# THE EFFECTS OF SINGLE FARM PAYMENTS ON SCOTTISH AGRICULTURE: A CGE MODELING APPROACH

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**Paper prepared for presentation at the 107th EAAE Seminar *"Modelling of Agricultural and Rural Development Policies"*. Sevilla, Spain, January 29th -February 1st, 2008**

## Abstract

*Using a CGE model calibrated on Scottish data, this paper examines two important issues related to evaluating impacts of the Single Farm Payment. These are specification of product transformation functions and investigation into supply elasticity parameter. Simulation results from a standard CGE were compared with those from an alternative optimisation framework proposed in this study. The latter yielded a policy effect that is likely to represent behaviour of a profit maximising farmer. The parameter sensitivity analysis showed the important role differences in supply conditions can play; which implied a need for further econometric studies to estimate supply parameters.*

**Key words: Single farm payments; decoupling; multi-output farming; farm types; CET function; CGE modelling**

## 1. Introduction

One of the rationales for decoupling agricultural support is to reduce the interference of existing output related subsidy payments with production decisions (OECD, 2006). Clearly, output subsidies represent distortion of prices; after all subsidies are wedges between producer and market prices. Thus, the introduction of the Single Farm Payment (SFP) would mean removing these wedges and weakening the link between subsidy payments and levels of agricultural outputs. The SFP would inevitably have redistribution effects with some farming activities expanding and others contracting (Halmai and Elekes, 2006). Consequently, decoupling and progressive reduction of SFPs would encourage agricultural and food production systems to adapt themselves to a more market oriented environment, i.e., to be changed to a consumer driven mode (EU, 2006).

In this context, an important modeling issue would be to develop a policy simulation framework that would explain how the SFP may cause changes in production decisions. This becomes particularly tricky in a multi-output farming setting where the policy shock would cause changes in the composition of farm output. Computable general equilibrium models have become popular tools to simulate such complex policy impacts; they provide flexible modeling options to trace feedbacks effects within and across sectors. Critically, however, in order to simulate policy effects within the multi-output farming system on the one hand and their relationship with the rest of the economy on the other, one would need to introduce significant modifications to a standard CGE model. The modeler may need to reconsider the conceptualization of the optimization procedure and specification of activity-commodity relationships. Some existing CGE models rely on a commodity-by-commodity relationship (e.g. GTAP model, see Keeney and Hertel, 2005) while others use a social accounting matrix with a one-to-one relationship between activities and commodities (see Swales, et al 2003). The structures of such models are considerably different from the kind one needs to simulate effects of the SFP.

Lofgren et al (2002) provides a modeling structure which is most suited for simulating policy effects on a multi-output farming sector; it permits a commodity to be produced by one or more activities and any activity to produce one or more commodities. However, in this model, the optimisation problem is formulated in such as way that an aggregate commodity composite was derived using a Constant Elasticity of Substitution (CES) functional form by considering output of a particular commodity by a certain activity as an “input”. For reasons we will explain in section 2 below, we found it appropriate to depart from this specification and introduce an alternative functional form, a Constant Elasticity of commodity Transformation (CET) functional form, whereby the optimisation problem is reformulated to obtain a composite activity output as a transformation of different commodities. In doing so, we followed Gohin and Gautier (2003) which applied a CET specification in relating an aggregate agricultural activity producing 19 agricultural outputs. In the present study, we model 7 separate agricultural sub-sectors (standard farm types in Scotland) producing 11 products, with each farm type producing more than one commodity and each commodity being produced by more than one farm type.

We use an economy-wide CGE model for Scotland and run four separate simulation experiments. In the first round we implement the CES specification (Lofgren et al 2002, henceforth Model 1). In the second round the CET specification (henceforth Model 2) that we have proposed is implemented. At this stage, we compare and contrast results from the two versions of the model. In the first two rounds we follow existing simulation models and assumed inelastic agricultural supply (OECD, 2001; OECD 2003; and Keeney and Hertel, 2005). We used only Model 2 for the third and fourth rounds of the simulation experiments. Here we have assumed elastic agricultural supply, i.e., by raising the CET elasticity parameters to more than 1 in two stages.

We proceed with the remaining part of this paper as follows. The Scottish CGE model and the baseline database are briefly described in the next two sections. We then present simulation results and finally provide concluding remarks.

## 2. Description of the CGE Model

We use a CGE model formulated to simulate impacts of SFP and calibrated with Scottish data. It has evolved from earlier versions which are described in Gelan and Schwarz (2006a) and Gelan and Schwarz (2006b). The former was an initial version of the model with two-sectors (agriculture and non-agricultural sectors); in the latter, the agricultural sector of the Scottish economy was disaggregated into (5 standard farm types) and 10 commodity groups. The current model is a fully elaborated version with a detailed sectoral disaggregation: the agricultural sector into 7 standard Scottish farm types and 11 commodity groups; and the non-agricultural sector disaggregated into 33 activities and 33 commodities. Thus, the current model is based on a social accounting matrix which contains 40 producing sectors and 44 commodity groups.

