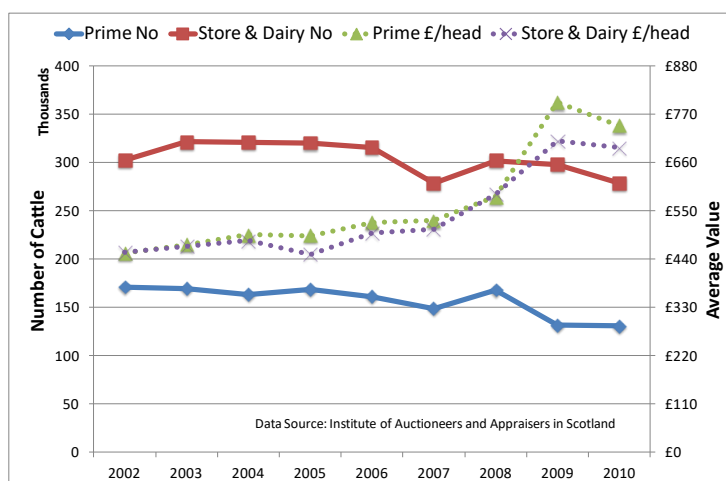


7 Impacts beyond the Farm Gate

The large decline in the Scottish sheep flock and reduced beef herd does not simply affect the farming sector. Both upstream and downstream businesses have felt the impact of change, for example; livestock suppliers; haulage companies, veterinarian practices, auction marts and abattoirs. Whilst the impact on the former of these is difficult to quantify, figures do exist to show the impact on Scotland's marts and abattoirs.

7.1 Impacts on Scottish Auction Marts

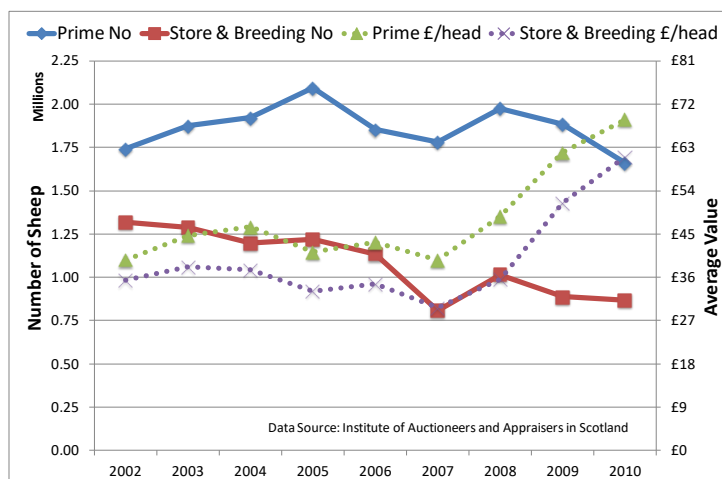
Figure 53 Scottish auction mart beef throughput and average values: 2002 to 2010



Figures obtained from the Institute of Auctioneers and Appraisers in Scotland (Figure 53) show how prime beef throughput in Scotland's marts has fallen by 38,011 (-21%) between 2005 and 2010 with store and dairy cattle falling by 41,702 (-13%). Whilst this may have had considerable financial implications for the mart sector fortunately over that period the average value of prime and store and dairy cattle rose by 51% and 54% respectively meaning turnover from cattle in the marts was actually significantly increased (by 25%) from 2000 to 2010.

Figure 54 Scottish auction mart sheep throughput and average values: 2002 -2010

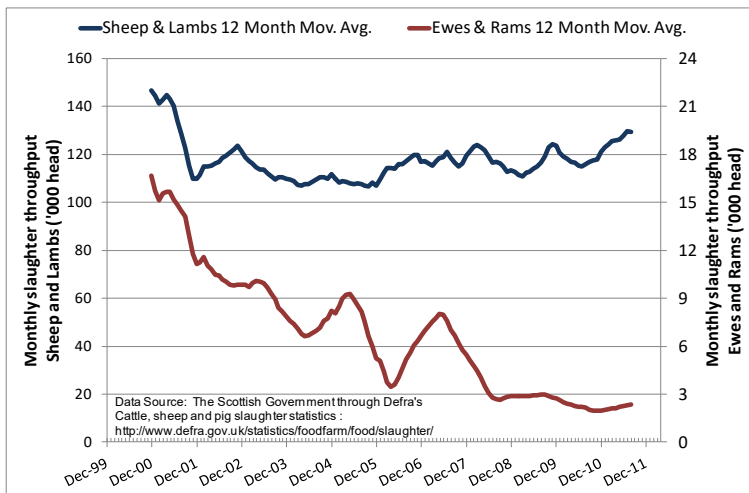
Figure 54 shows how prime sheep throughput in Scotland's marts increased by 350,000 between 2002 and 2005, perhaps as a consequence of farmers adjusting stocking levels as decoupling of CAP support was announced and therefore increasing the amount of ewe lambs being sold as prime lamb, since the need for replacement ewes diminished. The store and breeding ewe throughput has declined steadily since 2002 (the sharper reduction in 2007 and subsequent increase in prime sheep in 2008 relate to the FMD standstill of 2007). Overall there has been a significant decline in sheep throughput since 2005 with prime numbers falling by 431,927 (-21%) and store lamb throughput declining by 352,340 (-29%). However, as in cattle, the decline in throughput has coincided with a rise in the average price received for sheep, resulting in turnover from prime sheep increasing by 65% and that from store and breeding sheep by increasing 13% since 2000.



7.2 Impacts on Scottish Abattoirs

Scottish abattoirs appear, in the face of it, to have fared better than the auction marts as throughput has remained much more stable, and in the case of prime sheep and lambs it has increased since CAP support was decoupled in 2005.

Figure 55 Scottish abattoir sheep throughput – 12 month moving average: 1999 to 2011

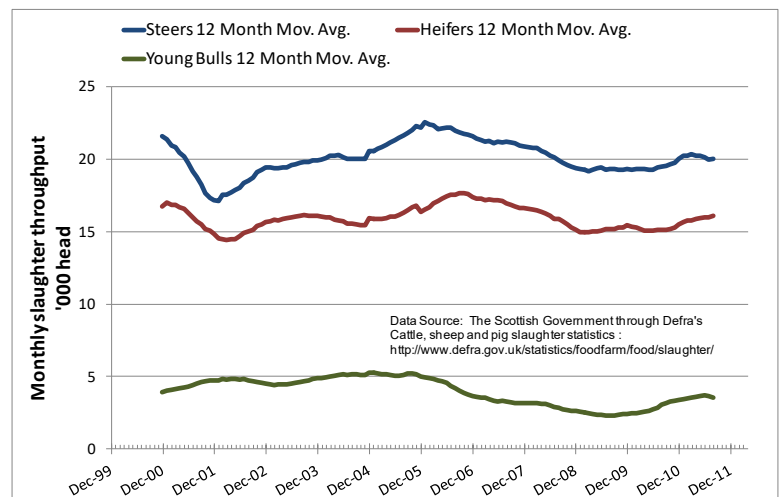


Slaughter statistics collated by the Scottish Government and published by Defra reveal how prime lamb slaughter numbers in Scotland have increased since 2005 despite the reduction in the national flock over the period to 2010. Prime sheep slaughterings increased from 1.28 million sheep in 2005 to 1.482 million in 2009 (15.6% increase) before declining slightly in 2010. As this growth occurred during the period where the number of breeding ewes fell by 13.8%, the difference can be interpreted as a

result of a combination of: (a) more ewe lambs entering the food chain rather than being kept for future breeding stock; (b) higher proportions of the Scottish flock being slaughtered in Scotland (less live exports to rest of UK and the continent); (c) higher imports of live lamb for Scottish slaughter to maintain abattoir capacity. The decline in ewe rams and lambs slaughtered in Scotland are a result of the significantly reduced breeding flock (and slowing of the selling off of breeding ewe flocks) coupled with increased demand for mutton from England, with a large number of live movements to England for slaughter or as cast-ewes for further production, as described by Thomson (2008).⁴⁶

Figure 56 Scottish abattoir beef throughput – 12 month moving average: 1999 to 2011

Figure 56 shows that after a decline in steers and heifers being slaughtered during the 2001 FMD crisis, prime beef (excluding bull-beef) slaughterings recovered as farmers restocked post FMD up until around 2005. As farmers were aware that the reference period for the Single Farm Payment was to be an average of their cropping and stocking direct subsidies from 2000-2002 many had started to rationalise their business and reorganise their stocking levels prior to the actual decoupling of CAP payments in 2005. However, with a 9-15 month lag between a calf weaning and finishing it means that even when beef cows are reduced, prime beef slaughter levels would not fall for up to a



⁴⁶ Thomson, S (2008) Structure of the Scottish Livestock Industry: AA211 Special Study for The Scottish Government's Rural and Environment Research and Analysis Directorate. <http://www.scotland.gov.uk/Publications/2008/06/19154131/0>

year. As the Scottish beef herd started to fall from 2005 the prime beef slaughterings started falling soon after, with prime heifers continuing to rise for longer as heifers, that may have historically been kept as replacement breeding cows, were finished as farmers reduced their herd size or withdrew from beef production. Prime beef heifers and steers slaughter numbers have remained relatively stable (at around 35,000 animals per month) since 2008, whilst bull beef numbers fell gradually from 2005 until an upturn in 2009. As prime heifer and steer slaughter numbers (-9.8%) adjusted in a similar overall trend to beef cow numbers (-7.34%) between 2005 and 2009 there is no evidence to suggest that significant changes have been made to the structure of the beef slaughter sector in Scotland in recent years.

8 Is There a Turning Point?

Figure 57 Parish level changes to sheep: 2009 to 2010

Figure 57 reveals that between 2009 and 2010 whilst the proportion of holdings carrying sheep has remained stable, and actually increased in some localities the absolute number of holdings with sheep continued to decline in many parts of the Western Isles, Caithness and Sutherland and also in Lochaber. However, in many areas south of Inverness there is evidence that more holdings have started to carry sheep again, and it is particularly noticeable in Morayshire and in the south. Whilst sheep numbers also continued to decline in many areas, such as Lochaber, Dumfries and Galloway, Lewis, etc. there were again areas where sheep numbers improved between 2009 and 2010 (such as the Morvern and Ardnamurchan peninsulas, North Uist, around Dingwall, etc). In some areas where there has been relative stability in sheep numbers but decline in the number of holdings carrying sheep (such as many parts of Caithness and Sutherland) this has led to increased average flock sizes. In other areas where there has been increased numbers of holdings carrying sheep and increased sheep numbers it generally

has led to increased flock sizes (such as many parts of Aberdeenshire and parts of Moray). In other areas where there has been increased holdings carrying sheep the overall sheep numbers fell over the year and this has led to continuing decline in average flock sizes (for example across much of Dumfries and Galloway and the Borders).

Whilst it is still slightly unclear from analysis of this single year, continuing high prices being received for lamb means there is renewed confidence in the sector, encouraging farmers to increase flock sizes, and for others to move (back?) into sheep to benefit from the high returns and more positive outlook for the sector. It may be that in areas where there is growth in sheep that farmers are quicker to react to market signals, or are breeding more profitable crossbred lambs, meaning profits are driving changes in the sector.

