An assessment of the post 2015 CAP reforms: winners and losers in Scottish farming

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Abstract

The post 2015 Common Agricultural Policy (CAP) reforms may bring a substantial change in the way farm payments are paid in Scotland where earlier farm payments were based on historical entitlements. Scottish farms now have to follow a Basic payment Scheme (BPS) which would be determined under a mandatory internal convergence. For the internal convergence there have been a number of proposals put forward by the Scottish government based on land capabilities. This paper examines one of regional payment scenario with and without partially coupled payments and identifies the winners and losers among Scottish farms under that scenario compared to the historical payments they currently are receiving. Farm level data from the 2010 Scottish Farm Accountancy Survey (FAS) was used in a farm level optimising model (ScotFarm) for this study. The results show that a majority of farm types would lose out under proposed CAP reform scenario. Sheep farms however, would benefit the most (6% to 7% on farm net margins) under the fully decoupled payment scenario. The partial coupled calf payments slightly increase beef farm margins but they still fail to improve on whole farm margins on beef farms. Overall, the studied scenarios support extensive farms in expense of all other farm types.

Keywords CAP reform, farm level modelling, Scottish farms, regional payments, partial coupled payments

JEL code Q180

Introduction

The Common Agricultural Policy (CAP) 2015 reforms may bring a substantial change in the way farm payments are paid, especially in a country like Scotland where earlier farm payments were based on historical entitlements (Shrestha et al., 2013). Scottish farms now have to follow a Basic Payment Scheme (BPS) which would be determined under a mandatory internal convergence. The European Commission has left the member states to decide how they would carry out this internal convergence (EU Commission, 2013). There have been a number of options proposed by the Scottish Government that could be possibly implemented to undertake the BPS in Scotland (Scottish Government, 2014). However, any option needs to be examined for its impact on different types of farms to ensure practicality of implementing it. An ideal situation is to assist farms with smaller farm payments who are finding it difficult to survive without penalising larger farms. But as the national pot of the payments stays the same under the current CAP reforms, there undoubtedly will be a redistribution of payments among farms, with some benefitting and the rest losing out on farm payments. Any additional payments to the smaller disadvantage farms would be coming out of the payments of farms that are receiving larger farm payments at the moment. A payment redistribution scheme therefore should be able to improve farm payments on small farms without having a large negative impact on other farms. It is, thus, necessary to examine the impacts of such changes on farms to identify the option which has the smallest negative impact on the welfare of the whole farming community. This paper explores two options of the internal convergence of farm payments in Scotland and identifies the winners and losers among farms under those options compared to the historical payments they currently are receiving.

Data and Methodology

Data input

Farm level data used in study was taken from the Scottish Farm Accountancy Survey, FAS (Scottish Government, 2011). The FAS collects physical and financial information on around 800 farms across Scotland. The farms are designated under 7 different systems (crops, dairy, Specialist sheep, cattle, cattle/sheep, lowland sheep/cattle and mixed farms) in this dataset based on the most prominent production activity carried out on farm. A cluster analysis was carried out within these farm systems using production level, size and financial status including farm payments, to group the farms into farm types with similar characteristics. The averages of farm data in each of the farm type were considered as representative farm data and were used in a farm level model described below. The data which were not available in the farm dataset such as livestock units, labour requirements, energy and protein content in the feed were taken from the literature (SAC, 2012).

Farm level model

A dynamic optimising farm level model, ScotFarm, was used in this study. The model has a generic linear programming set up such as;

Max $z = (p - c)^*x + SFP;$

Subject to $A^*x \leq R$ and $x \geq 0.$

Where, z is farm net margin; X is farm activity; P is a measure of the returns; C are the costs procured for x; SFP is the farm payment per ha; A is an input-output coefficient for activity x; and R is a limiting farm resource

A schematic diagram of the model ScotFarm is provided in Figure 1 where shaded rectangle represents a farm and outside this rectangle is a market. The livestock production consisting of dairy, beef and sheep production systems is at the centre of the model. The livestock activities were constrained by land and labour as well as feed and replacement available on a farm. However, farms were allowed to buy in feeds, animal replacements and hire labour if required. Farm profits comprised of the accumulated revenues collected from the final product of the farm activities minus costs incurred for inputs under those activities including the overhead costs plus single farm payment.