Figure 1 displays the structure of the model with nested functional forms representing economic linkages between different sectors of the economy: production relationships, activity-commodity links, and flows of marketed commodities. The complex inter-sectoral relationships are classified into three major blocks (see Panels 1, 2 and 3).[1] In Panel 1, starting from activity level ($QA_A$), the process

[1] The description of this diagram in the subsequent paragraphs of this section heavily draws on section 4 of Gelan and Schwarz (2006b), where further details of the structural equations for the model, with block by block illustration of institutional accounts are available

of production is modelled as nested commodity production, supply and demand functions. The first level of the nesting structure determines sectoral output ($QA_A$) as aggregation of intermediate inputs ($QINTA_A$) and value-added ($QVA_A$) using a Leontief functional form; this means substitution between these inputs is not allowed at this level (subscripts A and C denote activities and commodities respectively). At the second level of the nest, the value-added and intermediate composites are split into their component parts. Using the Leontief functional form, the composite quantity of intermediate demand by each producing sector is disaggregated into demand for commodity outputs ($QINT_{CA}$). The value-added composite is disaggregated into labour, land and capital using a Cobb-Douglass functional form.

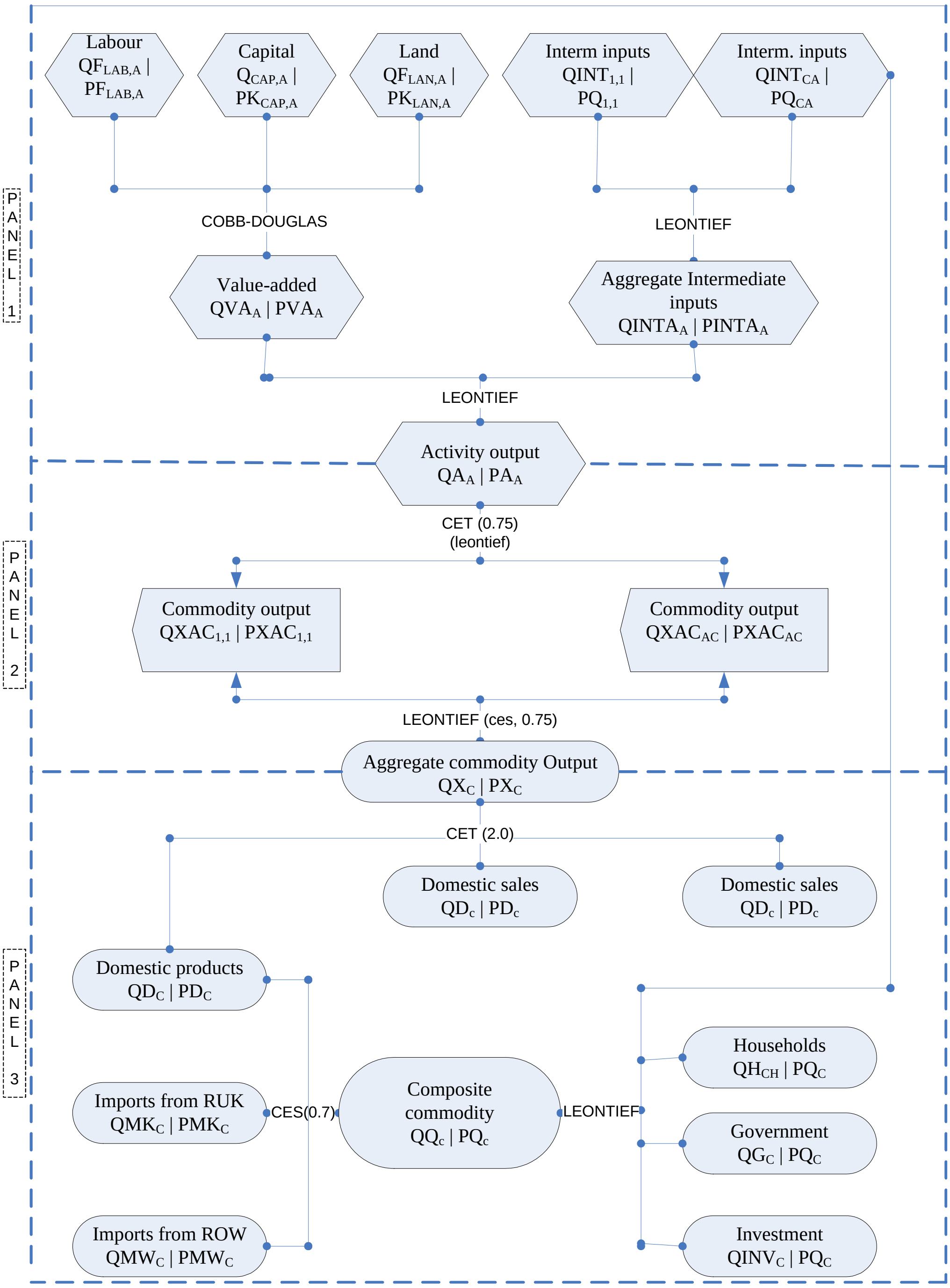


Figure 1 - Structure of production and flow of marketed commodities

Panel 3 displays flows of aggregate commodity supply. The upper part of this panel shows a CET function that allocates domestic commodity output ($QX_C$) to different geographical destinations: domestic sales ($QD_C$), exports to the rest of UK - RUK ($QEK_C$), and exports to the rest of the world – ROW ($QEW_C$). The lower part of the diagram shows determination of domestic demand for a commodity composite ($QQ_C$) from a two-way aggregation as a Leontief aggregation of demand by domestic institutions: intermediate demand by producing sectors, final consumption demand by households and government; and capital formation or investment demand. The Armington assumption is employed to disaggregate demand into commodities from different geographical origins (RUK and ROW) by using a CES functional form. The Armington assumption implies that commodities from different geographical origins are treated as imperfect substitutes (Armington 1969).

Panel 2 displays key relationships together with alternative functional forms which are most relevant to the purpose of this paper. The most important point is to recognise that each farm type produces a range of commodity outputs (see table 2 in the next section). In the context of figure 1, the existence of $QXAC_{AC}$ would mean that a one-to-one relationship between activity output ($QA_A$) and commodity output ($QX_C$) does not exist any more. This gives rise to an important modelling challenge related to model specification as to how policy shocks such as SFP affects each the production of commodity and then get transmitted to effects on aggregate output by a particular farm type or farm unit. The current model is implemented using two alternative functional forms. For the first one, we follow Lofgren et al (2002) and implement a CES aggregation of $QXAC_{AC}$ to obtain total commodity output ($QX_C$) while