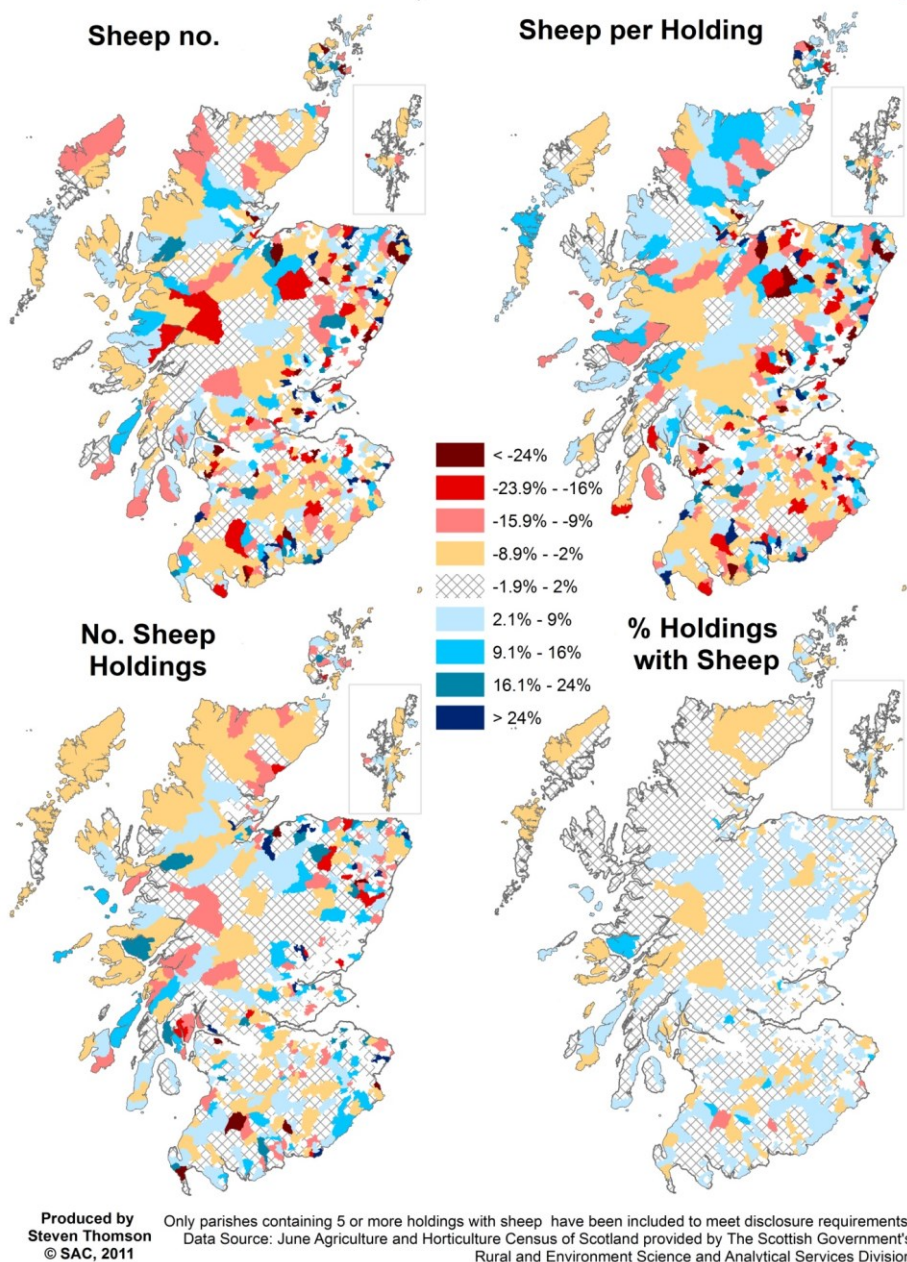


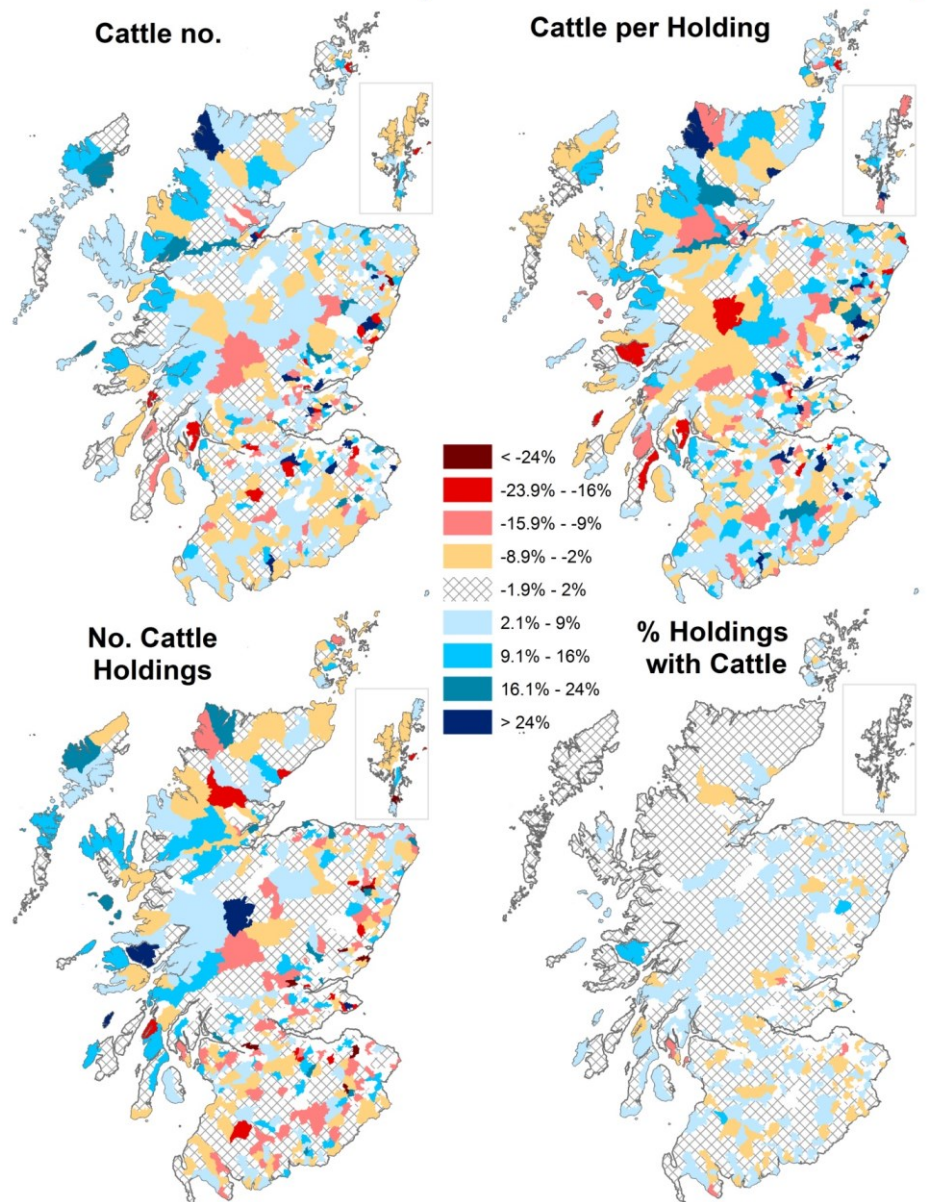
Figure 58 Parish level changes to cattle: 2009 to 2010

Figure 58 reveals that between 2009 and 2010 the proportion of holdings with cattle within most parishes remained stable or showed some increase (mostly in the North and West) or small decrease (mainly in the South). In absolute terms of numbers of holdings carrying cattle there was more variability between 2009 and 2010, with many parishes in the north and west Highlands showing an increase in cattle holdings, with continued decline in areas like the Southern Uplands and parts of Aberdeenshire (although these are not uniform with pockets of increase dispersed with pockets of decrease).

Cattle numbers appear to be improving in many localities, including the Southern Uplands and across much of the Highlands and Islands (although this again is a patchwork with some localities showing decline). It is notable that average herd sizes increased between 2009 and 2010 in many areas, particularly in the Southern Uplands, Aberdeenshire and the

North. This corresponds to either increased cattle numbers or a decreased number of holdings carrying cattle, or a combination of these two factors. In areas of decline in average herd size (e.g. west Cairngorms) it is likely that this is due to an increased number of small holdings carrying cattle (reducing the overall average) or decline in the number of holdings carrying cattle (withdrawal) or general reduction of herd size (downsizing) or some combination of these three factors.

As with sheep, whilst the picture is slightly unclear from analysis of this single year, with continuing high beef prices into 2011 there is renewed optimism in the sector, halting the reduction in cattle numbers and leading to more stability and evidence of some growth, particularly in the hill areas (albeit small in absolute numbers). This is encouraging for the



Produced by
Steven Thomson
© SAC, 2011

Only parishes containing 5 or more holdings with cattle have been included to meet disclosure requirements.
Data Source: June Agriculture and Horticulture Census of Scotland provided by The Scottish Government's Rural and Environment Science and Analytical Services Division

industry and is likely to lead to positive environmental benefits associated with cattle grazing.⁴⁷

⁴⁷ For an overview see SAC (2008) Farming's Retreat from the Hills (www.sac.ac.uk/mainrep/pdfs/retreatreport.pdf) and SAC(2010) An Analysis of the Impact of Natural Heritage Decline in Hill Farming in Scotland (www.snh.org.uk/pdfs/publications/commissioned_reports/454.pdf)

9 Local Environmental Impacts

This section is based on research completed by John Holland, Clare Morgan-Davies and Tony Waterhouse

The 2008 Farming's Retreat from the Hills Report examined in detail the impacts of changing management practices and grazing densities on Scotland's rich hill and upland biodiversity. These impacts remain where there are reduced grazing pressures, particularly on the high hill areas where anecdotal evidence suggests many farmers no longer graze. Recent work carried out by SAC for SNH⁴⁸ examined, through workshops including a participative mapping exercise, the patterns of livestock change and the associated social and environmental impacts as observed by locals (farmers, agency staff, advisers, etc) in 3 localities across Scotland. Whilst evidence provided throughout this report has shown high levels of variance in changes occurring within Scotland's regions (at parish level), the analysis conducted for SNH revealed that even within parishes there are a wide range of farm level changes occurring that would be unobservable from analysis of statistics or without local knowledge of key issues. SNH have kindly given permission for some of those findings to be reproduced here.

9.1 South Skye Case Study

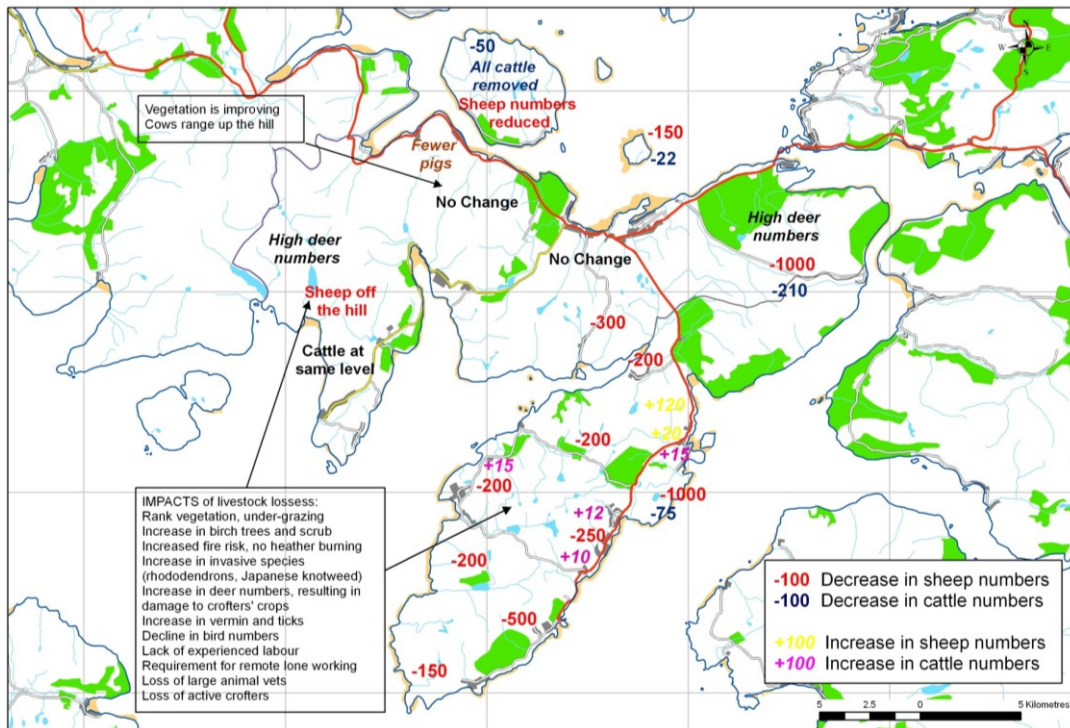
In south Skye a number of changes that had occurred in recent years were identified, some of which directly related to local livestock and land management changes, but others related to social, economic and land-use changes that had taken place more widely. The key changes and impacts are summarised on annotated maps in Figure 59 and Figure 60. Figure 59 specifically shows that there were large reductions in sheep across most of the area (being removed completely from the land owned by the John Muir Trust in Strath) with very few instances of increased sheep numbers (around Isle Ornsay). Whilst cattle numbers had declined overall (being totally removed on Scalpay and the Kinloch and Kyleakin hills) in areas of Sleat there was increased cattle numbers. Where sheep grazing pressures were considerably reduced it was reported that there were growing deer numbers. Issues related to these changes in local livestock densities included:

- A decline in the number of active crofters.
- Absenteeism and abandonment of crofts resulting in a degraded crofting landscape in many of the crofting townships.
 - Crofts abandoned and un-worked with no livestock grazing leading to increase in rushes, gorse, bracken, ragwort and brambles.
 - Loss of species-rich meadows leading to a decline in invertebrates.
 - Increase in invasive non-native species (rhododendron, Japanese knotweed). The Japanese knotweed used to be grazed by sheep in spring but now that numbers have decreased, the weed is spreading.
 - Lack of cultivation as no fodder crops or grain grown anymore leading to landscape dominated by pastoral system.
- Increasing natural regeneration and increase in planted woodlands, some of which have failed. The conifer plantations have increased the crossbill population but few other species have benefited.
- Increasing quantities of rank vegetation, including heather, with scrub and birch tree regeneration, resulting in an increased fire risk.
- Increasing numbers of red deer and encroachment into areas where they were previously controlled.

