An Economic Assessment of Proposals from Brian Pack Inquiry into the Future of Support for Agriculture in Scotland

FINAL REPORT
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Scottish Government, Rural and Environment Analytical Services
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EXECUTIVE SUMMARY

Background

- This paper presents results from the economic analysis of the potential impacts on different farm types in Scotland of proposals from the Brian Pack Inquiry into the future of support for agriculture in Scotland. It shows how the Inquiry’s proposals may lead to changes in average support payments and Farm Business Income (FBI) for the different farm types, and assesses the implications for agricultural production and the wider Scottish economy.

- The Inquiry’s proposals for the Common Agriculture Policy (CAP) Pillar 1 Payments are set out below:

<table>
<thead>
<tr>
<th></th>
<th>Target</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-LFA:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area Payments</td>
<td>Per hectare</td>
<td>€200.00</td>
</tr>
<tr>
<td>Top Up Fund</td>
<td>Per hectare</td>
<td>€100.00</td>
</tr>
<tr>
<td>LFA:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area Payment</td>
<td>Per hectare</td>
<td>€30.00</td>
</tr>
<tr>
<td>Beef Headage Payment (per calf)</td>
<td>1 to 5 per head</td>
<td>€220.00</td>
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<tr>
<td></td>
<td>6 to 15 per head</td>
<td>€190.00</td>
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<td></td>
<td>16 to 40 per head</td>
<td>€165.00</td>
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<tr>
<td></td>
<td>Above 40 per head</td>
<td>€135.00</td>
</tr>
<tr>
<td>Dairy/Beef Headage Payment (per calf)</td>
<td>All per head</td>
<td>€135.00</td>
</tr>
<tr>
<td>Sheep Headage payments (per lamb)</td>
<td>All per head</td>
<td>€8.00</td>
</tr>
<tr>
<td>Top-up Fund: LFA Standard Labour Requirement Payment (per SLR)</td>
<td>Per unit</td>
<td>€6,400.00</td>
</tr>
</tbody>
</table>

Methodology

- The analysis assesses the impacts of the payment rates proposed by Inquiry on CAP Pillar 1 support received and farm incomes for different farm types, and implications for agricultural production and the wider economic impacts.

- The analysis of the combined impact of the proposed changes (area based payments, headage and SLR based top-up payments) on Pillar 1 support payments and on Farm Business Incomes has been carried out using data from the Farm Accounts Survey (FAS), which is a sample of some 450 farm businesses covering 8 farm types – Specialist Sheep (LFA), Specialist Beef (LFA), Cattle and Sheep (LFA), Cereals, General Cropping, Dairy, Lowland Cattle and Sheep and Mixed farms.

- It is important also to note that the analysis in only indicative given it considers, for each farm type, the impact on the average farm in the FAS sample and does not capture any inevitable variations within these farm types.
• Alongside the FAS data, the analysis for this paper draws on available literature to assess how the changes to farm production as a result of the Inquiry’s proposals would impact on the wider Scottish economy.

**Results**

*Changes to Pillar 1 support by farm type*

• The analysis suggests that support will on average increase for Specialist Sheep (LFA), Cattle and Sheep (LFA), Cereals, General Cropping and Lowland Cattle and Sheep. The Specialist Sheep (LFA) and Cattle & Sheep (LFA) farms see the largest increases in support as a result of their larger areas and relatively low levels of support under the current scheme, especially when compared to the Inquiry’s proposals.

• On average, support will decline for Specialist Beef (LFA), Dairy (LFA), Dairy (non-LFA), Mixed (LFA) and Mixed (non-LFA) farms. Of these, the LFA farm types (particularly Specialist Beef (LFA) and Mixed (LFA)) will see the largest decline in support, largely because the fall in support resulting for the €30/ha area payment is not entirely compensated for by the top-ups through the headage and SLR payment.

*Effects on production*

• The analysis suggests that any production response to the proposed changes is likely to be modest for the Specialist Sheep (LFA), Cattle & Sheep (LFA), Cereals, General Cropping, Lowland Cattle & Sheep and Dairy (LFA) and Dairy (non-LFA) farms. This is largely because on these farms production is relatively less dependent on support for viability and the impacts of the Inquiry’s proposals on levels of support and Farm Business Income are relatively small.

• The analysis, however, suggests potential negative impacts on production for the Mixed (LFA), Mixed (non-LFA) and Specialist Beef (LFA) farms. This impact could be more pronounced for the two LFA farm types, largely as a result of greater dependency on Pillar 1 support for financial viability and the large reductions in support resulting from the proposals.