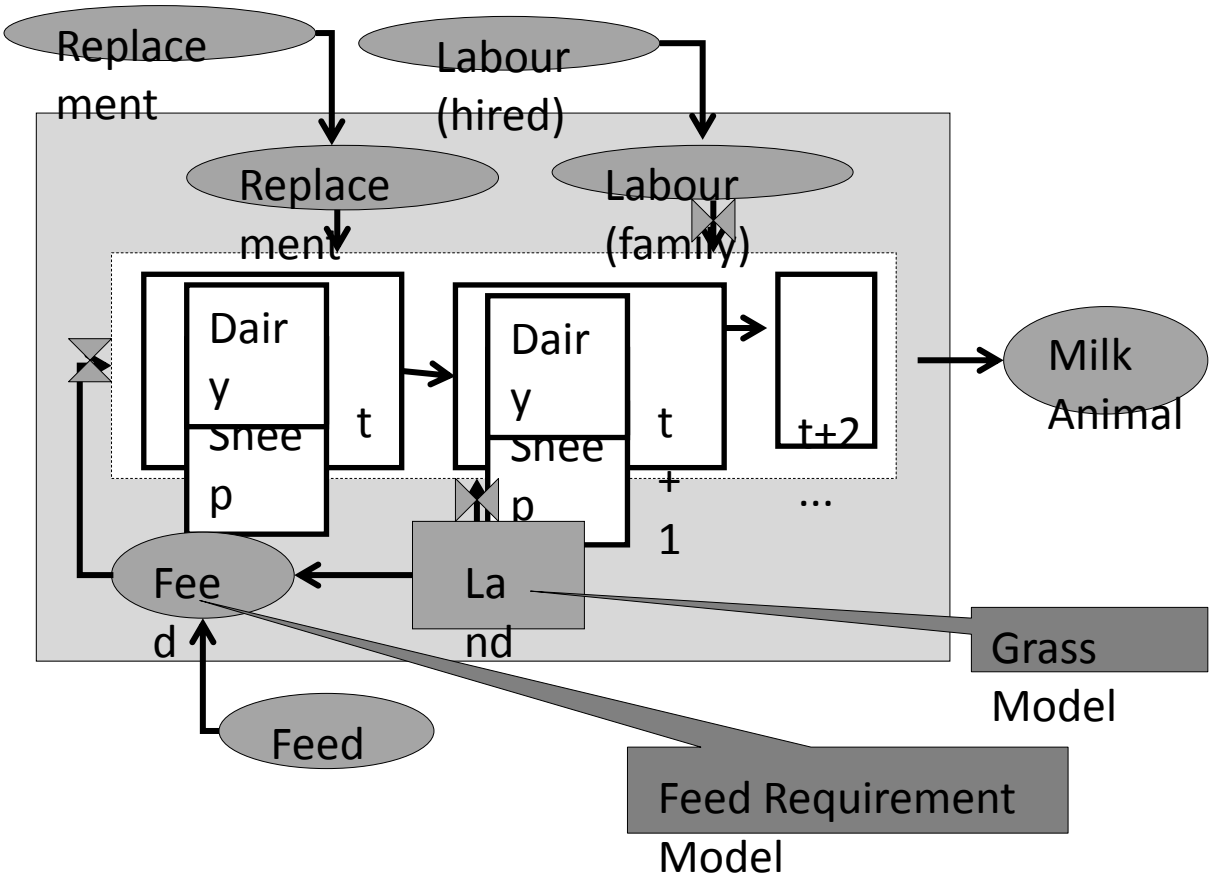

Figure 1: A schematic diagram of optimising model ScotFarm

The livestock system consisted of a number of animals in different age groups. Animals in one age group move to the higher age group the following year for example calf becoming heifer in following year and dairy the year after. Animals were replaced following 4 year lactating cycle for dairy, 8 year replacement cycle for beef and 4 year replacement cycle for sheep. The animals were replaced by on-farm or off-farm replacement stocks. A feed requirement model was used to determine monthly feed requirements for each of the animals on a farm based on type, age and production level of the animal. This feed model used protein, energy and dry matter intake by each animal on farm based

on the requirements provided by Alderman and Cottrill (1993). Feeds available to the livestock on farm were fresh grass, grass silage, maize silage and concentrate feeds. Feed costs are included in the variable costs for each animal.