the optimal farm product mix was assumed to be in fixed proportion (Leontief) using the base year database, i.e., $QXAC_{AC}$ is linked to $QA_A$ in fixed proportion (see functional forms indicated in the brackets). The second specification is an alternative functional form we propose in this paper (shown outside the brackets). In the proposed specification, $QA_A$ is determined as a CET aggregation of $QXAC_{AC}$ and $QX_C$ is obtained as sum of the latter. The merit of the alternative specification lies in the importance of relating a policy shock to production decision making by the farmer. In our view, there seem to be some conceptual problem with obtaining optimal value of $QXAC_{AC}$ by relating this to $QX_C$ with a CES functional form (see appendix I for derivations). The reason is that $QX_C$ is a commodity composite which comes from different farm types, that is different decision making units. One does not encounter such conceptual problem with the functional form we proposed because $QA_A$ is total output by similar decision-making units or farm types.

In Figure 1, the default and exogenously given elasticity parameters values are shown next to the functional forms implemented.

## 3. The Social Accounting Matrix

The model was implemented with a social account matrix (SAM) constructed for Scotland with 2001 as a base year. A condensed version of the SAM is presented below in Table 1, which contains ten aggregate accounts. For each account, total expenditure (given as a sum of row entries) is equal to the corresponding total for the receipts (given as sum of entries in the columns). For instance, while total receipts by activities from sales of commodities at basic prices was given as £154 billion, total expenditure by activities on intermediate purchases, factor payments and production taxes add up to £154 billion as well. The full SAM contains 107 individual accounts, given as the sum of numbers in the brackets for each sub-account. The factor accounts consist of family labour, wage labour, land and capital accounts. The household account consists of seven farming households (making a living with the seven farm types) and another account for households whose livelihood is based on non-agricultural activities.

Table 1 – Condensed Social Accounting Matrix for Scotland (2001, £billions)

| | Activities (40) | Commodities (44) | Factors (4) | Households (8) | Government (1) | Capital formation (1) | Rest of the UK (1) | Rest of the World (1) | Taxes (5) | Trade margins (3) | Totals receipts |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Activities (40)** | - | 154 | - | - | - | - | - | - | - | - | **154** |
| **Commodities (44)** | 84 | - | - | 49 | 20 | 12 | 29 | 26 | - | 14 | **234** |
| **Factors (4)** | 68 | - | - | - | - | - | - | - | - | - | **68** |
| **Households (8)** | - | - | 68 | - | 4 | - | 14 | - | - | - | **86** |
| **Government (1)** | - | - | - | - | - | - | 4 | - | 22 | - | **25** |
| **Capital formation (1)** | - | - | - | 27 | 2 | - | -10 | -6 | - | - | **12** |
| **Rest of the UK (1)** | - | 36 | - | 0 | - | - | - | - | - | - | **36** |
| **Rest of the World (1)** | - | 20 | - | - | - | - | - | - | - | - | **20** |
| **Taxes (5)** | 1 | 11 | - | 10 | - | - | - | - | - | - | **22** |
| **Trade margins (3)** | - | 14 | - | - | - | - | - | - | - | - | **14** |
| **Totals payments** | **154** | **234** | **68** | **86** | **25** | **12** | **36** | **20** | **22** | **14** | |