*Wider economic impacts*

• The Inquiry’s proposals assume no change to the total amount of support to Scottish Agriculture and merely represent a redistribution of the current payments. Further, agriculture accounts for a relatively small share of Scottish Gross Domestic Product (GDP). As a result it is anticipated that the overall impact of the Inquiry’s proposals on the Scottish economy will be at the most very
modest. However, some specific sectors, especially those linked to beef production in the LFA are anticipated to be negatively affected.

- Further, regional economies dominated by Specialist Beef (LFA) and Mixed (LFA) farms are anticipated to see more negative impacts than in other areas. On the other hand, however, regional economies dominated by Specialist Sheep (LFA) and Cattle and Sheep (LFA) farms should benefit from increased levels of support.
1. Background

1.1. The Scottish farming industry currently receives some €640 million annually in support through the Common Agricultural Policy (CAP) Pillar 1 Single Farm Payment Scheme (SFPS). Broadly, the scheme provides individual businesses with a lump sum payment, on condition that they meet specific statutory mandatory requirements including the maintenance of land in “good agricultural and environmental condition” (GAEC). The support provided through the SFPS is decoupled from production in that the amount received by a business is not dependent on current levels or type of production. Under current Scottish rules, support to individual farm businesses is largely determined by the amount of support received from production-based (or area and headage based) schemes that operated in the reference period 2000 to 2002.

1.2. As the Inquiry into the future of support for agriculture in Scotland led by Brian Pack (OBE) has put forward proposals for how the SFPS could be aligned with the Scottish Government purpose for supporting sustainable economic growth, it is important to assess the economic impacts of these proposals. Against this background, this paper assesses the economic impacts of the Inquiry’s proposals for the SFPS to move to an area basis and address global challenges facing agriculture, and implications for the wider Scottish economy.¹ It draws on evidence on the current links between farm payments and farm business financial viability across different farm types, and existing evidence on how the Scottish agricultural industry is economically linked to the rest of the economy in order to identify potential wider economic impacts of the Inquiry’s proposals.

1.3. The analysis presented in this paper is intended to provide only some insight into the likely impacts of the Inquiry’s proposals for Pillar 1 payments on Scottish farm businesses, and how these would result in wider impacts on other industries linked to agriculture. A thorough assessment of the impacts of the Inquiry’s proposals would require much more detailed modelling of both the agricultural industry and the wider economy, which is beyond the scope of this paper. Further analysis would also need to consider the environmental and social implications of the Inquiry’s proposals.

1.4. The remainder of the paper proceeds as follows: Section 2 sets out the approach followed for the analysis presented in this paper. Section 3 presents the Inquiry’s proposals for the future of farm support. Section 4 presents results from assessing the direct impacts on Farm Business Income across the different farm

types. Section 5 looks at the link between the SFPS and production in different commodity sectors, in order to show how changes to SFPS affect Scottish agricultural production. Section 6 discusses how these changes in agriculture are likely to affect the rest of the Scottish economy. Section 7 concludes.

2. Methodology

2.1. The analysis of the impacts on Pillar 1 support and Farm Business Income (FBI) uses data from the 2008-2009 Farm Accounts Survey (FAS) to provide a baseline against which the Inquiry’s proposals for Pillar 1 payments are assessed. The FAS is an annual sample survey of around 450 farm businesses in Scotland that are above 0.5 standard labour requirements (SLRs). It excludes specialist horticulture, pig and poultry businesses. The size threshold and selective sampling of farms of particular types means that the FAS is not entirely representative of all businesses in Scotland.

2.2. The businesses in the FAS sample are grouped into eight farm types comprising Specialist Sheep (LFA), Specialist Beef (LFA), Cattle and Sheep (LFA), Cereals, General Cropping, Dairy, Lowland Cattle and Sheep and Mixed farms, according to the main agricultural enterprise of the business. Of these the Dairy and Mixed farmers have been further disaggregated, respectively, into Dairy (non-LFA) and Dairy (LFA), and Mixed (LFA) and Mixed (non-LFA) as the Inquiry’s proposals treat LFA and non-LFA businesses differently. For each of the resulting ten farm types, average baseline information comprising technical information (business size as indicated by standard labour requirements and total area, area planted with crops and animal numbers) and financial information (output and input costs values, subsidy and payments (including SFPS), and Farm Business Income) are presented in Annex 1. The average technical information was supplemented by further information on lambing and calving rates for corresponding livestock enterprises published in the Scottish Agricultural College Farm Management Handbook to provide a basis for calculating the amount each business will receive in support under the headage schemes proposed by the Inquiry.

2.3. The estimated economic impacts of the Inquiry’s proposals on farm businesses are measured as the change in support payments relative to the baseline Pillar 1 payments and FBI. For some enterprises and farm types, changes in support payments and consequences on FBI may result in businesses changing their levels of production - with implications on the value of output and costs, and thus further indirect financial impacts on farm businesses. These indirect impacts are not explicitly captured in the analysis for this paper; they are only covered in the qualitative discussion in Section 5. It is important also to note that the analysis only
considers, for each farm type, the impact on the average farm in the FAS sample and does not capture any inevitable variations within these farm types.