⁴⁸ SAC(2010) An Analysis of the Impact of Natural Heritage Decline in Hill Farming in Scotland. Final Report to SNH. Contract No. 29028.
(www.snh.org.uk/pdfs/publications/commissioned_reports/454.pdf)

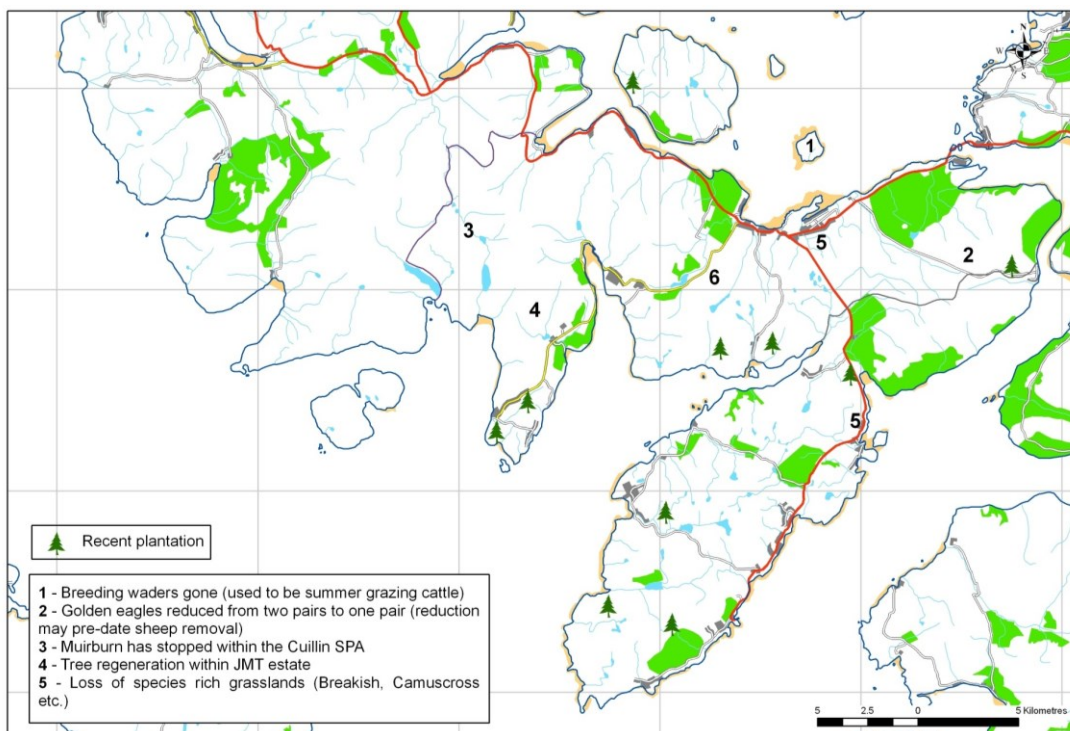
- Decline in croft-land passerines (yellowhammer, twite, reed bunting, skylarks, pied wagtails) as a lack of root crops and cultivation lead to reduced levels of feeding available especially in the winter.
- Golden eagle productivity in slow decline from a change in available winter carrion levels.
- Housing development on crofts has led to a loss of in-bye permanent pasture, a decline in the number of old buildings for nest sites (for house sparrows etc.) and a general change from the crofting ethos.
- Declines in upland waders (golden plover, curlew, dunlin, snipe).
- Declines in croftland waders (lapwing, snipe, corncrake) - decline in cattle numbers, lack of cultivation, switch from hay to silage.
- Increase in corvids on the in-bye ground - reduction in control, dispersal from hill ground (reduced carrion) and from landfill sites.
- Increase in buzzards and sparrowhawks.
- Increase in Greylag geese numbers having a negative impact on in-bye grasslands, but a decrease in Greenland white-fronted geese.
- Changes in the climate (30% wetter) have made it harder to cultivate and make hay
- Decline in breeding hen harriers from five pairs ten years ago to none now. Probably due to a loss of habitat as the conifer plantations have matured.
- Mountain hares are now almost extinct, having been frequent in Sleat in the past. The decline in grouse shooting and the lack of appropriate heather management together with climate/weather changes have probably led to the decline in mountain hares. Brown hare numbers have also declined.
- Increase in tick numbers and the spread of Lyme disease.
- Loss of skills and traditional practices.
- Lack of experienced labour (e.g. sheep gatherers).
- Decline in local sales points in the last 20 years, with the main market now in Portree
- A lack of managed muirburn.
- An increase in mink numbers and other vermin.
- The lack of suitable (casual / contract) labour cited locally as a reason for the removal of stock.
- The average age of crofters is increasing and few local youngsters are interested in farming/crofting or nature conservation. There is little incentive for young people to take up crofting/farming, and life is easier outside crofting.
- The increased bureaucracy, regulatory burden, cross-compliance and paperwork were putting people off bothering with livestock (e.g. EID).
- The nearest slaughterhouse is in Dingwall, which means high transport costs and increased stress levels for transported animals.

Figure 59- Indicative changes in livestock within the South Skye area.



Based upon Ordnance Survey material with the permission of the Controller of HMSO © Crown copyright (2010) Licence no. 100017908.

Figure 60- Other changes within the South Skye area.



Based upon Ordnance Survey material with the permission of the Controller of HMSO © Crown copyright (2010) Licence no. 100017908.

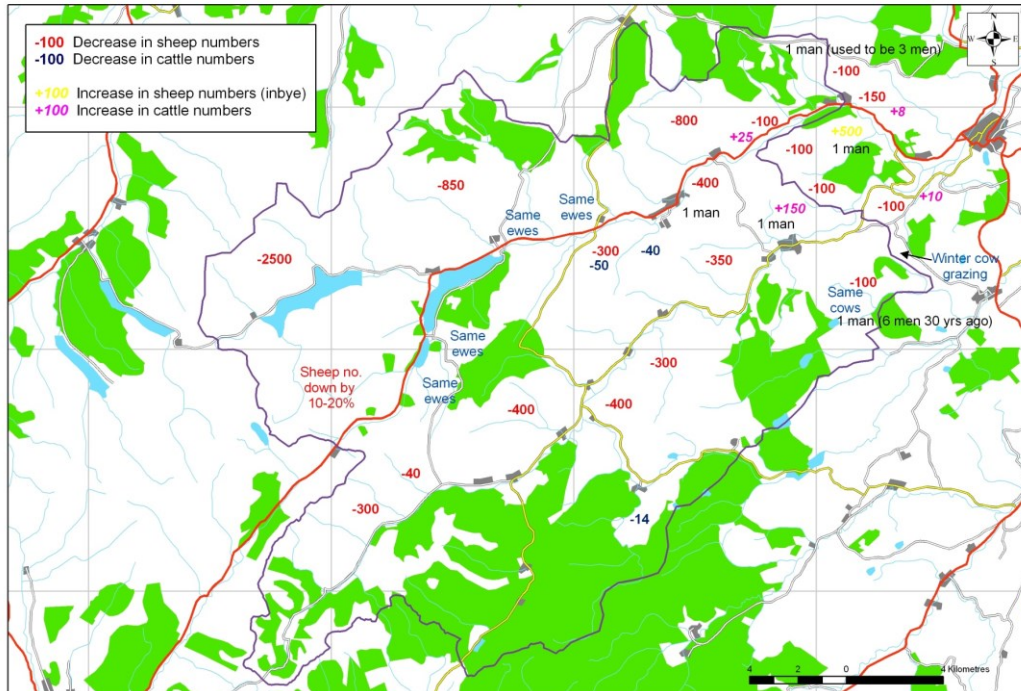
9.2 West Borders Case Study

In the West Borders (Ettrick Valley) the key changes in flora, fauna, landscape and rural community as indicated by the workshop participants, whilst being similar to those in Skye had differences that are associated to different farming systems in operation. The changes are shown on annotated maps in Figure 61 and Figure 62. Specifically, Figure 61 shows a widespread decline in the number of sheep. Specifically it was noted that three hill farms in the upper part of the valley (around Megget Reservoir) had been taken back in hand, with one turned over to game management leading to a loss of 2,500 sheep. Whilst there was some reduction in cattle numbers near Sundhope there were increased cattle on some of the farms closer to Selkirk. It was also noted that there were more one man units as farmers have restructured their businesses. Some of the other key issues raised around the Ettrick valley included:

- Increase in forestry and woodland area:
 - Native broadleaves.
 - Riparian.
 - Wood pasture.
 - Conifer plantations (largely static in extent but some restructuring).
- Forest restructuring:
 - This has had a positive effect on black grouse numbers.
 - Clear felling has had a negative impact on the landscape.
- Less forage crops grown and less reseeding and drainage. Only silage is grown.
- Taller grassland and encroachment of scrub in some areas where less grazing.
- Continued loss of heather in some areas despite agri-environment schemes.
- More ragwort.
- Water margins have been fenced off (resulting in taller vegetation) and wetlands have been created in some areas.
- Buzzards, magpies, rooks, ravens, carrion crows, goshawks, badgers and foxes have all increased – This has had a perceived impact on song birds, waders, red and black grouse, and lambs.
- Grey partridge disappeared.
- A perception that there are less lapwings and curlews.
- Black grouse numbers are still low, with some change in local distribution, and targeted effort at recovery.
- Increase in muirburn from an increased interest in grouse moor management.
- There has been a growth in pheasant shooting.
- Flooding has become a bigger issue in recent years.
- Consented wind turbine development.
- Social impacts:
 - Local schools struggling for numbers.
 - Increase in commuters and second-home owners ('lifestyle' residents).
 - Drives up the price of housing.
 - People not active in the community.
 - Tend to be retired people.
 - A number of farmhouses now not used by farming businesses and let out to people working outwith the valley .
 - More difficult to sustain local show and fewer local events.
 - Conversion of older agricultural buildings into new housing.
 - Fewer young people employed in agriculture. Only ten people in the area under 30 actively working in farming.
 - Ageing farming population.
 - Lack of local skilled farm labour, which causes problems at gathering and lambing etc.