Table 2 – Activity-commodity mix in Scottish agriculture (2001, £m)

| | Cereals | Oilseed rape | Potatoes | Other crops | Cattle | Milk | Sheep & wool | Pigs | Poultry & eggs | Misc. Livestock | Misc activities | Total activity output |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **LFA Sp. S.** | 0 | 0 | 0 | 1 | 10 | 0 | 58 | 0 | 0 | 10 | 12 | **91** |
| **LFA Sp. B.** | 11 | 0 | 0 | 3 | 235 | 1 | 34 | 82 | 0 | 0 | 26 | **391** |
| **LFA C & S.** | 10 | 0 | 1 | 4 | 139 | 10 | 82 | 0 | 60 | 4 | 20 | **328** |
| **Cereals** | 132 | 1 | 6 | 70 | 39 | 3 | 8 | 0 | 0 | 1 | 88 | **349** |
| **Gen. Crop.** | 142 | 30 | 161 | 63 | 55 | 0 | 6 | 0 | 33 | 11 | 52 | **552** |
| **Dairy** | 8 | 0 | 1 | 4 | 75 | 295 | 8 | 0 | 75 | 0 | 16 | **483** |
| **Mixed** | 56 | 1 | 5 | 12 | 129 | 10 | 31 | 0 | 3 | 0 | 22 | **268** |
| **Total Commodity output** | **359** | **32** | **174** | **157** | **681** | **318** | **226** | **82** | **171** | **25** | **235** | **2460** |
| **Subsidy** | **-124** | **-13** | **-1** | **0** | **-268** | **-9** | **-59** | **0** | **0** | **0** | **0** | **-474** |

The intersection of the "commodities" column with two row accounts would provide entries that are most relevant to the purpose of this paper. These are intersections with the "activities" (the make-matrix) and with one of the five accounts labelled as "taxes". The latter refers to indirect taxes on local outputs, which in the case of agricultural products have traditionally included coupled subsidy payments. We have taken output these entries provided further details of these sub-accounts below (see Table 2).

According to the 2001 Scottish input-output database, which provided the bulk of data for constructing the SAM, total sales receipts from agricultural commodities at basic prices was £2,460 million (see entry at the intersection of the second last row and the last column in Table 2). This constitutes 1.6% of the corresponding entry (£154 billion at the activities-commodities intersection in the condensed SAM or Table 1). In the full SAM, farming activities (or farm types) are the only accounts in the make-matrix where an activity row intersects with more than one commodity accounts and vice versa. Therefore, the motivation behind presenting table 2 is to provide further details for the sub-matrix of the farming sector thereby facilitating the groundwork for the simulation experiments in the subsequent section. According to the Scottish input-output table, total output related subsidy payments during 2001 was £474 (see the last entry in the row headed as "subsidy" in Table 2).

## 4. Simulation Results

An important modelling task is to show how the activity-commodity mix would change in response to the SFP. Before we proceed to this, we provide one additional adjustment to data which is important for implementing the SAM-based model. This relates to the fact that there were some differences in the amounts of total subsidy payments reported in the Scottish input-output table and the sum of details provided in the agricultural census based Economic Reports on Scottish Agriculture. Consequently, we have established that the IO database seemed to have included some Pillar II payments such as LFA payments in the product subsidies. We have estimated that about 24% of the subsidy payments reported in the IO database was not actually output subsidy. Accordingly, in the simulation experiments we conducted, only 76% of the total subsidy payments reported in Table 2 above was decoupled from production and paid to the corresponding household group as transfer payments by the government account.

We first run two separate simulation experiments in addition to replicating the initial database. These are intended to compare results from the alternative model specifications (Model 1 and Model 2). The simulation results are reported below. In the second experiment, we turn our attention to variations in the size of the elasticity of commodity transformation. We discuss each of these in turn.

### 4.1 Impacts of the SFP agricultural output by farm type and commodity groups

We start by presenting the effect of SFP on farm commodity outputs (see Figure 2). In all cases, farm output will decline by no more than 10%. However, there are important differences in the proportionate changes for commodity groups and model specification. As we expect, the rate of contractions in agricultural products was directly related to the rate of coupled subsidy payments in the base year (see Figure 2). For instance, "cattle" attracted a relatively larger proportion of subsidy payments (see Table 2) and hence the contraction in this farm output was the largest. However, a comparison of Model 1 and Model 2 results shows important differences in the patterns of contractions in commodity groups. In general, the range between commodity output declines is higher with Model 2 than with Model 1. This implies that with Model 1 commodity outputs decline by more or less similar proportions regardless of the differential rates of subsidy payments in the base year.