2.4. The Inquiry’s proposals reflect the application of both voluntary and compulsory modulation to be consistent with the baseline financial information provided by the FAS, and rates have been converted to Sterling using relevant exchange rates in the baseline period (2008-09)\(^2\). This is important given these factors are key determinants for the actual amount of Pillar 1 payments that will be received by the farm businesses.

2.5. Changes in agricultural production as a result of changes to support will have wider economic impacts on upstream sectors supplying agriculture (vets, feed and seed merchants, etc.) and downstream industries processing agricultural output (haulage, auction marts, processors, retailers, etc). To assess these wider economic impacts, this paper draws on studies looking at how different sectors of Scottish agriculture are linked to the rest of the economy.

3. Agricultural support payments scenarios considered in the analysis

3.1. As the Inquiry progressed, a number of possible scenarios for direct payment schemes were assessed as part of a research project undertaken by the Macaulay Institute.\(^3\) This project provided a full and detailed analysis of the redistributive impacts\(^4\) of alternative scenarios for direct payments at a Scotland level.

3.2. The Inquiry’s proposals assessed for this paper distribute Pillar 1 payments based on the LFA status of the land owned by a business. However, for this analysis the allocation of payments was based on the dominant LFA status of the business as determined by the share of a business’ total agricultural land located inside and outside of the LFA. Thus, if the majority of a business area was located in the LFA, the business would be designated LFA, otherwise it would be non-LFA. It is important to note that this assumption will have an effect of reducing area payments to LFA businesses which have some Non-LFA land.

3.3. The Inquiry report recognises that there is a significant number of farms that will have land in the LFA, notably cropping, whose range of choices as to how to farm more competitively means they are better suited to the suggested Non-LFA

\(^2\) The pound (£): Euro (€) exchange rate used for the calculations in this analysis is 0.8022. This is the average rate over the period covered by the 2008/09 Farm Accounts Survey.

\(^3\) The final report for this project was published alongside the Inquiry final report and is available at: [http://scotland.gov.uk/Publications/2010/11/01153620/0](http://scotland.gov.uk/Publications/2010/11/01153620/0)

\(^4\) Specifically, the report includes an analysis of the redistributive impacts across farm types and regions of 10 scenarios for area payment. Although the report does not look at the Inquiry’s final proposal it provides useful information on redistributive impacts of area payments across agricultural sectors and regions.
support structure. The Inquiry recommends that these farms be offered a one-off opportunity to opt-out of LFA designation in order that they can be eligible for the support proposed for non-LFA farms. Such changes to the LFA designations, which will potentially affect some of the farms in the FAS sample, would alter results from the analysis for this paper.

3.4. The Inquiry’s proposal is based on a combination of four payments as follows:

- **Area payments** – using fixed rates of payment per hectare on all eligible land, with rates differentiated to reflect the LFA status of the business.
- **Cattle headage payments** – payments to businesses based on the number of beef and beef/dairy bred calves born on farms designated LFA.
- **Sheep headage payments** – payments to businesses based on the number of lambs born on farms designated LFA.
- **Standard Labour Requirement (SLR) payment** – payment to businesses based on the number of SLRs calculated for each business in the LFA.

The details of the proposal are set out below;

**Table 3.1: Inquiry Proposals for CAP Pillar 1 Payments**

<table>
<thead>
<tr>
<th></th>
<th>Target</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Non-LFA:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area Payments</td>
<td>Per hectare</td>
<td>€200.00</td>
</tr>
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<td>Top Up Fund</td>
<td>Per hectare</td>
<td>€100.00</td>
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<td></td>
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</tr>
<tr>
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<td>All per head</td>
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<td>€8.00</td>
</tr>
<tr>
<td>Top-up Fund: LFA SLR</td>
<td>Per unit</td>
<td>€6,400.00</td>
</tr>
</tbody>
</table>

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5 For the analysis in this paper, the calculation of support based on the standard labour requirements for this paper draws on the set of coefficients published by the Department for Environment, Food and Rural Affairs (Defra). These coefficients will need to be carefully assessed for their applicability to the Scottish situation and any changes resulting from that could potential alter the results from analysis presented in this paper. See link: [http://www.defra.gov.uk/foodfarm/farmmanage/advice/documents/def-of-terms.pdf](http://www.defra.gov.uk/foodfarm/farmmanage/advice/documents/def-of-terms.pdf) (pages 43-44)
3.5. The Inquiry’s rationale for this proposal is to ensure a future support system which has agricultural production at its heart, providing support to active farmers, whilst involving minimal bureaucracy and investing public money in a way that helps to ensure a future Scottish agriculture sector that sustainably contributes to the wider economic growth of the Scottish economy. For a more detailed consideration of the rationale behind the Inquiry’s proposals, see the Inquiry’s Final Report6.