Two-Region Basic Payment Scheme

The Scottish Government (SG) proposal for the Basic Payment Scheme (BPS) under CAP 2015 reforms consists of a number of payment rate options based on land capabilities and land use (SG, 2014). This paper explores one of the payment options, a two-region payment scheme under which two regional payment rates are allocated based on land capability on a farm. These two regional payments have different shares of payment rates attached to the land. The first regional payment (Region1) comprises of land under arable cropping, temporary grass and permanent grass. This regional payment will get a higher rate of BSP. The second type of regional payment (Region 2) consists of land under rough grazing and will receive a lower rate of BSP. This rate of payment was determined by considering a number of issues such as Greening Payment, National Reserve and Young Farmer Scheme as mandatory payments and Voluntary Coupled Support, Redistributive Payments, Small Farmer Scheme and Areas of Natural Constraint Support as optional payments. The two-region payment system is further coupled with and without calf payment scheme. This paper examines these two scenarios; i) 2Reg scenario where BPS is entirely decoupled and ii) 2Reg+CalfPay where BPS is partially coupled with beef calf payments. The payments used in this study for these two scenarios are provided in Table 1. The proposed decoupled calf payment system has three categories of payment rates. Category 1 rate is applied to first 10 calves on farm, category 2 rate is applied to the next 40 calves and category 3 rate is applied to the calves over 50 calves on farm.

Table 1: Payment rates under 2-region Scottish payment scheme

Regions	Scenarios				
	2Reg	2Reg+CalfPay			
	BPS (€/ha)	BPS (€/ha)	Categroy 1 Calf<10 (€/calf)	Categroy 2 Calf (10-50) (€/calf)	Categroy 3 Calf >50 (€/calf)
Region 1	244.38	224.62	172.52	115.01	57.51
Region 2	27.45	25.23	172.52	115.01	57.51

Results and discussions

The cluster analysis produced 14 farm types across Scotland; 2 dairy, 3 beef, 3 beef and sheep, 2 sheep, 3 arable and two mixed (consisting all four dairy, beef, sheep and arable enterprises) farm types. These farms differ from each other on size, production level, labour use, farm net margin and subsidy payment. The farm types and the corresponding family farm income, land size and single farm payment rate are provided in Table 2.

Table 2: Farm types with their land size and single farm payment rate

Farm types	Family farm income (£)	Land (ha)			SFP (£/ha)
		Grassland	Arable land	Rough grazing	
Dairy M	43,097	100	12	12	282
Dairy L	209,710	228	0	89	274
Beef S	23,671	77	5	49	187
Beef M	56,600	139	8	105	225
Beef L	133,342	234	16	453	145
Beef/Sheep M	31,282	93	5	603	52
Beef/Sheep L	99,659	264	28	454	127
Sheep M	21,299	65	0	930	28
Sheep L	80,101	126	0	3318	25
Crop S	11,028	47	89	5	242
Crop M	43,158	86	218	7	258
Mixed S	22,261	70	44	14	205
Mixed L	106,255	145	92	68	247
Lowland cattle/sheep	44,835	172	9	58	246

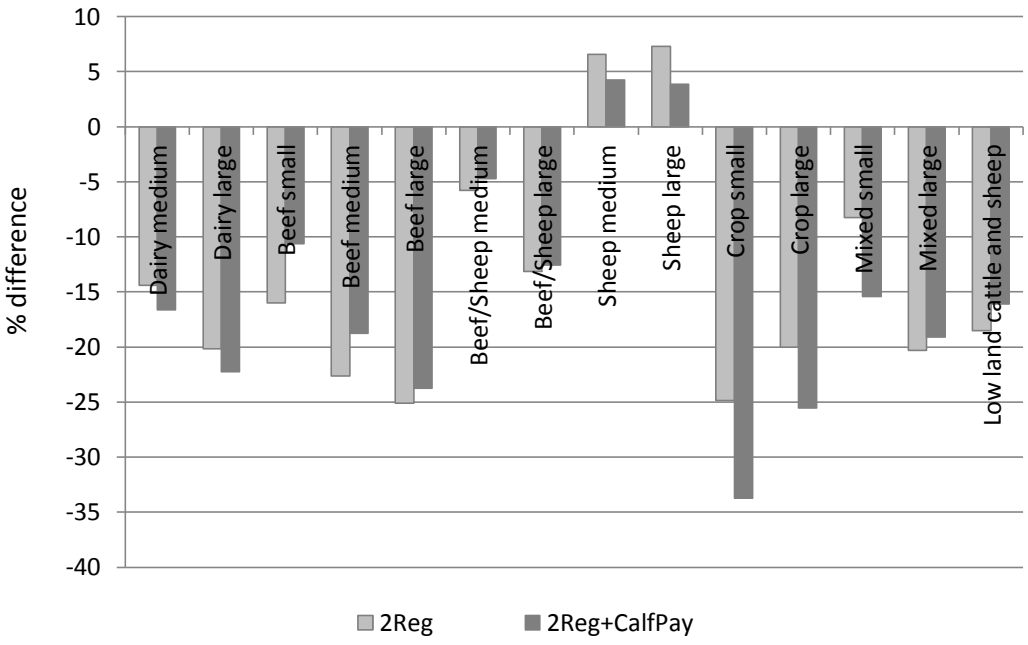

Figure 2: Percentage difference in Farm Net Margin of 15 farm types under payment scenarios compared to the Baseline scenario