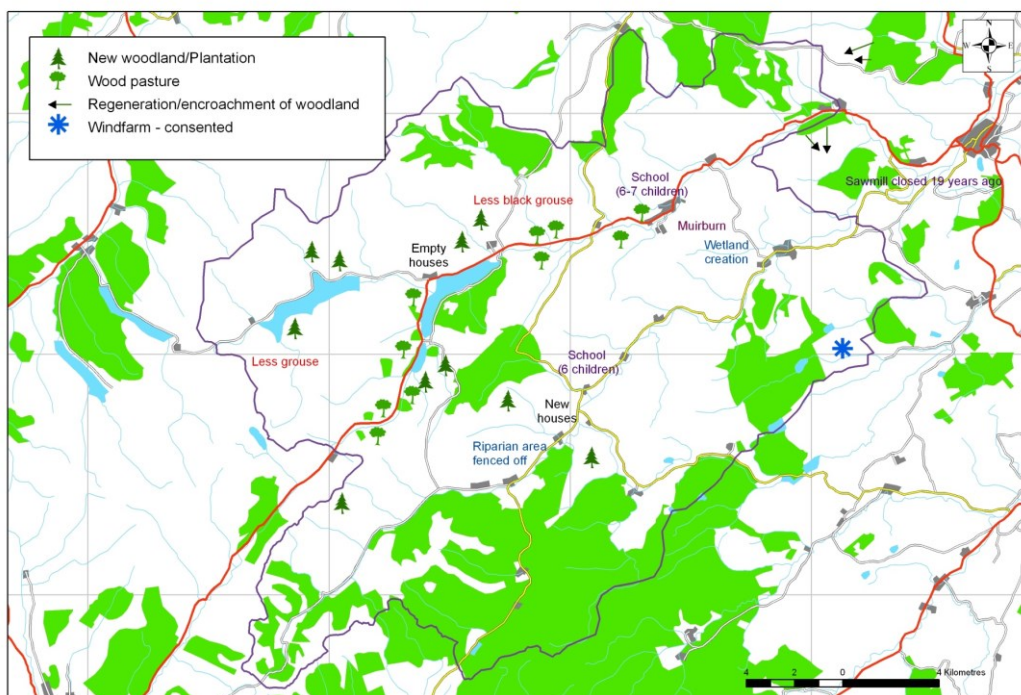
- A number of farms and some other small rural businesses have been lost which has had a knock on effect on other businesses.
- Decline in the number of shepherds and hired staff. Labour pattern is changing. 1 shepherd used to look after 300 ewes, now it is more than 1000 ewes.
- St. Boswells' market: 10,000 less livestock go through it now. More private sales, more sales direct to processors.

Figure 61 Indicative changes in livestock within the West Borders study



Based upon Ordnance Survey material with the permission of the Controller of HMSO © Crown copyright (2010) Licence no. 100017908.

Figure 62 Other changes within the West Borders study area.



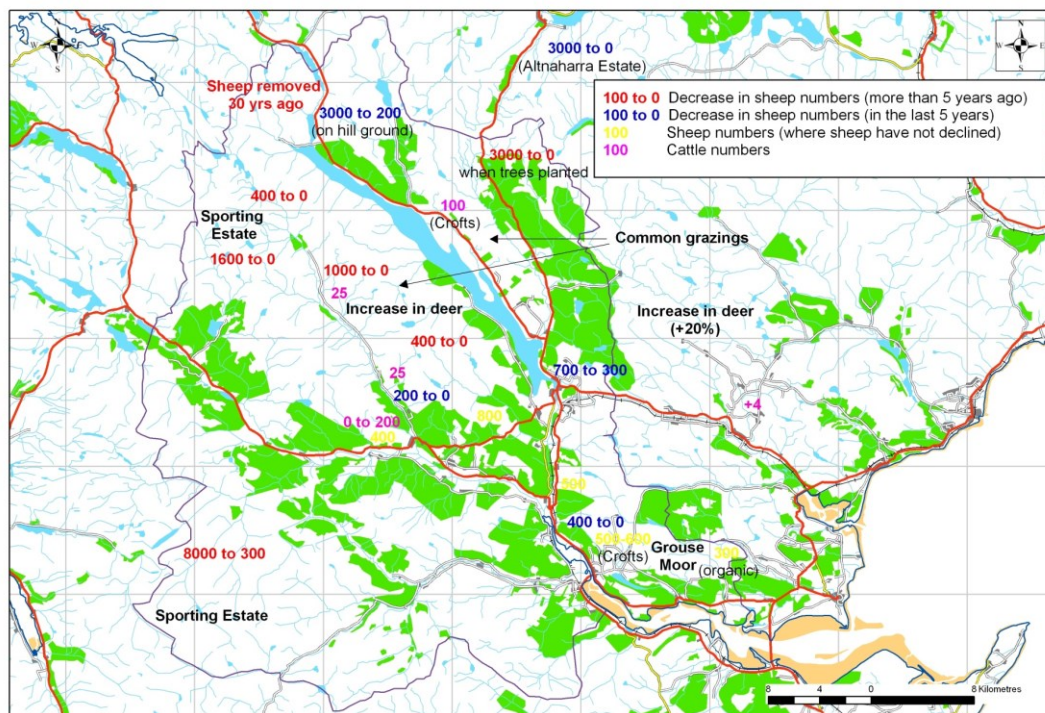
Based upon Ordnance Survey material with the permission of the Controller of HMSO © Crown copyright (2010) Licence no. 100017908.

9.3 North Highlands

The identified changes that had occurred in recent years in the North Highlands study area (centred on Lairg), and impacts on flora, fauna, landscape and rural community are shown in annotated maps in Figure 63 and Figure 64. Figure 63 shows the significant decline in sheep numbers in much of the area (from forestry plantation, on sporting estates and on high hill ground) that was identified as being directly related to decoupling of CAP support and no requirement to actively farm the land. Workshop participants highlighted that in many areas sheep have been completely removed from the hill ground (full abandonment) rather than simply reduced in number. In the area the number of cows tended to be more stable and has increased in some areas partly as a result of RSS payments which were very favourable for crofters with small numbers of animals. Activity levels on common grazings are deteriorating as a result of stock decline and it was commented that on one common grazing with 28 shareholders only two were actively grazing the hill ground, with 12 crofters running sheep on the in-bye ground (not many animals in some cases). Other issues raised about changes occurring in the area related to farm level changes included:

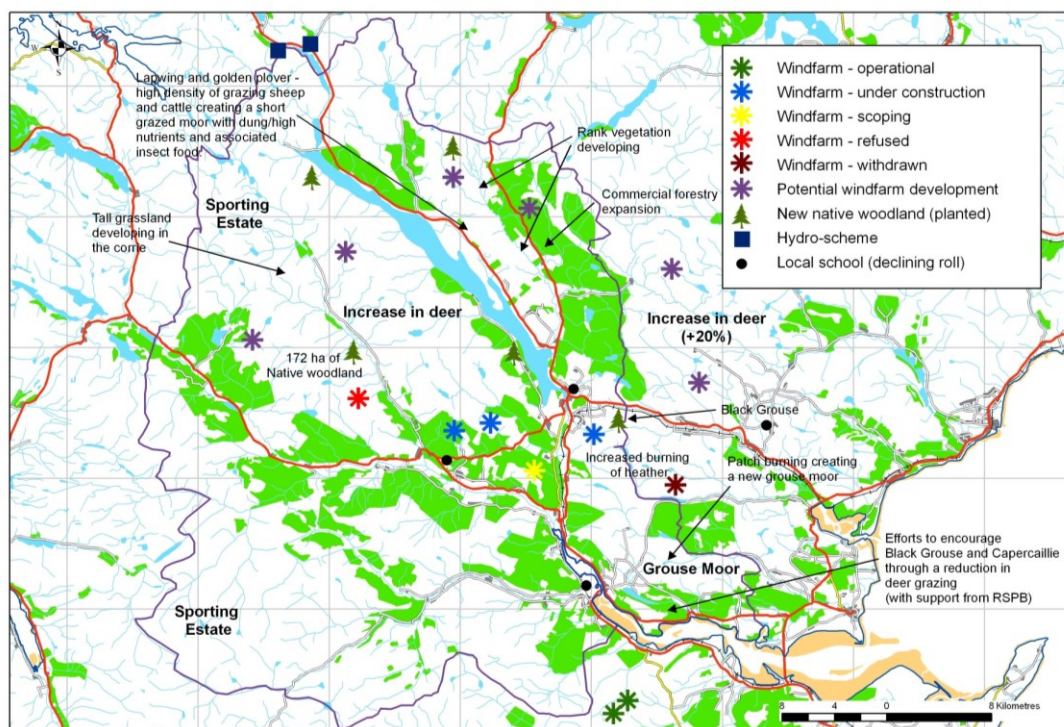
- Commercial forestry restructuring and expansion, and increase in native woodland planting schemes, mainly as a result of the available grants. Encroachment of commercial forestry onto previously grazed land.
- More sporting interests (salmon fishing, deer stalking and red grouse).
- Increase in renewable energy schemes (wind-farms and hydro-schemes). The topography of the landscape and available grid connections make this area very suitable for further wind-farm development.
- No forage crops grown and less reseeding and ploughing.
- Although hay is still made when possible, the weather has become wetter making it more difficult. There is also a lack of available machinery in the local area to make hay. Small bale hay has to be bought in, which is expensive.
- Increase in the number of horses (particularly close to the towns).
- Increase in deer population (problems with deer management in some places).
- Rank vegetation has developed where grazing has been reduced.
- Decline in heather condition and quality in some areas.
- Decline in the breeding population of hen harriers.
- Woodland expansion has benefited black grouse in some areas.
- Sparrowhawks, buzzards, corvids, pine martens, badgers and foxes have all increased.
- Increase in barn owls.
- Decline in hill passerines (wheatear, meadow pipit).
- Local farm infrastructure has become worse (less maintenance of fences, fanks etc.)
- A decline in rural skills, especially cattle husbandry.
- Markets have closed or much reduced business. Lairg now has 20,000 fewer sheep in the 1st sale than it had 10 years ago.
- School rolls are declining (e.g. Rosehall School has dropped from 29 students to 5)
- Salmon fishing and deer stalking are very important for jobs in the area (more important than farming). Clients pay considerable fees to shoot and fish and the hotels and restaurants, etc. are dependent on income from these visitors.
- There are some problems with new estate owners who have not always been sensitive to the local community and farmers, either shooting too many deer or not shooting enough.
- Some estates had put sheep (wethers) back on to the hills as tick mops, but the extent to which this had been done could not be confirmed.
- The wool price has improved, but it is now difficult to get shearers.

Figure 63 Indicative changes in livestock numbers within the North Highlands study area



Based upon Ordnance Survey material with the permission of the Controller of HMSO © Crown copyright (2010) Licence no. 100017908.

Figure 64 Other changes within the North Highlands study area



Based upon Ordnance Survey material with the permission of the Controller of HMSO © Crown copyright (2010) Licence no. 100017908. © SNH (vegetation data). The wind farm data came from the Highland Council website except for the potential wind farm development information which came from the workshop delegates.

9.4 Future changes and associated impacts?

During these workshops it was generally expressed that there was difficulty in thinking how management might change because of unknown factors such as: the future direction of CAP

support; market prices; food security and climate change; EID in sheep, input costs, etc. However some of the suggested future changes likely to occur in Scotland's hill farming/crofting areas included:

- Fewer active farmers and crofters.
- Farming population will age and no/few new entrants.
- Livestock numbers will carry on falling, leading to a loss of critical mass. There will soon be a tipping point in animal numbers where it will be impossible to re-stock the hills.
 - Loss of support will be especially hard on the cattle farmers, who will not be able to afford the labour that cattle production requires. This will lead to the abandonment of cattle farming.
 - On the sheep farming side, they said that having a less intensive system to reduce costs will not be possible, because of the farm types and the climate.
 - Tenant farmers will be stuck since their tenancy does not allow them to reduce livestock numbers too much.
- More collaboration and working together.
- Diversification (e.g. pigs).
- CAP support money will move more towards the North and West of Scotland.
- Labour employed will decline and skills will be lost. A point will be reached where farmers cannot shed any more labour.
- Larger scale management of the land will appear, with maybe one manager dealing with 2-3 farms, and only 2-3 stockmen on each farm (farms will amalgamate and there will be a loss of small family farms).
- Long term future very dependent on Europe. Less money will come from the EU, because of the enlargement to EU-27.
- Farmers will only produce products that sell.
- Trees and forestry will increase if the sheep and cattle go.
- Wind farm development with some income generation.
- Increase in woodland and forests.
- Increase in grouse management and sporting interests.
- Increase in trees/scrub (negative impact).
- Increase in coarse species such as rushes and bracken (negative impact).
- Decrease in species diversity.
- Changes to soil structure and reduced fertility.
- Increased fire risk.
- Tourism may suffer due to changes in the landscape.
- The vegetation will become rank.
- Dykes and hedges will not be maintained.
- Markets and hauliers will stay the same (they are already at a minimum).