4. Impacts of proposals on farm businesses

4.1. This section presents results from assessing the direct impacts of the proposals on farm businesses in the FAS sample. The results assume that all non-LFA businesses fully utilise their top-up entitlement. It shows how the proposed changes to farm support will change the amount of CAP Pillar 1 payments going to farm businesses relative to the baseline and the consequences for Farm Business Income (FBI). Table 4.1 shows that making Pillar 1 payments as set out in the Inquiry’s final report would increase the amount of support going to Specialist Sheep (LFA), Cattle and Sheep (LFA), Cereals, General Cropping and Lowland Cattle and Sheep farms. The largest increases in support would go to Specialist Sheep (LFA) – an increase of £7,800 or 41% of baseline Pillar 1 payments, and General Cropping – an increase of £5,600 or 15% of baseline support payments. While the increases to the other farm types appear large in absolute terms, they represent a relatively small proportion of the baseline Pillar 1 payments.

Table 4.1: Direct Impacts of Inquiry’s Proposal for Pillar 1 Payments

<table>
<thead>
<tr>
<th>Farm Type</th>
<th>Baseline Pillar 1 Support</th>
<th>New Pillar 1 Support</th>
<th>Change in Pillar 1 Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialist Sheep (LFA)</td>
<td>£18,957</td>
<td>£26,760</td>
<td>£7,803 41%</td>
</tr>
<tr>
<td>Specialist Beef (LFA)</td>
<td>£37,435</td>
<td>£26,887</td>
<td>-£10,547 -28%</td>
</tr>
<tr>
<td>Cattle &amp; Sheep (LFA)</td>
<td>£39,734</td>
<td>£43,712</td>
<td>£3,978 10%</td>
</tr>
<tr>
<td>Cereals</td>
<td>£36,583</td>
<td>£37,495</td>
<td>£911 2%</td>
</tr>
<tr>
<td>General Cropping</td>
<td>£37,828</td>
<td>£43,415</td>
<td>£5,588 15%</td>
</tr>
<tr>
<td>Dairy (LFA)</td>
<td>£36,614</td>
<td>£31,943</td>
<td>-£4,671 -13%</td>
</tr>
<tr>
<td>Dairy (NLFA)</td>
<td>£29,267</td>
<td>£25,101</td>
<td>-£4,166 -14%</td>
</tr>
<tr>
<td>Lowland Cattle &amp; Sheep</td>
<td>£31,849</td>
<td>£32,585</td>
<td>£737 2%</td>
</tr>
<tr>
<td>Mixed (LFA)</td>
<td>£49,669</td>
<td>£31,827</td>
<td>-£17,843 -36%</td>
</tr>
<tr>
<td>Mixed (Non-LFA)</td>
<td>£45,128</td>
<td>£38,578</td>
<td>-£6,551 -15%</td>
</tr>
</tbody>
</table>

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4.2. As shown in Table 4.1 and Figure 4.1 above, average payments to Specialist Beef (LFA), Dairy (LFA), Dairy (non-LFA), Mixed (LFA) and Mixed (non-LFA) farm types would fall. The largest average fall in Pillar 1 payments would be for Mixed (LFA) farms – some £17,800 representing 36% of average Pillar 1 payments to FAS businesses in this category. Specialist Beef (LFA) farms will see support fall by an average of £10,500, which is equivalent to some 28% of average Pillar 1 support in the baseline. While the absolute reductions in payments to Dairy (both LFA and non-LFA) and Mixed (non-LFA) farms are relatively large, they represent a fairly small proportion of baseline payments.

4.3. The losses are particularly high for the LFA farm types (Mixed, Specialist beef, and Dairy) because the €30 per hectare in area payments proposed by the Inquiry for LFA farms is lower than the current average payment per hectare for farms of these types. While the sheep and cattle headage payments and SLR based payments may compensate for some of the losses experienced by these farm types (see Figure 4.1), they do not make up for the support these businesses attracted in the reference period for the current scheme, especially with regards any cattle finishing parts of their businesses.

4.4. While it is widely anticipated that a move to area payments will benefit extensive farms at the expense of intensive ones, results from the analysis show that some LFA businesses, in particular Specialist Beef (LFA) and Mixed (LFA) farms, would see some reductions in support under the Inquiry’s proposals. These are farms that receive high levels support per hectare under the current scheme, especially when compared to the Inquiry’s proposals. For example, in 2008-09 the
average Specialist Beef (LFA) and Mixed (LFA) farms received, respectively, around €227/ha and €190/ha. This compares to average payments of €43/ha and €80/ha for Specialist Sheep (LFA) and Cattle and Sheep (LFA) farms respectively.