Under both of the CAP reform payment scenarios, the model result suggest all farm types except for sheep farms to loose out financially (Figure 2). However reduction on farm margins under fully decoupled payment scenario (2Reg) and partially decoupled scenario (2Reg+CalfPay) widely varies

between these farm types. The dairy farms lose out 14% to 20% under 2Reg scenario which further decreased by 3% when calf payment are coupled. Beef farms on the other hand show a reduction of 16% to 25% on farm margins under 2Reg scenario which however improved on all beef farms with smaller beef farms improving more than their larger counterparts. The crop farms are the largest losers under the 2Reg scenario. Their farm margins get worse under 2Reg+CalfPay scenario.

However, sheep farms improve farm net margins under both of the reform scenarios. Having a larger rough grazing area and getting higher payment rate on that land benefitted these farms. These farms however show some reduction in farm margins under 2Reg+CalfPay scenario compared to 2Reg scenario as there are no beef animals on farms to exploit the higher rate of payment for calves. The results also show that farms with larger rough grazing land such as beef/sheep farms improve farm margins slightly under 2Reg+calfPay scenario compared to the fully decoupled 2Reg scenario.

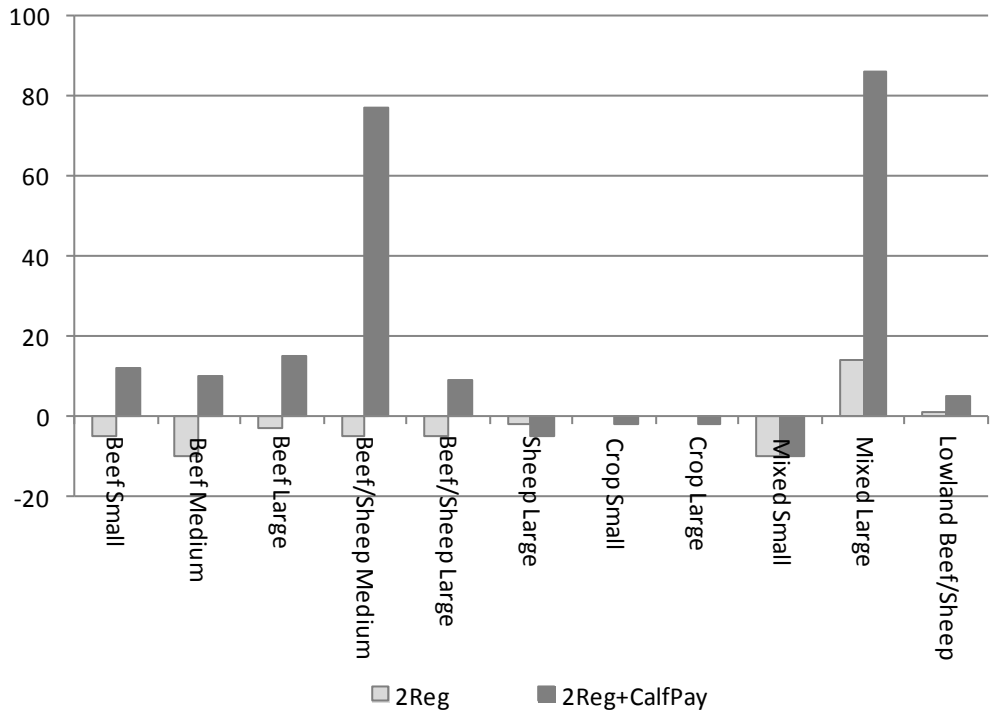

Figure 3: Percentage change in livestock numbers on farms under CAP reform scenarios compared to the baseline scenario

Structural change

The dairy farms and small sheep farms do not show any change in herd size as well as land use. There are, however, some changes in remaining 11 farm types (Figure 3). Beef medium farms have a 10% decrease in beef animals under 2Reg scenario. Though these farms increase beef numbers by 10% when calf payments scheme is introduced. This pattern is same in other beef farms as well except in medium beef/sheep farms where the increase in beef herd is almost up to 80%. These farms however had a small number of beef animals on farm to start with. The large mixed farms also show a substantial increase in beef numbers when calf payments are coupled. All these beef farms and large mixed farms increase grassland from 17% to 67% under 2Reg+CalfPay scenario. There is also a small decrease (2%) in sheep herd on large sheep farms under 2Reg scenario. This reduction

increased to 5% when calf payment scheme is added on under 2Reg+CalPay scenario. The mixed large farms also show a decrease in beef herd under both CAP reform scenarios. However, there is no change in land use on these farms.