10 Implications for Scotland's Beef and Sheep Sectors

This report has largely confirmed that the recent trends in sheep and beef cow numbers across Scotland reported by SAC⁴⁹ (2008), Royal Society of Edinburgh⁵⁰ (2008) NFUS⁵¹ (2008) and Scottish Government⁵² (2009) have largely continued between 2007 and 2010, although the rate of decline fell sharply and looks to have stabilised in 2010 (and probably in 2011) with some evidence of localised increases. At the time of publication of these reports there had been a lack of quantitative analysis of the figures to reveal the true extent and rapid nature of livestock decline in many of Scotland's hill, island and upland areas. This report has extended these reports till 2010 and also provided a historical, policy and economic context to the situation facing Scotland's beef and sheep sectors.

10.1 Business as Usual?

Published national and regional data can somewhat mask localised issues surrounding the restructuring of the Scottish livestock sector during the last decade. However, disaggregation of the data, as provided throughout this report (and used in SAC, 2008 and Scottish Government, 2009) helps to extend our understanding of geographical dispersion of restructuring, highlighting areas where there may be heightened social and environmental consequences. The local dimension provided throughout this report reveals that there have been significant geographical differences in changes to sheep and suckler cow farming patterns. At the national level Table 1 reiterates how the number of holdings carrying suckler cows or ewes, and the absolute number of suckler cows and breeding ewes declined in each of the three periods. Whilst average herd and flock sizes increased between 1997 and 2004 as smaller farms withdrew from production or downsized, post decoupling the average number of suckler cows per holding have largely stabilised whilst breeding ewes per holding have fallen as there has been more widespread restructuring on sheep holdings. Jonnie Hall, of NFUS, in his evidence to the Scottish Parliament's Scotland's Hills and Islands Inquiry⁵³ confirmed the localised nature of the changes stating that: "*in parts of the north-west, more than 75 per cent of LFA claimants have decreased their stock by more than 25 per cent. A lot of them have decreased it by more than 50 per cent and a lot of them have de-stocked altogether and are now out of farming.*" This restructuring is also observable through the continued reduction in FT occupiers and spouses engaged in agriculture and the decline in the FT workforce as the farmers and crofters increasingly have moved to more and more part-time activities (although, as demonstrated, this trend has been stopped and reversed to some extent since the general economic downturn and upturn in returns to beef and sheep).

It is clear from this and previous analysis and commentaries that during the last decade many hill, islands and upland farmers and crofters have retreated from production with many of those that remain choosing to downsize. These changes are not attributable to a single factor, but are a combination of (a) poor economic returns to the sector in the late 1990s and early 2000s, (b) as a result of Strengthening of Sterling against the Euro in the late 1990s, (c) the FMD outbreak in 2001 and subsequent loss of confidence in livestock farming and

⁴⁹ SAC (2008) Farming's Retreat from the Hills. A SAC Rural Policy Centre report. Available at: <http://www.sac.ac.uk/mainrep/pdfs/retreatreport.pdf>

⁵⁰ Royal Society of Edinburgh (2008) Committee of Inquiry into the Future of Scotland's Hills and Islands. http://www.rse.org.uk/enquiries/hill_and_island_areas/full_report.pdf

⁵¹ National Farmers' Union of Scotland (2008) Manifesto for the Hills. Available at http://www.nfus.org.uk/system/files/Manifesto_for_the_hills_0.pdf

⁵² Scottish Government (2009) Economic Trends in Scottish Agriculture. Scottish Government Rural and Environment Analytical Services for the "Inquiry into the Future of Support for Agriculture in Scotland" <http://www.scotland.gov.uk/Resource/Doc/278281/0090711.pdf>

⁵³ <http://www.scottish.parliament.uk/s3/committees/rae/or-10/ru10-1202.htm#Col2637>

more recently (d) as the “freedom to farm” brought in by the introduction of the decoupled Single Farm Payment in 2005 has been realised.

Table 3 Summary of changes in suckler cows and breeding ewes: 1997-2010

Source: June Agriculture and Horticulture Census of Scottish Government's Rural and Environment Science and Analytical Service Division	Numbers				% Change		
	1997	2004	2007	2010	1997-04	2004-07	2007-10
Suckler Holdings	10,776	9,256	9,027	8,619	-14.1%	-2.5%	-4.5%
Suckler Cows	513,751	492,873	472,224	456,881	-4.1%	-4.2%	-3.2%
Average Herd	48	53	52	53	11.7%	-1.8%	1.3%
Ewe Holdings	17,753	14,389	13,629	12,851	-18.9%	-5.3%	-5.7%
Ewes	3,810,346	3,179,434	2,919,571	2,643,329	-16.6%	-8.2%	-9.5%
Average Flock	215	221	214	206	3.0%	-3.1%	-4.0%
FT Occupiers & Spouse	15,021	13,109	12,180	11,341	-12.7%	-7.1%	-6.9%
PT (>50%) Occupier & Spouse	6,659	6,253	5,963	6,135	-6.1%	-4.6%	2.9%
PT (<50%) Occupier & Spouse	20,113	23,295	23,070	23,475	15.8%	-1.0%	1.8%
FT Employees	17,174	14,253	13,269	14,184	-17.0%	-6.9%	6.9%

Considerable restructuring has occurred across most of Scotland's hill, island and uplands, farming areas particularly in the sheep sector in the North and West Highlands and in the South West with some very significant changes occurring in areas such as Lochaber. Decoupling of CAP support payments and the removal of the incentive to maintain large numbers of ewes and suckler cows (through the historic headage payments made through the Hill Livestock Compensatory Allowances, Suckler Cow Premium, Sheep Annual Premiums, etc) has led many farmers and crofters to make the rational economic decision to minimise losses from unprofitable sheep and suckler beef production systems through restructuring their business and decreasing their sheep breeding flocks and suckler cow herds.

10.2A Turning Point?

In the two years following the Retreat from the Hills publication there was considerable angst across the industry when the Scottish Government published the results of the June census and December Survey. By early 2010 there were considerable concerns being raised and Alan Craig, president of the Scottish Association of Meat Wholesalers, was quoted⁵⁴ as saying “*the steady decline in numbers which we've had to endure in recent years is eating away at the very fabric of our industry.....I believe we've now reached a critical stage and that unless 2010 delivers a genuine turning point, our whole farm-to-plate industry will suffer severe and lasting damage.*” By the time the 2011 June Census figures were published Alan Craig had more optimism, offering that: “*the census evidence regarding sheep, meanwhile, suggests that a turnaround in production is beginning and we would hope that this indication proves accurate.*”⁵⁵

Whilst the analysis of the 2007-2010 period presented in this report does not appear to show any turning point, evidence provided in Figure 57 and Figure 58 does show that between 2009 and 2010 there was greater stability in both sheep and cattle numbers with signs of some increases in cattle numbers and average herd sizes. This is largely due to improved

⁵⁴ Fone, N. (2010) Reverse decline in livestock numbers, say Scots. Farmers Weekly Interactive Wednesday 06 January 2010. Accessed at:

<http://www.fwi.co.uk/Articles/2010/01/06/119401/Reverse-decline-in-livestock-numbers-say-Scots.htm>

⁵⁵ <http://samw.org.uk/news/>

market returns for sheep and beef (Figure 4) and the upturn in profitability of hill and upland suckler cow and sheep production (Figure 9 to Figure 13) that have come at the same time as Sterling strengthened against the Euro (Figure 3) leading to windfall gains (CAP support payment improvement) for farmers.

Many press commentators had in-fact reported that the December 2009 Survey of Agriculture revealed that whilst Scottish livestock numbers continued to decline the rate of decline was slowing, suggesting that the industry was stabilising (Davidson⁵⁶, 2010; Arbuckle⁵⁷, 2010; Watson⁵⁸, 2010). Watson⁵⁹ (2010) discussed how the 2009 December figures revealed the smallest annual drop in beef cow herd for a decade, and as ewe numbers only contracted by 0.2% he claimed that it showed growing confidence in both sectors after prolonged periods of contraction (i.e. a turning point). Richard Lochhead, Cabinet Secretary for Rural Affairs, whilst recognising the strong regional differences commented that the 2009 December figures were *“welcome signs that the rate of decline in cattle and sheep numbers appears to have slowed and stocking levels may be stabilising”*.⁶⁰ Although the 2010 sheep flock continued to contract QMS (2011)⁶¹ attributed this to *“particularly severe weather conditions over the winter and again at lambing”* adding that *“as 2010 drew to a close sheep producers were feeling confident after a year of strong lamb prices and this may slow the decline in the breeding flock going forward”*. Speaking at the 2010 Agriculture and Horticulture Development Board Outlook conference Stuart Ashworth⁶², head of economics at Quality Meat Scotland added: *“I have seen early signs of confidence returning to the industry, with an increasing number of lambs being held back for the breeding flock”* adding credence to the general feeling that the industry was at last stabilising in 2010 (as shown in Figure 57 and Figure 58) and a turning point in the decline of Scotland’s beef herd and sheep flock had indeed started.

A year later and most commentators believe that confidence has indeed returned to the sector, something borne out by the 2011 June Census figures (as indicated in Figure 1). NFUS head of rural policy, Jonnie Hall said⁶³: *“this census very clearly illustrates that, given fair market conditions, Scottish farmers can react to market signals”* adding that *“the positives include an increased numbers of beef cows being kept, a key area given how important the beef sector is to Scotland.”* Hall continued that: *“with flock performance and the market place both strengthening, the hope would be the trend in the declining ewe flock, particularly in more remote areas, can be reversed”* but cautioned that: *“it is also obvious*

⁵⁶ Davidson, G. (2010) Livestock decline slowing. The Scottish Farmer, 12th March 2010. Accessed at <http://www.thescottishfarmer.co.uk/news/this-weeks-news/livestock-decline-slowing-1.1012970>

⁵⁷ Arbuckle, A. (2010) Decline in livestock numbers may have finally bottomed out. The Scotsman. 12th March 2010. Accessed at

<http://business.scotsman.com/fooddrinkagriculture/Decline-in-livestock--numbers.6146224.jp>

⁵⁸ Watson J. (2010) Census figures show stability returning to livestock sector. Press and Journal, 12th March 2010. Accessed at:

<http://www.pressandjournal.co.uk/Article.aspx/1642801?UserKey=>

⁵⁹ Watson, J. (2010b) Decline in livestock numbers will be a big challenge for ANM Group. Press and Journal, 7th April 2010. Accessed at:

<http://www.pressandjournal.co.uk/Article.aspx/1679463?UserKey=#ixzz0lqM65GGa>

⁶⁰ Arbuckle, A. (2010) Decline in livestock numbers may have finally bottomed out. The Scotsman. 12th March 2010. Accessed at

<http://business.scotsman.com/fooddrinkagriculture/Decline-in-livestock--numbers.6146224.jp>

⁶¹ QMS (2011) The Scottish Red Meat Industry Profile – 2011 Edition http://www.qmscotland.co.uk/index.php?option=com_remository&func=startdown&id=831

⁶² Abbott, R (2010). Sheep decline shows signs of slowing. Farmers’ Guardian, 19 April 2010. Accessed at: <http://www.farmersguardian.com/home/business/business-news/sheep-decline-shows-signs-of-slowing/31456.article>

⁶³ Quoted in The Berwickshire News (2/10/11) http://www.berwickshirenews.co.uk/news/local-headlines/farming_census_shows_cautious_optimism_1_1880221

that in areas where producers are struggling to get a justifiable return from the marketplace, numbers are declining” meaning the very North and West hill and island areas that have seen the largest declines in sheep and associated farming activities.