4.5. This shows that at the €30 per hectare in area payments proposed by the Inquiry, Specialist Beef (LFA) and Mixed (LFA) farms would on average see much larger reductions in payments per hectare, and the proposed headage payments for beef calves and lambs and the SLR payment will not compensate for these reductions. While the Specialist Sheep (LFA) and Cattle & Sheep (LFA) farms would see reductions in average payments per hectare, this would be more than offset by the headage and SLR payments.

4.6. For LFA and non-LFA mixed and dairy businesses it is clear that high levels of baseline Pillar 1 payments are the reason why these businesses lose out. Both the higher rate (€300/ha) area payment for the non-LFA farms and the low rate (€30/ha) area payment with headage and the SLR-based top-up payments lead to a loss of 14% and 13% of Pillar 1 payments respectively. It is clear that the SLR-based payment proposed by the Inquiry will be especially important for LFA dairy businesses (see Figure 4.1) as it accounts for over 70% of the total support to the average farm of this type in these results.

4.7. While comparing the baseline payments (determined by activity in the reference period) with payments under the Inquiry’s proposal (determined by activity in 2008-2009) allows for the impacts on Pillar 1 payments to be estimated, presenting these impacts assumes the level of baseline payments is fair comparator. Where businesses have destocked relative to the reference period and current payments are adjusted to reflect this, the estimated change in Pillar 1 support would be smaller than suggested in this analysis.

Table 4.2: Direct Impacts of Inquiry’s Proposals on Farm Business Income

<table>
<thead>
<tr>
<th></th>
<th>Baseline FBI</th>
<th>New FBI</th>
<th>% Change in FBI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialist Sheep (LFA)</td>
<td>£16,268</td>
<td>£24,072</td>
<td>48%</td>
</tr>
<tr>
<td>Specialist Beef (LFA)</td>
<td>£27,105</td>
<td>£16,557</td>
<td>-39%</td>
</tr>
<tr>
<td>Cattle &amp; Sheep (LFA)</td>
<td>£26,911</td>
<td>£30,889</td>
<td>15%</td>
</tr>
<tr>
<td>Cereals</td>
<td>£42,372</td>
<td>£43,283</td>
<td>2%</td>
</tr>
<tr>
<td>General Cropping</td>
<td>£57,278</td>
<td>£62,865</td>
<td>10%</td>
</tr>
<tr>
<td>Dairy (LFA)</td>
<td>£88,475</td>
<td>£83,804</td>
<td>-5%</td>
</tr>
<tr>
<td>Dairy (Non-LFA)</td>
<td>£58,391</td>
<td>£54,225</td>
<td>-7%</td>
</tr>
<tr>
<td>Lowland Cattle &amp; Sheep</td>
<td>£23,338</td>
<td>£24,075</td>
<td>3%</td>
</tr>
<tr>
<td>Mixed (LFA)</td>
<td>£45,693</td>
<td>£27,851</td>
<td>-39%</td>
</tr>
<tr>
<td>Mixed (Non-LFA)</td>
<td>£53,193</td>
<td>£46,642</td>
<td>-12%</td>
</tr>
</tbody>
</table>

4.8. Table 4.2 presents the direct impacts of the Inquiry’s proposals on Farm Business Income. It shows that the proposed changes would result in increases in
the income of Specialist Sheep (LFA) farms (a 48% increase) – largely because of a combination of large increases in support payments, relatively low FBI in the reference period and the significant contribution of Pillar 1 support payments to the financial viability of farms of this type.

4.9. The farm types that would see the largest percentage fall in FBI under the proposals are Specialist Beef (LFA) and Mixed (LFA), which would both see income fall by 39%. These farm types would see drops in income relative to the baseline – reflecting the large falls in payments and the fact that the SFPS accounts for a very important share of their income. Differences in the extent to which the various farm types depend on Pillar 1 payments can be seen in Figure 5.1.

4.10. The impacts on FBI for the remaining farm types (Cattle and Sheep (LFA), Cereals, General Cropping, Dairy (LFA), Dairy (non-LFA), Lowland Cattle and Sheep and Mixed (non-LFA) will broadly be modest – plus or minus 15% of baseline income. For Dairy and General Cropping farms, the fall in FBI is relatively modest - largely because Pillar 1 payments represent a relatively small proportion of FBI (shown in Figure 5.1). For the remaining farm types, the relatively modest changes in FBI are due to the relatively small changes in overall payments.