However, Model 2 allows for larger declines in subsidy dependent commodity groups and relatively smaller declines in commodity groups that were less dependent on subsidy. In other words, as we anticipated, Model 2 seems to represent more realistic producer behaviour (further details of changes in activity-commodity mix are displayed in Table A1, Appendix II).

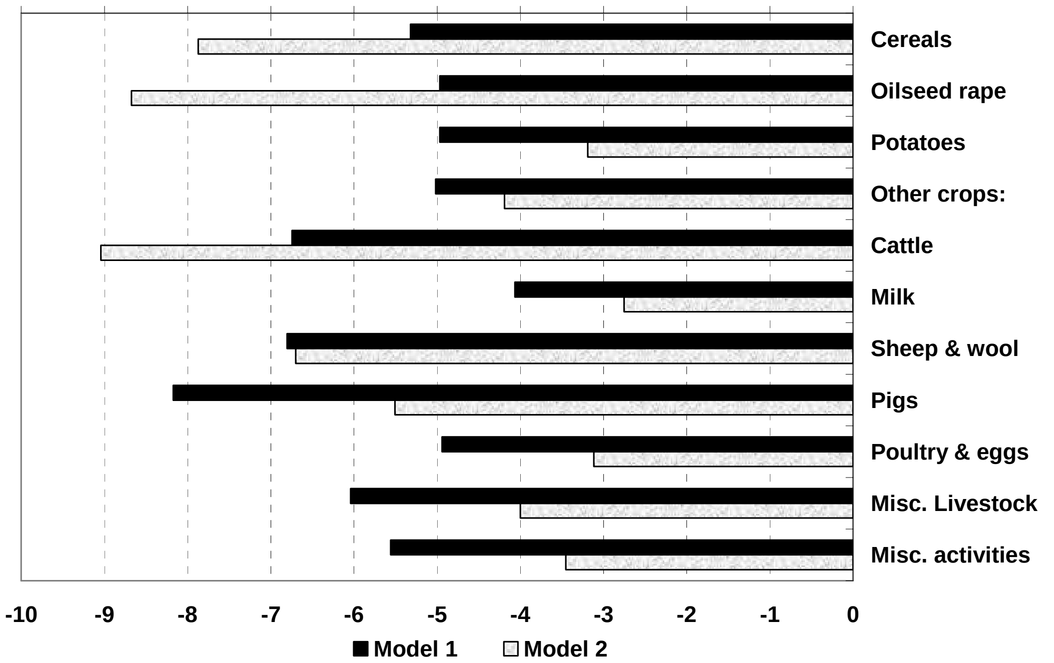


Figure 2: Impacts of SFP by farm outputs

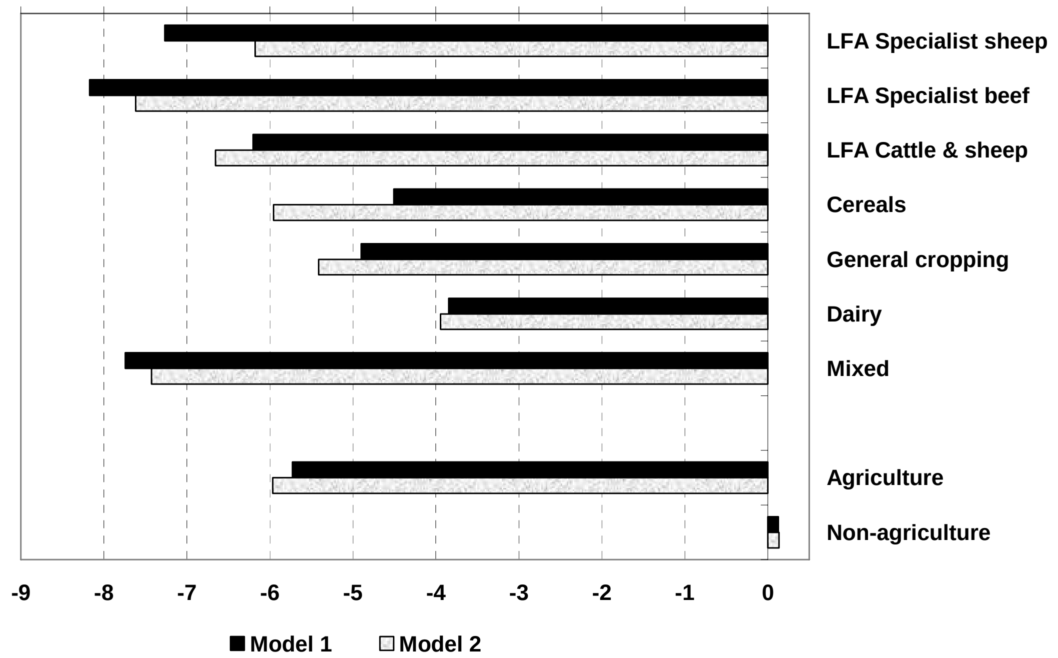


Figure 2 - Impacts of SFP by standard Scottish farm types

Figure 3 displays aggregate output by farm types. The differences among farm types reflects the product mix in the base year as well as the extent to which each the activities were dependent on coupled subsidy payments. As far as comparison of model results is concerned, Model 2 shows relatively larger activity declines for farm types whose main output was dependent on subsidy. Additionally, we have reported total agricultural and non-agricultural sector effects of the SFP. The simulation results showed that total agricultural output would decline by 5% (with Model 1) and 6% (with Model 2) while the non-agricultural sector may experience a marginally positive effect; an increase by 0.13% and 0.14% respectively with Model 1 and Model 2. There are significant variations and differential impacts within the non-agricultural sectors (see Table A3 in Appendix II). It is useful to note that non-agricultural sectors that have forward and backward linkages with agriculture suffer relatively large contractions.

4.2 Sensitivity of changes in farm output to the size of the CET parameter