The publishing of local level results from the 2011 June Census is now keenly awaited to ascertain if the renewed confidence in the sector is indeed resulting in a reversal of some of the decreases witnessed in the hill, island and uplands over the previous decade, or if the national changes are being driven by localised low-ground changes. If the downward trend is indeed abated caution should still remain as the 2011 increase in breeding ewe numbers may be related to the particularly poor lambing in 2010 (a result of poor weather in both autumn and spring) meaning that some farmers retained additional cast ewes into 2011 to maintain flock capacity. A SAC Rural Policy Centre Research Briefing⁶⁴ updating this report will be published in early spring 2012 highlighting the changes in the both sector across Scotland.

The proof of the level of confidence in the sector will come when the disaggregated results of the 2011 June Census are published in early 2012 to see where the upturn in ewe and beef cow numbers (see Figure 1) has occurred geographically.

10.3 What Alternative?

QMS⁶⁵ (2009) discuss how Scottish farming is disproportionately dependent upon ruminant livestock farming compared with the rest of the UK and Europe. They highlight that across the EU only Ireland has a greater dependency on cattle production and only Wales has a higher dependency on sheep production than Scotland. This means that the agricultural sectors in Scotland, Wales and Ireland are particularly vulnerable to the decline in red meat livestock numbers that has been witnessed across much of the EU15 since the decoupling of CAP in 2005. The importance of the beef and sheep sectors in Scotland (as shown in Figure 7) somewhat reflects the lack of alternatives to traditional sheep and suckler cow production that many farmers and crofters, particularly in the hill, islands and uplands are faced with. The James Hutton Institute’s Land Capability Classification for Agriculture⁶⁶ shows that 76% of Scotland’s IACS registered LFA land area⁶⁷ is only suitable for improved grassland or rough grazing meaning it is only capable of supporting beef and sheep production. Alongside the geophysical limitations to alternative production systems, farmers and crofters in these areas also often face very limited opportunities for business diversification or opportunities to take a second (off-farm) job to boost income. This means that when the economic conditions in the sector are particularly poor there is an increased likelihood of abandonment, compared to low-ground farms where there are more farming alternatives and there are greater diversification and off-farm employment opportunities, being located closer to urban centres.

More recently the growth in renewable energy production has become an attractive proposition to many farmers, particularly since the introduction of the Feed in Tariff⁶⁸ (a 25 year guaranteed payment for electricity generation). Some hill farms have benefited from significant rental income streams being generated from large scale wind farms, whilst many

⁶⁴ <http://www.sac.ac.uk/ruralpolicycentre/publs/briefings/>

⁶⁵ QMS (2009) The importance of livestock production to the Scottish economy. Evidence prepared for the inquiry into the future of support for agriculture in Scotland. Accessed at: <http://www.scotland.gov.uk/Topics/farmingrural/Agriculture/inquiry/background/livestock>

⁶⁶ Produced by the Macaulay Land Use Research Institute prior to its amalgamation with the Scottish Crop Research institute in 2010.

⁶⁷ Wright, I.A., Birnie, R.V., Malcolm, A., Towers, W. and McKeen, M. (2006) The Potential Use of the Land Capability for Agriculture Classification for Determining Support to Disadvantaged Areas of Scotland. <http://www.macaulay.ac.uk/ruralsustainability/LFAreport.pdf>

⁶⁸ See <http://www.sac.ac.uk/mainrep/pdfs/pgfit>

others are taking up the opportunity to generate an income from smaller-scaled wind energy generation. The new Renewable Heat Incentive,⁶⁹ may provide further opportunities for hill and upland farmers to generate income from renewables, although as with all renewable projects detailed examination of costs, returns and constraints (including sensitivity to, for example wind speeds, interest rates, etc) should be carried out prior to investment.

Another alternative of land-use in the hill and uplands is forestry. The Scottish Government's target of achieving 25% woodland land cover by 2050⁷⁰ is currently at risk of not being met. The Climate Change Delivery Plan⁷¹ set a target of an additional 10,000 to 15,000 hectares of planting per year (by 2015) but with an annual average of only 3,447 hectares of new plantings taking place between 2007 and 2010⁷² there is a large risk that the targets will not be met. With increased awareness of the role woodlands can play in helping agriculture meet its climate change targets it is perhaps an opportune time for farmers to consider increased woodland plantation. Additionally, with increased concentration of sheep and beef production on the better quality, lower-ground land on farms there is now, providing the correct planting and management incentives are in place, a greater opportunity to use more marginal land for woodland since there is less competition for land between sheep and trees. Instead of farmers having to choose between sheep or trees agroforestry, especially silvopastoral systems could also be a novel alternative for the hill and uplands.

10.4 Abandonment Risk?

Recent research completed by a consortium led by SAC⁷³ found that agricultural policy is only one factor, alongside lack of successors; multiple ownership of land; land fragmentation; development potential and physical and logistical difficulties that can lead to abandonment. They found that “*areas of land abandonment are mainly found in the mountain regions of Europe*” particularly on the steeper slopes and on sheep farms. They acknowledge that whilst land is often not strictly abandoned it is often close to being, so leading to “hidden abandonment” or “semi-abandonment”. This “semi-abandonment” can be witnessed in areas of Scotland during the last decade, as farmers and crofters (particularly in the North and North-West withdraw from production or downsize (See Figure 30, Figure 35 and Figure 38) and increasingly focus remaining production on in-bye land by moving stock off the high hills.

David Barnes, Deputy Director of Agriculture and Rural Development in the Scottish Government, in his evidence to the Scottish Parliament's Scotland's Hills and Islands Inquiry confirmed these research findings in a Scottish context, highlighting that the area of land on which sheep and cattle were kept (the type most at risk of abandonment) had reduced by 120,000 hectares between 2005 and 2010 (around 3% of the total land in agricultural production in Scotland)⁷⁴. Mr Barnes also noted that this figure was probably an underestimate, as it did not account for abandonment of parts of agricultural holdings (for example, a farmer may withdraw livestock from higher ground, and move them to in-bye land, but the holding itself will still be noted as being active).

⁶⁹ See <http://www.sac.ac.uk/consulting/services/f-h/farmdiversification/grantinfo/rhi>

⁷⁰ See the Scottish Forestry Strategy
[www.forestry.gov.uk/pdf/SFS2006fcdc101.pdf/\\$FILE/SFS2006fcdc101.pdf](http://www.forestry.gov.uk/pdf/SFS2006fcdc101.pdf/$FILE/SFS2006fcdc101.pdf)

⁷¹ <http://www.scotland.gov.uk/Publications/2009/06/18103720>

⁷² [www.forestry.gov.uk/pdf/SFSprogressindicators2011.pdf/\\$FILE/SFSprogressindicators2011.pdf](http://www.forestry.gov.uk/pdf/SFSprogressindicators2011.pdf/$FILE/SFSprogressindicators2011.pdf)

⁷³ Renwick, A., Revoredo-Giha, C., McCracken, D., Jansson, T., Verburg, P., Britz, W. and Gocht, A. (2011) Assessment of the Impact of Agricultural and Trade Policy Reform on Land Use in the EU. Final Report for Defra.

⁷⁴ <http://archive.scottish.parliament.uk/s3/committees/rae/or-11/ru11-0502.htm#Col3900>

Professor Maxwell (Royal Society of Edinburgh) in his evidence to the same inquiry⁷⁵ reiterated these concerns stating that *“progressively, over the past 20 to 25 years, most units have become one-man units. If the income that is derived from the activity is not and cannot be sustained, even on a part-time basis, we will have to face the consequences of land abandonment in some areas. Undoubtedly, that has happened and is happening.”* Jonnie Hall (NFUS) added that *“the decline is of extreme concern...the abandonment issues that some areas face are very real and have consequences that go way beyond agriculture. It is not just an agricultural issue - it is about how agriculture fits in with rural development. It is not about production per se, but about agricultural activity and its co-products such as economic multipliers, environmental management and the underpinning of rural communities.”* Renwick et al⁷⁶ (2011) do however argue that whilst the risk of abandonment is higher in hill and mountain areas (High Nature Value areas) where reduced grazing pressures can generally lead to reduced biodiversity value, policies such as LFASS attempt to redress the risk of abandonment by linking support payments to “activity” and a minimum stocking density (0.12 LU/ha) on adjusted hectares.

The issue of livestock decline is particularly emotive in the farming sector and many have discussed the long term impacts of current changes in upland livestock management and how decline can lead to a cascade effect whereby the actions of a single farmer are not mutually exclusive from his neighbours. Condliffe⁷⁷ (2009) summarises the issues well stating that: *“unlike set-aside, the grazing of mountains and moorlands is not something that can be switched on and off with relative ease. The reduction or removal of hefted sheep flocks is a difficult process to reverse. Also, once lost, the accompanying livestock husbandry skills can be difficult to replace.”* He then continues that *“it can be more economic for the farmer to remove the whole flock rather than to manage reduced numbers...this can produce a ‘domino effect’ leading to the removal of other flocks as neighbouring farms rely on each other’s labour.”* Condliffe was referring to the problems managing remaining hill sheep flocks in areas where abandonment (semi or total) has occurred. Since there are limited numbers of march fences on the high hills, removal of sheep off a farm directly impinges on neighbours since their remaining sheep range further, meaning they become more difficult to manage, and in particular the logistics of gathering become harder due to increased ground to cover and reduced labour availability.

10.5 Impacts beyond the farm?

In addition to farm level impacts there are knock on effects in the local communities as the multiplier effects from agricultural activity are lost and the social fabric of many communities is disturbed as former NFU Scotland president Jim McLaren commented in 2008, saying *“the loss of livestock at such a rate is extremely worrying...the more we lose the very fabric of farming, the more we threaten our countryside and thus our tourism industry and our ability to feed ourselves as a nation.”*⁷⁸ Further afield abandonment is felt by local vets, hauliers, livestock markets and abattoirs, etc. as critical mass in the industry is lost. Schwartz et al⁷⁹ (2006) estimated that the LFA sheep farms had a cumulative industry

⁷⁵ <http://www.scottish.parliament.uk/s3/committees/rae/or-10/ru10-1202.htm#Col2637>

⁷⁶ Renwick, A., Revoredo-Giha, C., McCracken, D., Jansson, T., Verburg, P., Britz, W. and Gocht, A. (2011) Assessment of the Impact of Agricultural and Trade Policy Reform on Land Use in the EU. Final Report for Defra.

⁷⁷ Condliffe, I. (2009) Guest Editorial - Maintaining the balance. In Joint Nature Conservation Committee (2009). Looking to the Hills, Issue 16, July 2009.

⁷⁸ Sourced from Rog Wood, The Herald, 25/9/08 <http://www.heraldscotland.com/drop-in-livestock-numbers-threatens-our-ability-to-feed-ourselves-1.890375>

⁷⁹ Schwarz, G., Wilson, R. M., Swales, V., Burton, R., Wright, I. A., Gilbert, A., McLeod, J. and McKeen, M. (2006) Less Favoured Area Support Scheme in Scotland: Review of the evidence and appraisal of options for the scheme post 2010. Report for the Scottish Executive, 207pp. Macaulay Institute, University of Edinburgh and IEEP. www.scotland.gov.uk/Resource/Doc/171377/0047934.pdf

backward linkage (demand driven) output multiplier of 1.7 meaning that increasing demand for LFA sheep output by £1,000 leads to £700 additional output in other industries (including £80 in animal feeds and other manufacturing sector, £60 in health and veterinary sector, and £250 in other service sectors). They also estimated cumulative forward linkage (supply driven) multipliers of 1.5 for LFA sheep (with strongest links unsurprisingly with the meat processing sector) meaning hill sheep (and beef) farming have important roles to play in rural economies. Whilst the problems associated with reduced skilled farm workforce (shearers / shepherds/ stockmen, etc) are widely acknowledged it is important to realise that the other sectors of the supply chain are also suffering skills shortages: particularly slaughtermen, butchers/processors and livestock haulage drivers, etc.