5. Agricultural responses and implications for the wider economy

5.1. Results in Section 4 only show the direct impacts on farm businesses of changing the basis for Pillar 1 payments; they do not take into account how businesses may respond to these changes and the wider economic consequences of such responses. In principle, being decoupled from production, CAP Pillar 1 direct payments through the SFPS are not anticipated to have any impact on farm production. Farmers are free to use receipts from the Single Payment Scheme outside of agriculture so long as they can keep their agricultural land in good agricultural and environmental condition (GAEC). However, the Inquiry’s proposal for headage payments and the standard labour requirement based top-up represent a significant change in the relationship between Pillar 1 support payments and production on the farm relative to the current SFP. Specifically, these payments will have the effect of increasing the link between payments and production. Further, economic analysis would suggest that even the part of the payments not linked to production can also impact on production.

5.2. This discussion would suggest that the changes to Pillar 1 payments recommended by the Inquiry will most likely change farm production patterns, which will have further financial impacts on the business as output values and costs of production change, and also wider impacts on other parts of the Scottish economy linked to agriculture. Against this background, this section draws largely on
economic principles to assess how businesses in the different farm types covered by the FAS will respond to changes in payments under the Inquiry’s proposals as well as implications for the wider economy.

**Scottish Agriculture and Pillar 1 Payments**

5.3. The contribution of Pillar 1 payments to the activity in Scottish agriculture is evident in their contribution to Total Income from Farming (TIFF) – an indicator of agricultural business profits plus income to workers with an entrepreneurial interest in agriculture. For example, whereas TIFF in 2009 amounted to £589 million, as much as £512 million was from Pillar 1 payments under the Single Farm Payment and £112 million from other schemes (Less Favoured Areas Support Scheme and other payments under the Rural Development Regulation). This would suggest that the current levels of support for Scottish agriculture crucially underpin both the viability and the current structure of the industry; without them the Scottish agricultural industry would be very different from what it is now, as would be its wider impacts on the Scottish economy.

5.4 The importance of Pillar 1 payments to Scottish agriculture, however, varies significantly across farm types - especially as some commodities never received CAP support in the reference period used for determining the level of Pillar 1 payment for each business. Figure 5.1, below, shows variations in the dependency on subsidy for different farm types covered by the Scotland FAS.

**Figure 5.1: Farm Business Income, Total Subsidy & SFPS Support (2008-2009)**


5.4. An assessment of Farm Business Income (FBI) without subsidy shows that without any form of support, only the average Dairy (LFA and non-LFA) and General
Cropping farms in the FAS sample will have positive FBI, and thus be viable. All the other farm types would not be viable, although for cereals profitability would vary significantly from year to year reflecting fluctuations in input and output prices. Particularly, in the 2008-09 profitability in the cereals sectors was adversely affected by a fall in commodity prices at the time when input costs remained relatively high.

5.5. Once subsidies and payments are treated as part of farm output, all farm types become profitable – evidence of the strong dependency of especially the grazing livestock farm types on support payments. The fact that the Single Farm Payment Scheme accounts for the bulk of support to the different farm types suggests that changes to the scheme, especially those reducing the level of support to businesses dominated by cattle and sheep enterprises, will have adverse impacts on viability of related farm types. Similarly, a recent study looking at farm viability in the European Union without the Single Farm Payment shows the UK to be among the countries with the largest share of livestock grazing farms that would already have negative income or would get into financial distress without the Single Farm Payment unless output prices were to increase significantly.⁷

Single Farm Payment and Production

5.6. Studies reviewing the impacts of decoupled payments on farm production, show that in addition to underpinning the viability of farms (as shown above), the Single Payment Scheme will also affect production through a variety of channels, including (McVittie et al., 2009):

- maintaining and improving farmers’ wealth, leading to higher investment and changing risk attitudes;
- slowing or accelerating farm consolidation;
- farmer expectations about future programme eligibility and payment basis affecting current production decisions;
- repeated ad hoc programme changes altering farmer’s expectations about farm support policy through time; and,
- conditional requirements on the receipt of direct payments (such as cross compliance or GAEC).

5.7. However, despite the wide acknowledgement that decoupled payments will affect production, empirical evidence on the sizes of these impacts remains sparse. Most studies examining the impact of decoupled payments on agricultural production

to date have focused on arable production in the United States of America. These studies find that at the most decoupled payments only have modest impacts of total crop area\(^8\). For example, Goodwin and Mishra (2005) find, using farm-level and country-level data, that direct payments have very small – though in some cases statistically significant impacts – on acreage decisions (see Annex 2 for summary of results from a number of studies).

5.8. While there are very few studies of production impacts of decoupled payments in the livestock sectors, the general view in agriculture is that decoupled payments probably have a much more significant impact on beef and sheep sectors in Europe\(^9\). The production stimulating impact of decoupled payments on the dairy farm sector are also considered to be relatively small given that dairy enterprises never received coupled support before introduction of the SFPS.