The beef farm types which increased beef numbers on farms under coupled calf payment scenario increased calf numbers in different categories as shown in Figure 4. Only small beef farms and medium beef/sheep farms limit calf numbers within categories 1 and 2 which receive higher payments. All other farms increased calf numbers to reach category 3 as well. The large and medium sized beef farms kept the calves number higher than 100 calves on farms.

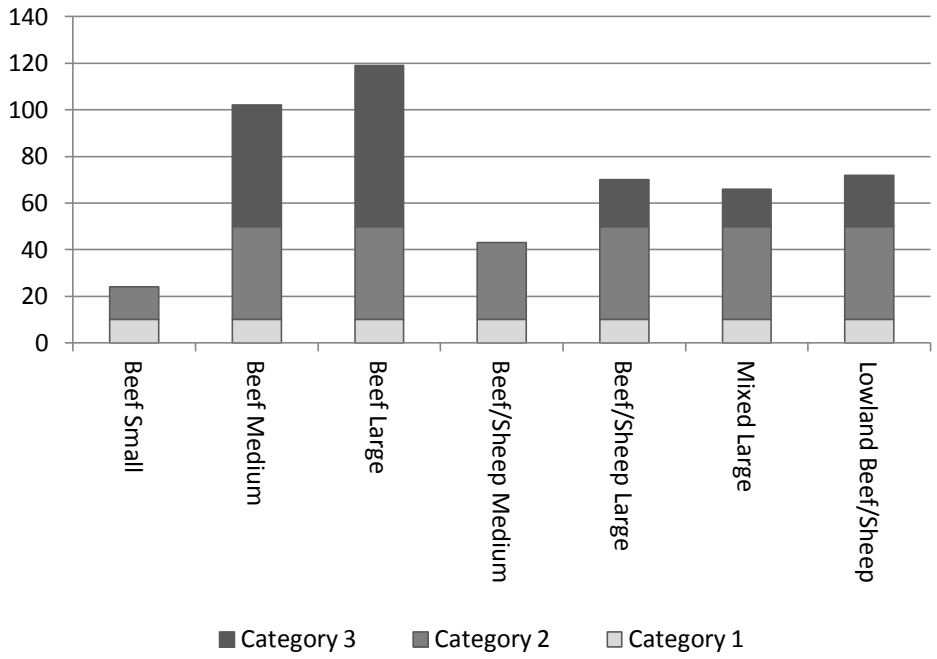

Figure 4: Number of beef calves in different payment categories under 2Reg+CalfPay scenario

Discussion

This paper examines two proposed Basic Payment Scheme under CAP reform in Scotland. The results suggest that both of the scenarios were capable in redistributing the farm payments within different farming system. The sheep farms are the one which benefit under redistribution of revenues where as all other farm types loose out financially. The larger dairy and beef farms as well as crop farming system will suffer the most under the study CAP reform scenarios. The proposed regional rates support only the extensive farms with larger rough grazing areas. The proposed coupled calf payment scenario would benefit beef farms with most of these farms exploiting higher rates by increasing calf numbers on farms. But these rates are lower than what they were receiving under historical payments and do not improve their financial status. Further work is to be carried out to explore other proposed CAP reform scenarios.

References

Alderman, G. and Cottrill, B. R., (1993). Energy and protein requirements of ruminants. An advisory manual prepared by the AFRC Technical Committee on responses to nutrients. CAB International, Wallingford, UK

EU Commission, 2013. CAP Reform – an explanation of the main elements. http://europa.eu/rapid/press-release_MEMO-13-937_en.htm

SAC, 2012. Farm Management Handbook. Scottish Agricultural College, Edinburgh.

Scottish Government (2011) Economic report on Scottish Agriculture. Rural and Environment Science and Analytical Services (RESAS), Scottish Government. http://www.scotland.gov.uk/Publications/2011/06/15143401/0

Scottish Government, 2014. Scottish Government consultation on Future CAP direct payments in Scotland from 2015. http://www.scotland.gov.uk/Publications/2013/12/5922

Shrestha S., Vosough Ahmadi B., Thomson S and Barnes A. (2013). Greening the CAP - how will it affect Scottish beef and sheep farming? http://www.sruc.ac.uk/downloads/file/1538/2013_greening_of_the_cap-how_will_it_affect_scottish_beef_and_sheep_farming