When examining Scotland's abattoir throughput (Figure 55 and Figure 56) the impact of localized decline in livestock is often glossed over. However, John Gregor, general manager of Aberdeen and Northern Marts (ANM), commented that that one of the biggest challenges the company faced in 2010 would be to manage the decline in livestock numbers (Watson⁸⁰, 2010). During 2010 ANM⁸¹ group were forced to close Scotch Premier Meat's lamb slaughter plant at Dornoch and Highland Country Foods' meat processing unit at Forres last year, resulting in nearly 50 job losses. The Dornoch plant had sourced much of its supply from Moray and Aberdeenshire in recent years and ANM said rationalisation to Inverurie was essential to maintain the strongest possible core in the face of declining livestock supplies and tight operating margins (as supplies of prime stock became tight processors had to pay more for animals which was not matched by retail price movements).⁸² Additionally, in the Western Isles sheep throughput in the seasonally operated abattoir in Stornoway⁸³ is considerably reduced in recent years (partially as a result of improved store trade) falling by 30% from 5,287 in 2007 to 3,725 in 2010. This means that costs to crofters and farmers have had to increase and the future viability of the abattoir is uncertain with consideration now being given to shortening the operating season. Recently, farmers and butchers in the Borders were dealt a blow when, after some years of threatened closure, it was confirmed that Galashiels abattoir was to stop killing cattle and sheep.⁸⁴ Animals are now to be transported and killed at a facility in Shotts in North Lanarkshire before being brought back to the Scottish Borders Abattoir in Galashiels where cutting and packing will continue.

In Scotland's livestock markets throughput has been significantly affected by the decline in livestock (see Figure 53 and Figure 54) although higher average values have compensated for the decline. There are twenty-nine auction marts around Scotland⁸⁵ - fifteen of them operate on a weekly basis and the rest on a seasonal basis. The decline in livestock numbers over the last decade has put increasing pressure on the existence of some of these marts. As an example of the impact of the decline the first week of the Lairg sales this year had nearly 20,000 fewer lambs compared to 1991 (down from 35,000 to 13,679)⁸⁶. United Auctions (UA) closed their Perth mart in 2008, consolidating it with their Stirling Kildean market in their new Stirling Agricultural Centre meaning many who used the Perth mart now have increased haulage charges (particularly as it occurred at a time when farm costs rose

⁸⁰ Watson, J. (2010) Decline in livestock numbers will be a big challenge for ANM Group. Press and Journal, 7th April 2010. Accessed at:

www.pressandjournal.co.uk/Article.aspx/1679463?UserKey=#ixzz0lqM65GGa

⁸¹ http://www.goanm.co.uk/group/pressreleases/2010/Group/pr_group_jan10.html#120110

⁸² see Stuart Ashworth's (QMS) paper reviewing Scottish Abattoir Sector http://samtemp01.eu/wp-content/uploads/2010/05/SAMW-QMS-Abattoir_review-June-23.pdf

⁸³ www.cne-siar.gov.uk/committees/environmental/agendas/march2011/Stornoway%20Abattoir.pdf

⁸⁴ http://www.meatradenewsdaily.co.uk/news/300811/scotland_galashiels_abattoir_to_close.aspx

⁸⁵ http://www.auctioneersscotland.co.uk/auctions_sales.html

⁸⁶ Sheep farmers trapped on money-go-round (22/8/11)

<http://www.heraldscotland.com/business/markets-economy/sheep-farmers-trapped-on-money-go-round-1.1118974?14987>

steeply – see Figure 5). UA chairman David Leggate⁸⁷ said at the time: "There are less and less people on farms. At the moment we haven't got a weekly sale at certain times of the year in Perth because there's not enough stock. But there is in the Stirling area, so we're joining the two up to give our customers more opportunities."

10.6 Technical Efficiency Improvements?

Barnes et al⁸⁸ (2010) revealed that whilst LFA cattle farms have had "relatively steady progress in terms of technical efficiency" there has been "quite dramatic downward turbulence for the specialist sheep sector" as restructuring in hill farming was taking place and farmers removed stock that had been built up over the years from headage payment incentives. This report (Figure 39 and Figure 40) has shown that whilst the proportion of lambs to ewes has generally improved over the last decade, the figure is subject to the vagaries of the Scottish weather, which can significantly impact on lamb output. As farms and crofts in the North and West withdraw from production or downsize, it would be anticipated that from fewer smaller hill lambs, coupled with a more general move towards heavier cross-breeds being kept further down the hill on grass parks and in-bye land, there would be a "natural" improvement in per lamb output (larger, heavier lambs on average). This is something Peter Cook (2011)⁸⁹ points to having occurred since decoupling saying: "ewe numbers in the Highlands and Islands have fallen sharply, but the output of lamb has fallen much less. The large numbers of small low value lambs are increasingly being replaced by fewer, heavier and better quality lambs. And the remaining ewes are producing more lambs per head". However, this *per se* may not lead to improvements in technical efficiency (output per unit of input) as there have likely been increased inputs (labour, feed, veterinary and medicine, energy, etc) per ewe associated with those systems changes. Even in the beef finishing sector, where many assume there is greater technical efficiency, recent research⁹⁰ has highlighted the financial impact and practical problems being created in the red meat supply chain by overweight and over-fat cattle. The research suggests that many beef producers often seek to increase the weight of cattle to maximise their income but it often leads to over-fat animals that add to processor costs (additional labour and processing costs), creating quality problems further down the chain and ultimately leading to lower income to farmers.

Cook⁹¹ (2011), in his evidence to Inquiry into the Future of Agricultural Support, suggested that the decrease in production efficiency in both the sheep and beef sector in the 1980s and 1990s was as a direct result of coupled CAP payments, a situation he suggests is now reversing. He commented that:

"Production subsidies are lovely for the well established individual in the short term, but disastrous for the industry in the long term. During the period of large headage payments for suckler cows (since the 1992 MacSharry reforms), the unsubsidised margin from cows fell steadily, prices fell, the national calving percentage fell, Johnes, BVD and Leptospirosis became endemic, daily liveweight gains stagnated and total UK beef production actually fell. If anything the situation for sheep was worse. Many of us spent too much time on the numbers game, extensification games, heifer rule games and keeping cattle forever to get the second BSP.

Now that subsidy is decoupled we find that the majority of the Scottish herd is

⁸⁷ http://news.bbc.co.uk/1/hi/scotland/tayside_and_central/7459252.stm

⁸⁸ <http://www.sac.ac.uk/mainrep/pdfs/compagrifood.pdf>

⁸⁹ <http://www.scottish.parliament.uk/s3/committees/rae/documents/PeterCookformatted.pdf>

⁹⁰ http://www.qmscotland.co.uk/index.php?option=com_content&view=article&id=737%3Abeef-producers-urged-not-to-postpone-selling-finished-cattle&Itemid=154

⁹¹ <http://www.scottish.parliament.uk/s3/committees/rae/documents/PeterCookformatted.pdf>

unprofitable. The incremental improvements which every industry needs to keep ahead of the game did not happen while we were distracted, and the essential ongoing restructuring (poor performers getting out, good performers expanding) which is also critical to any industry did not happen to the required extent because quotas froze the structure.

My experience since decoupling is that there has been an explosion of interest in breeding, disease management, EBVs, handling systems, reducing wintering costs, grassland management and producing for niche markets. If this continues we will see a revolution in growth rates and the numbers of stock which can be handled by one person over the next 15 years. Decoupling has given producers the freedom to look clearly at their enterprises.”

There is renewed interest in technical efficiency in agriculture and increased acknowledgement that animal health and welfare improvements can actually lead to improved profitability. In addition to continuing QMS, EBLEX, Scottish Government and Defra sponsored research into all areas of beef and sheep supply chains (e.g. diseases, health and welfare, farming systems, transportation and processing of livestock, etc) during the last five or six years there have been numerous industry wide initiatives (often involving those bodies mentioned above) to try and drive farm level efficiency, animal health and welfare improvements including:

- The Monitor Farms Project⁹² that sets out to improve the performance and profitability of a commercial farm, typical of local area, over a three year period. Involvement of a local community group consisting mainly of farmers, the farm's vet, and other agricultural professionals, including specialists in various subjects, gives the Monitor Farmer access to others' practical experience and new ideas in a positive learning environment.
- The Scottish Sheep Strategy⁹³ which is working to improve the future profitability of the sheep sector by examining the use of breeding technologies (performance recording with Signet is the main focus of attention) to improve quality whilst cutting costs).
- The Scottish Sheep Scab Initiative⁹⁴ which aims to reduce the incidence of sheep scab in Scotland through flock biosecurity, effective and co-ordinated treatment and targeting risk.
- The Scottish Government's Bovine Viral Diarrhoea Eradication Programme⁹⁵ in reaction to an industry priority given its potentially significant financial cost to the dairy and beef sectors.
- The Scottish Government's Farming for a Better Climate⁹⁶ initiative is showcasing how reduced carbon emissions can lead to improved technical efficiency and profitability on farm.
- Outwintering of Cattle Trials⁹⁷ has demonstrated how out-wintering cattle in the right circumstances has the potential to offer significant savings in labour, machinery, fuel, bedding and feed costs as well as a number of other benefit
- Suckler Cow Fertility Benchmarking⁹⁸ including Fertbench⁹⁹ aim to help improve beef enterprise profits through encouraging changes that will improve calves reared per cow, tighten calving periods and improve returns from sales of breeding stock.

⁹² http://www.qmscotland.co.uk/index.php?option=com_content&view=article&id=348&Itemid=96

⁹³ <http://www.scottishsheepstrategy.org.uk/sitev2/>

⁹⁴ www.sheepvetsoc.org.uk/ScotScab.htm

⁹⁵ www.scotland.gov.uk/Topics/farmingrural/Agriculture/animal-welfare/Diseases/disease/bvd/eradication

⁹⁶ <http://www.sac.ac.uk/climatechange/farmingforabetterclimate/>

⁹⁷ <http://www.sac.ac.uk/mainrep/pdfs/cattleoutwintering.pdf>

⁹⁸ <http://www.fertbench.com/userfiles/QMSbeeffertility.pdf>

⁹⁹ <http://fertbench.com/>

- ScotEID Traceability Research Pilot¹⁰⁰ worked with all sectors of the industry to develop practical solutions for the introduction of electronic identification Scottish sheep industry to ensure compliance with Council Regulation (EC) 21/2004¹⁰¹ to establish a system for the electronic identification (EID) and registration of sheep and goats.
- Private and public cattle and sheep health schemes: There has been increased uptake of private health schemes being introduced by private veterinary practices and also public health schemes such as the Premium Cattle Health Scheme (PCHS)¹⁰² and Premium Sheep & Goat Health Schemes¹⁰³ that are organised and supervised by Veterinary Services of SAC in partnership with practising veterinary surgeons throughout the UK.

10.7 Local Biodiversity Impacts?

There are many complexities involved in the issue of livestock in hill farming systems but all of them are people driven or mediated through people. What happens in regards to land management in the uplands, and as a result what happens to biodiversity, is down to people's choices, whether this is a reduction in sheep numbers, partial or total abandonment, a change in breed or intensity, a move to woodland or other management, or no change. Livestock management cannot therefore be considered on its own since other hill land-uses such as management for deer stalking and grouse shooting, renewable energy production, nature conservation management, and forestry are also key components of the Scottish hill, island and uplands that can have significant impacts on the hill environment.

SAC (2007¹⁰⁴ and 2008¹⁰⁵) discuss how the loss of livestock, is of particular concern from a biodiversity perspective and suggest that extensive cattle grazing are often preferred on more fertile grazings with large quantities of rank vegetation whilst sheep are important in more nutrient sensitive habitats, and areas vulnerable to trampling, such as blanket bogs and lowland raised bogs. In particular sheep are important for grazing steep slopes and areas where conservation interest is highly localised and they conclude that "*in many habitats, a mixture of cattle and sheep will probably provide the maximum structural diversity to the vegetation*". Whilst this report has not specifically examined the impacts on biodiversity from reduced grazing it has shown the impacts at local level (see Local Environmental Impacts section), reported by local people who have witnessed these changes from through their daily activities. It is evident from this analysis that the impact of livestock reduction has led to higher deer numbers (which can increase deer vehicle collisions¹⁰⁶), there is increased rank vegetation, scrub and birch tree regeneration (and associated increased fire risks), there are declining farmland birds, decreases in rabbits and hares, increased ticks (and associated tick-borne disease), reduced wetland waders, decreased species diversity, increased buzzards, corvids, goshawks, foxes, etc. These mean that in the future more targeted agri-environmental schemes will be essential to maintain some of our important habitats and species, as SAC's Davy McCracken¹⁰⁷ recently called for.