5.9. Results emerging from attempts to estimate the impacts of the Single Farm Payment Scheme on the production of selected arable and livestock commodities using the Scotland Farm Accounts Survey (FAS) appear to be consistent with the above discussion. Table 5.1 below shows estimated elasticity values on the Single Farm Payment for five commodities that previously received coupled support based on the FAS samples for 2005/06, 2006/07 and 2007/08. It shows that in 2005/06 the Single Farm Payment was a significant factor in explaining differences in production in all of the five commodities, even when other factors have been controlled for. For example, increasing the amount of Pillar 1 payment by 1%, other factors remaining the same, would have increased barley output for the FAS businesses by 0.44%.

Table 5.1: Elasticity values for the impact on Pillar 1 payments on Scottish farm enterprises

<table>
<thead>
<tr>
<th></th>
<th>BARLEY</th>
<th>WHEAT</th>
<th>OATS</th>
<th>BEEF</th>
<th>SHEEP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Diff relative to 2006*</td>
<td>Diff relative to 2006*</td>
<td>Diff relative to 2006*</td>
<td>Diff relative to 2006*</td>
<td>Diff relative to 2006*</td>
</tr>
<tr>
<td>2005/06</td>
<td>0.44</td>
<td>0.57</td>
<td>0.53</td>
<td>0.44</td>
<td>0.54</td>
</tr>
<tr>
<td>2006/07</td>
<td>0.03</td>
<td>Yes</td>
<td>0.02</td>
<td>0.24</td>
<td>No</td>
</tr>
<tr>
<td>2007/08</td>
<td>0.05</td>
<td>Yes</td>
<td>0.04</td>
<td>0.32</td>
<td>No</td>
</tr>
</tbody>
</table>

Note: * "Diff" = statistically significant difference in elasticity value relative to 2006

5.10. The elasticity values, however, show that since 2006/07 the production stimulating impacts of the Pillar 1 payments have dropped significantly in the cereal sectors and are close to zero. This would suggest that differences in the amount of Pillar 1 payments have become a less significant factor in explaining differences in


\(^9\) For example, the Food and Agriculture Policy Research Institute model has traditionally assumed that the Single Payment Scheme has a 30 per cent production stimulating impact on beef and sheep sectors.
the amount of barley, wheat and oats produced by businesses in the FAS once other factors have been accounted for. This can be taken as evidence that production of these commodities is no longer linked to the amount of farm support businesses get through Pillar 1 direct payments, thus changes in the level of payments to cereal farms will at most only have very small impacts on production of cereal commodities. Hart et al. (2010)\textsuperscript{10} supports this view, suggesting that the effect of removing Pillar 1 support on the arable sector (particularly intensive arable systems) will be small, and would encourage a tendency towards higher yield and higher profitability cropping.

5.11. While the elasticity values for beef and sheep production in 2006/07 and 2007/08 have declined slightly relative to 2005/06, the estimations suggest that the decline is not statistically significant. This would appear to suggest that differences in the amount of Pillar 1 payments received by the businesses are a significant factor in determining differences in the beef and sheep production, even when other factors have been accounted for. This is evidence to suggest that the SFPS, in its decoupled form, still retains some production stimulating impact in sheep and beef production. This result is probably unsurprising given the role of the Pillar 1 payments in the viability of farms having significant grazing livestock enterprises.

5.12. While the estimated elasticities suggest that a reduction in payments to cattle and sheep farmers will result in lower production, it is important to note that the opposite will not be necessarily true where payments are increasing. Notably, as a significant share of cattle and sheep production in Scotland is carried out on land of relatively poor quality, there may be a physical constraint on increasing production. Further, where the net financial impact of increasing production is negative, as will be the case for most cattle and sheep farming within the LFA given the picture presented in Figure 5.1, there might be no incentive for farmers to increase production when payment increases – especially where the objective is to maximise farm income.

5.13. The process of estimating elasticities considered payments to farms made on a decoupled basis; however it did not consider the impact of any level of coupled payments. Although the analysis cannot estimate the production impact of the inquiry’s proposed coupled payments, it is likely that a given amount in coupled payment would have at least the same impact on farm production decisions as the same amount of a notionally decoupled support provided through the SFPS or area payments. Thus, some of the negative production impacts of reduced Pillar 1

payments will be offset to some degree by an increased share of coupled support under the Inquiry’s proposals.

5.14. Looking to the future, it is reasonable to expect that the impacts of the Inquiry’s proposals on Scottish agriculture will depend on the market environment that farm businesses will operate in. In a positive market environment with favourable input and output prices, farm businesses would be able to reduce their dependency on support payments, and in this case the overall impacts of changing farm payments on production will be smaller. However, the converse is also true, where the market environment cannot support viable farm businesses, it is likely that agriculture production will become even more dependent on support payments - increasing the size of the impacts of changes in farm support payments.