The simulation results reported in the preceding section was based on the inelastic parameter value for the CET function, which is give as 0.75 in Figure 1. In doing so, we followed existing literature on the subject of agricultural supply and relocation resources within different farm enterprises. However, there appear to be paucity of empirical evidence to suggest that agricultural supply or farm output transformation is really inelastic in most European countries. We leave empirical investigation into farm output transformation in Scotland to future research. For the purpose of this paper we limit ourselves to varying the parameter value and investigate sensitivity of farm output to the CET parameter values.

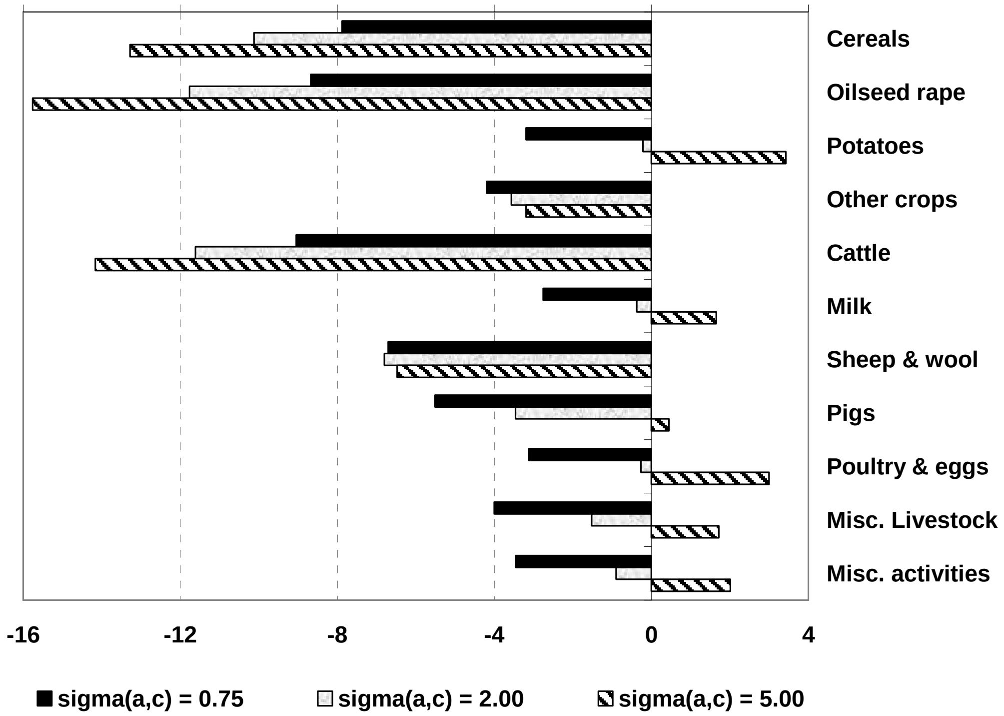


Figure 4 - Sensitivity of impacts on products to variations in the size of CET parameter

Figure 4 compares three scenarios obtained using Model 2 and by fixing the CET elasticity parameters value at 0.75, 2, and 5.The case of 0.75 represents the default case reported in Figure 2. The other two cases provide simulation results for “what if” agricultural supply is moderately elastic or relatively highly elastic. This amounts to considering the possibility of farmers willing and able to adjusting production to market conditions.

As we expect, the larger the CET elasticity value the greater the decline in farm outputs which were relatively dependent on subsidy and the smaller the rate of decline in farm output which were not subsidised in the base year.  Given the current modelling framework, it is interesting to note that a sufficiently large CET parameter value would lead to a relatively large farm restructuring that farm outputs which were not coupled with subsidy in the base year would experience an increase from the base year level.  This sensitivity analysis calls for further empirical research into parameterisation of supply functions in the conditions of multi-output farming in Europe.