¹⁰⁰ <http://www.scoteid.com/>

¹⁰¹ http://ec.europa.eu/food/animal/identification/ovine/index_en.htm

¹⁰² <http://www.sac.ac.uk/consulting/services/i-r/pchs/about/>

¹⁰³ <http://www.sac.ac.uk/consulting/services/i-r/sghs/>

¹⁰⁴ <http://www.sac.ac.uk/mainrep/pdfs/tn586conservation.pdf>

¹⁰⁵ SAC (2008) Farming's Retreat from the Hills. A SAC Rural Policy Centre report. Available at: <http://www.sac.ac.uk/mainrep/pdfs/retreatreport.pdf>

¹⁰⁶ See <http://www.snh.gov.uk/docs/C326794.pdf> for an overview of the extent of the problem

¹⁰⁷ McCracken, D.I. (2011) Policy Briefing: Farmland biodiversity and the Common Agricultural Policy (CAP). SAC Rural Policy Centre <http://www.sac.ac.uk/mainrep/pdfs/farmlandbiodiversityandCAP.pdf>

In some areas concerns have been raised that the reduction of sheep from the hill areas has led to greater risk of tick-borne diseases such as Louping-ill (which can lead to significant losses in sheep flocks) and Lyme disease (which can lead to arthritis in humans) as dipped sheep traditionally act as tick reducers¹⁰⁸ and they also keep the long, rank grass that are ideal tick habitats, down. Many game estates have felt the impact of the decline in sheep numbers as ticks also have a negative impact on grouse populations. Many estates now pay farmers to regularly dip their sheep against tick¹⁰⁹ and some have taken to putting sheep (often wethers) on their hills to protect their grouse stocks, a practice backed up by Game and Wildlife Conservation Trust¹¹⁰ research that shows sheep affect the tick biting rates of grouse chicks where deer populations are below 5 per 100 hectares.

10.8 CAP beyond 2013?

Peter Cook¹¹¹ suggests that many of the existing CAP support mechanisms are very poorly targeted with livestock having disappeared most rapidly from those areas that receive (often substantial) support from the LFASS (something the 2010 reforms of the scheme attempted to redress). An issue that may arise for some of these farmers that have reduced livestock numbers, or withdrawn from livestock production entirely is the threat that future CAP support payments (as recently announced by the EU Commission¹¹²) are likely to be based on the condition of actively farming the land, or that the support payments could be rebased in the future (both of which occurred during the LFASS reform in 2010) meaning a potential loss in CAP support payments for many farmers who have withdrawn from production (the “slipper farmers”) or downsized production significantly. Additionally the recent EU Commission announcements about flattening of CAP across regions and requirement to move to an area based payment system means that some hill producers in the North and West will undoubtedly be looking towards the move away from historical SFP (that favoured more intensive production on more the more productive land) to an area based system and the potential redistributions of CAP support that may bring¹¹³. Another way many part-time farmers and crofters may benefit is from is through the EU Commission’s recent proposals to introduce a Small Farmer Scheme (and receive an annual payment of between €500 and €1,000 regardless of farm size) that will significantly simplify the process of claiming CAP support payments for them¹¹⁴.

10.9 Time to take stock and make change?

It is clear that after a decade of decline of beef and sheep in Scotland’s hill, island and uplands there is renewed confidence in the sector and there is relatively positive outlook from both a market (increasing global demand and tight supplies) and CAP perspective (move towards regional flat rate payments, UK move towards EU average payment per hectare, LFA top-up funds, coupling possibilities, Small Farmer Scheme, revision of LFA categories, greening of CAP, etc).

It is therefore an ideal time for farmers (and their advisers) to sit down and take stock of their farming systems from a position of relative strength rather than of weakness as many have had to do over the last 15 years. This period of higher returns, and some outright profitability

¹⁰⁸ See http://www.shootingtimes.co.uk/features/155328/The_increase_threat_of_Lyme_disease.html

¹⁰⁹ something that was done between 1984 and 1991 as compulsory dipping measures were in place in an attempt to control; sheep scab

¹¹⁰ www.gwct.org.uk/research_surveys/species_research/birds/red_grouse_bap_species/279.asp

¹¹¹ <http://www.scottish.parliament.uk/s3/committees/rae/documents/PeterCookformatted.pdf>

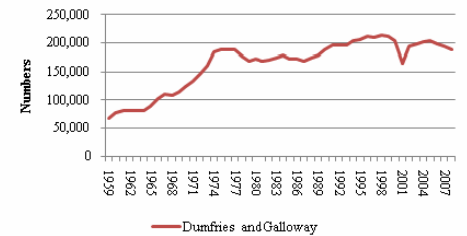
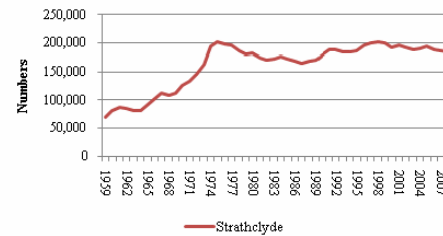
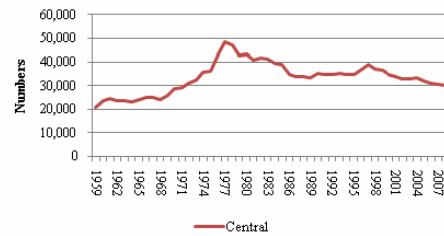
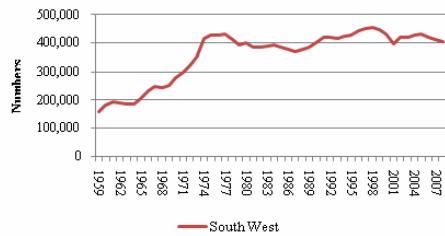
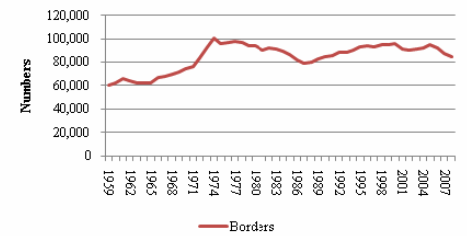
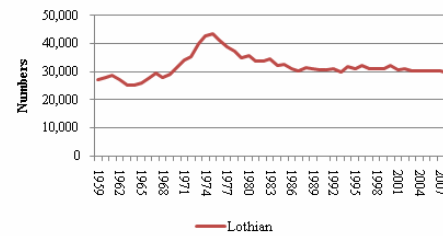
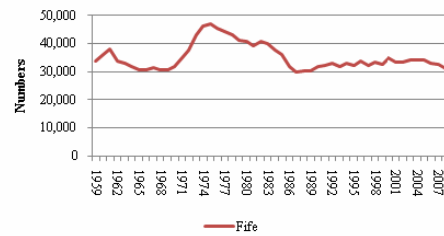
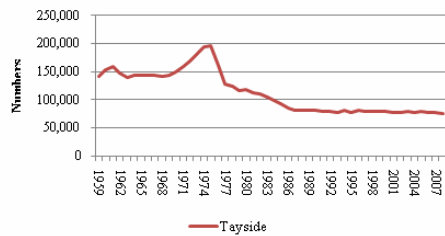
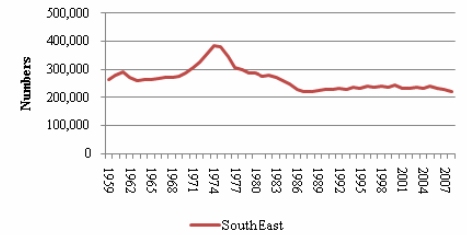
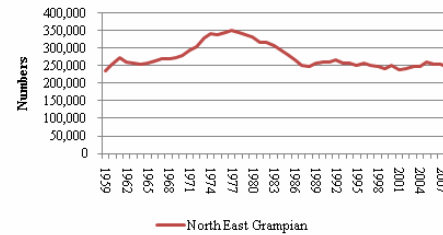
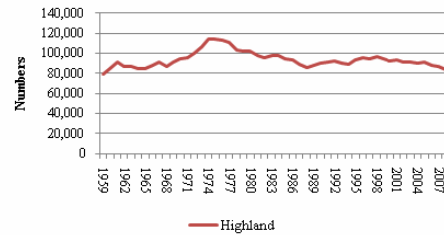
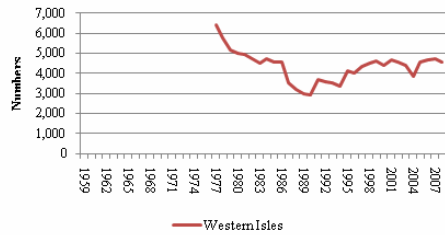
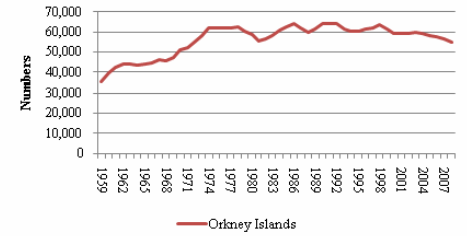
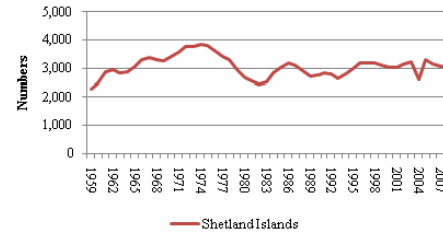
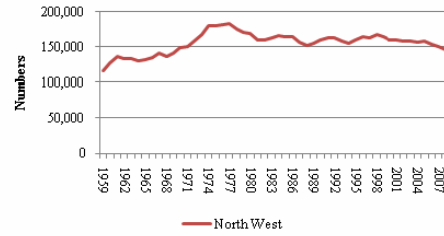
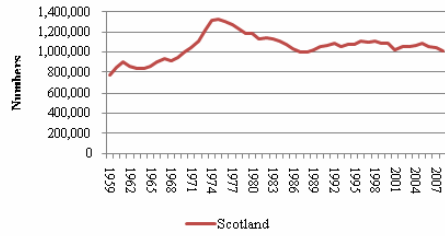
¹¹² See http://ec.europa.eu/agriculture/cap-post-2013/legal-proposals/index_en.htm

¹¹³ Buchan, K., Matthews, K., Miller, D., and Towers, W. (2010) CAP-Flattening - Modelling scenarios for CAP pillar 1 area payments using Macaulay LCA (and Less Favoured Area Designations) <http://www.macaulay.ac.uk/LADSS/documents/CAPModellingScenariosReport.pdf>

¹¹⁴ See http://ec.europa.eu/agriculture/cap-post-2013/legal-proposals/index_en.htm

per ewe and cow, gives farmers the opportunity to make smart investment (time and money) into their beef and sheep systems through consideration of alternative systems and methods. Unquestionably farmers will be faced with considerable challenges in the future (fluctuating input and output markets, further CAP reforms, climate change, exchange rate movements, environmental and animal health and welfare regulations etc) and it is paramount that the industry continues restructuring to make their Scotland's beef and sheep businesses more robust and less sensitive to these changes. This may mean improving management systems (e.g. record keeping, accounts, etc) to enable strengths and weaknesses to more readily identified or it may entail changing breeds, examining flocks and herds disease records and selecting animals based on resistance to disease, looking at EBVs, selecting animals based on progeny carcass quality, selecting lower input (including labour) systems, selecting animals for longevity, etc. Initiatives such as Monitor Farms, Farming for a Better Climate, BVD eradication programme, sheep scab initiative, the Scottish Sheep Strategy, etc are already encouraging farmers to make such changes and embrace new methods and technologies that will ensure the future success of the Scottish beef and sheep sectors.

11 Appendix 1: Regional changes in cattle 1959 to 2008



Inquiry into the Future of the Hill and Islands