## 5. Conclusions

The primary objective of introducing the SFP was to reduce the interference of output related subsidy payments with production decision by farmers.  This raises an interesting modelling issue particularly in the context of a multi-output farming sector.  The reason is that if decoupling subsidy payments would lead to production according to market demand, then one expects that a profit maximising farmer would relocate resources away from a farming activity that have existed historically due to subsidy toward another product that was produced even without any subsidy payment being coupled with it.

Using a CGE model calibrated on Scottish data, this paper has highlighted two interrelated issues.  We started with a conceptual issue related to model specification in a standard CGE model.  We then reconsidered the optimization rule applied in the standard CGE model and then formulated an alternative modelling framework.  A comparison of results from the standard CGE model and the alternative specification we proposed provided a useful insight into differences in the impacts of the SFP on changes in farm output composition. More specifically, the alternative model proposed in this paper yielded results that reflected behaviour of a profit maximising farming enterprise.

This paper has also raised an important empirical issue related to agricultural supply response.  Although main simulation runs were conducted by assuming inelastic agricultural supply, we have explored the extent of policy effects on farm output composition if we assume an elastic agricultural supply.  The sensitivity analysis provided results that re-enforced policy effects previously explored by applying the alternative model specification proposed in this paper.  However, empirical investigation into agricultural supply response is left to future research.

## Appendix I: The CET output transformation function for multi-output farming sector

The revenue maximisation:
Maximise

$$\sum_{C} PXAC_{AC} QXAC_{AC} \qquad [1]$$

Subject to the production possibility constraint

$$QA_{A} = \left( \sum_{C} \delta_{AC} QXAC_{AC}^{\rho} \right)^{\frac{1}{\rho}} \qquad [2]$$

where,
Subscripts A and C denote farm types and commodity groups by C respectively; $QXAC_{AC}$ is output of commodity C by activity A; $PXAC_{AC}$ is price of $QXAC_{AC}$; $QA_{A}$ is activity output; and $PA_{A}$ is unit activity output price.

Thus, optimal prices and quantities become:

$$PXAC_{AC} = \frac{PA_{A} QA_{A}}{\sum_{C} \delta_{AC} QXAC_{AC}^{\rho}} \delta_{AC} QXAC_{AC}^{\rho-1} \qquad [3]$$

$$QXAC_{AC} = \theta_{AC}^{*} QX_{C} \qquad [4]$$

For the base year, $\theta_{AC}$ is calibrated as:

$$\theta_{AC} = \frac{PXAC_{AC} QXAC_{AC}}{PA_{A} QA_{A}} \qquad [5]$$

$$PA_{A} = \frac{\sum_{C} PXAC_{AC} QXAC_{AC}}{QA_{A}} \qquad [6]$$

## Appendix II - Further details of simulation results

Table A1: Impacts of SFP on activity-commodity mix of the farming sector – **Model 1**

| | Cereals | Oilseed rape | Potatoes | Other crops: | Cattle | Milk | Sheep & wool | Pigs | Poultry & eggs | Misc. Livestock | Misc. activities | All commoditie |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **LFA Sp. S.** | -7.3 | 0.0 | 0.0 | -7.3 | -7.3 | 0.0 | -7.3 | 0.0 | 0.0 | -7.3 | -7.3 | **-7.3** |
| **LFA Sp. B.** | -8.2 | -8.2 | -8.2 | -8.2 | -8.2 | -8.2 | -8.2 | -8.2 | 0.0 | 0.0 | -8.2 | **-8.2** |
| **LFA C & S.** | -6.2 | -6.2 | -6.2 | -6.2 | -6.2 | -6.2 | -6.2 | 0.0 | -6.2 | -6.2 | -6.2 | **-6.2** |
| **Cereals** | -4.5 | -4.5 | -4.5 | -4.5 | -4.5 | -4.5 | -4.5 | 0.0 | 0.0 | -4.5 | -4.5 | **-4.5** |
| **Gen. Crop.** | -4.9 | -4.9 | -4.9 | -4.9 | -4.9 | 0.0 | -4.9 | 0.0 | -4.9 | -4.9 | -4.9 | **-4.9** |
| **Dairy** | -3.8 | -3.8 | -3.8 | -3.8 | -3.8 | -3.8 | -3.8 | 0.0 | -3.8 | -3.8 | -3.8 | **-3.8** |
| **Mixed** | -7.7 | -7.7 | -7.7 | -7.7 | -7.7 | -7.7 | -7.7 | 0.0 | -7.7 | 0.0 | -7.7 | **-7.7** |
| **All FT** | **-5.3** | **-5.0** | **-5.0** | **-5.0** | **-6.7** | **-4.1** | **-6.8** | **-8.2** | **-4.9** | **-6.0** | **-5.6** | |

Table A2: Impacts of SFP on activity-commodity mix of the farming sector – **Model 2**

| | Cereals | Oilseed rape | Potatoes | Other crops: | Cattle | Milk | Sheep & wool | Pigs | Poultry & eggs | Misc. Livestock | Misc. activities | All commodit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **LFA Sp. S.** | -7.87 | 0.00 | 0.00 | -4.19 | -9.04 | 0.00 | -6.70 | 0.00 | 0.00 | -4.00 | -3.45 | **-6.18** |
| **LFA Sp. B.** | -7.87 | -8.67 | -3.19 | -4.19 | -9.04 | -2.75 | -6.70 | -5.51 | 0.00 | 0.00 | -3.45 | **-7.62** |
| **LFA C & S.** | -7.87 | -8.67 | -3.19 | -4.19 | -9.04 | -2.75 | -6.70 | 0.00 | -3.11 | -4.00 | -3.45 | **-6.65** |
| **Cereals** | -7.87 | -8.67 | -3.19 | -4.19 | -9.04 | -2.75 | -6.70 | 0.00 | 0.00 | -4.00 | -3.45 | **-5.96** |
| **Gen. Crop.** | -7.87 | -8.67 | -3.19 | -4.19 | -9.04 | 0.00 | -6.70 | 0.00 | -3.11 | -4.00 | -3.45 | **-5.41** |
| **Dairy** | -7.87 | -8.67 | -3.19 | -4.19 | -9.04 | -2.75 | -6.70 | 0.00 | -3.11 | -4.00 | -3.45 | **-3.94** |
| **Mixed** | -7.87 | -8.67 | -3.19 | -4.19 | -9.04 | -2.75 | -6.70 | 0.00 | -3.11 | 0.00 | -3.45 | **-7.43** |
| **All FT** | **-7.87** | **-8.67** | **-3.19** | **-4.19** | **-9.04** | **-2.75** | **-6.70** | **-5.51** | **-3.11** | **-4.00** | **-3.45** | |

Table A3 – Impacts of Single Farm Payments on commodity outputs by all sectors in the Scottish economy

| | | Model 1 | Model 2 |
|---|---|---|---|
| | **Agricultural products:** | | |
| 1 | Cereals | -5.32 | -7.87 |
| 2 | Oilseed rape | -4.97 | -8.67 |
| 3 | Potatoes | -4.97 | -3.19 |
| 4 | Other crops: | -5.02 | -4.19 |
| 5 | Cattle | -6.74 | -9.04 |
| 6 | Milk | -4.07 | -2.75 |
| 7 | Sheep and wool | -6.80 | -6.70 |
| 8 | Pigs | -8.17 | -5.51 |
| 9 | Poultry and eggs | -4.94 | -3.11 |
| 10 | Miscellaneous Livestock | -6.04 | -4.00 |
| 11 | Miscellaneous agricultural output | -5.56 | -3.45 |
| | **Non-agricultural commodities:** | | |
| 12 | Forestry Planting | 0.40 | 0.39 |
| 13 | Forestry Harvesting | 0.50 | 0.50 |
| 14 | Other primary products | 0.12 | 0.12 |
| 15 | Meat Processing | -13.51 | -13.00 |
| 16 | Fish and Fruit Processing | -10.04 | -9.63 |
| 17 | Oils and Fats | -2.66 | -2.55 |
| 18 | Dairy Products | -18.90 | -18.24 |
| 19 | Grain Milling and Starch | -4.83 | -4.66 |
| 20 | Miscellaneous Foods | -3.94 | -3.74 |
| 21 | Drinks | -1.27 | -1.36 |
| 22 | Animal Feeding Stuffs | -6.35 | -6.21 |
| 23 | Oil Process, Nuclear Fuel | -0.02 | -0.02 |
| 24 | Fertilisers | -4.44 | -4.57 |
| 25 | Pesticides | -4.63 | -4.56 |
| 26 | Pharmaceuticals | 0.06 | 0.06 |
| 27 | Agricultural Machinery | -0.23 | -0.25 |
| 28 | Other manufacturing | 1.95 | 1.95 |
| 29 | Electricity Production and Distribution | 0.25 | 0.25 |
| 30 | Water Supply | -0.41 | -0.42 |
| 31 | Construction | -0.01 | -0.01 |
| 32 | Distribution and Motor Repair, etc | -0.28 | -0.27 |
| 33 | Wholesale Distribution | -0.10 | -0.10 |
| 34 | Retail Distribution | -0.15 | -0.15 |
| 35 | Hotels, Catering, Pubs, etc | -0.20 | -0.20 |
| 36 | Other Land Transport | -0.01 | 0.00 |
| 37 | Estate Agent Activities | -0.06 | -0.06 |
| 38 | Renting of Machinery | 0.07 | 0.07 |
| 39 | Accountancy Services | 0.09 | 0.09 |
| 40 | Other Business Services | 0.04 | 0.04 |
| 41 | Health and Veterinary Services | -0.03 | -0.03 |
| 42 | Sanitary Services | -0.06 | -0.06 |
| 43 | Recreational Services | 0.01 | 0.00 |
| 44 | Other services | 0.03 | 0.03 |

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