5.15. The key exogenous factors that will affect the market environment for farm businesses in the near future include trends in commodity and input prices, consumer demand and further liberalisation of EU agriculture to closely integrate with world markets (Hart et. al (2010)). The 2010 OECD-FAO 10 year outlook projects that cereal prices will be higher than in the last 10 years (largely due to increasing global food demand), but still below recent peaks. However, volatility will remain an important factor, especially as regions known for erratic yields become important world market players in this sector. The overall positive outlook for cereals indicates that direct payments are not likely to become an important factor for business viability in the future, although they may have a role in stabilising farm incomes where farms face increasingly volatile markets.

5.16. In the livestock sectors, the OECD outlook projects that prices for meat will increase, with a large part of this due to rising demand for meat in growing economies although Russian imports will fall due to the announced implementation of tariff rate quota measures. However, the projected price is likely to decline thereafter as supply increases. For sheepmeat, prices are expected to be weak in the short term, but as sheep flocks in New Zealand are reduced then tighter supplies are likely to push prices back upwards towards the end of the projection period. Thus, as the long term outlook in the grazing livestock sectors is not entirely positive, it is likely that direct payments will in the future remain important for these farm types.

5.17. Dairy commodities are expected to see some recovery, as demand for dairy products grows rapidly in developing countries, but also as prices need to rise to cover production costs in the medium term. Volatility in the cereals sector will be an

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important factor, given that this will have an impact on the costs of production for livestock enterprises. The recovery of prices in the dairy industry means that payments are likely to become even less important in determining business viability in the future.

5.18. To conclude this section Table 5.2 provides a summary of the impacts of the Inquiry’s proposals on production in the different farm types covered by the Farm Accounts Survey. It draws on evidence presented earlier on the impacts of the Inquiry’s proposals on the levels of support to farm businesses and implications for Farm Business Income (Table 4.1 and Table 4.2), the extent to which farm businesses depend on Pillar 1 payments for their viability (Figure 5.1) and the production impacts of the SFPS on various commodities (Table 5.1).

5.19. At this stage it is important to note that the analysis of changes in Pillar 1 support are based on average values for the farm types, therefore the estimated impacts of the Inquiry’s proposals do not include the inevitable variability within farm types. Thus, the estimated impacts that are presented in this paper should only be treated as indicative.

Table 5.2: Changes in Pillar 1 support and the anticipated associated impacts on production

<table>
<thead>
<tr>
<th>Farm type</th>
<th>Change in support</th>
<th>Dependency on SFPS for viability</th>
<th>Projected impact on production</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialist Sheep (LFA)</td>
<td>• 41% increase in total Pillar 1 support with a modest element of headage payments introduced.</td>
<td>• Highly dependent of farm support for viability. In 2008-09 SFPS represents 117% of Farm Business Income. Inquiry proposal represent a very significant boost on income – 48%.</td>
<td>• While increased payment is anticipated to increase production, constraints due to land quality and lack of profitability in sheep enterprises imply production impacts on the average farm will be modest.</td>
</tr>
<tr>
<td>Cattle &amp; Sheep (LFA)</td>
<td>• 10% increase in total Pillar 1 payments, with significant levels of headage payments (especially for beef producers) and SLR payments.</td>
<td>• Like Specialist Sheep LFA – highly dependent on farm support for viability. In 2008-09 support through the SFPS represented 148% of Farm Business Income. However, at 15%, increases in Farm Business Income appear modest.</td>
<td>• Impact on production anticipated to be modest due to modest impacts on income. Production response also likely to be constrained by land quality and lack of profitability in sheep and cattle enterprises.</td>
</tr>
<tr>
<td>Cereals</td>
<td>• 2% increase in Pillar 1 support entirely comprised of an area-based payment</td>
<td>• Overall not strongly dependent on farm support for viability although the SFPS protects against fluctuations in commodity markets.</td>
<td>• Impact on production will be negligible given the SFPS hardly influences cereal production. Further, the changes in support appear very modest to have any significant impact on farmer behaviour.</td>
</tr>
<tr>
<td>Category</td>
<td>Change in Support</td>
<td>Key Points</td>
<td></td>
</tr>
<tr>
<td>------------------------</td>
<td>-------------------</td>
<td>---------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>General Cropping</td>
<td>15% increase</td>
<td>• Like cereal farms, overall not strongly dependent on farm support for viability, although SFPS protects against fluctuations in commodity markets.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>in Pillar 1</td>
<td>• Impact on production will be negligible given Pillar 1 payments hardly has any influence on cereal production choices and other arable crops (e.g. potatoes) have never received direct support before.</td>
<td></td>
</tr>
<tr>
<td>Lowland Cattle &amp; Sheep</td>
<td>2% increase</td>
<td>• Like cattle and sheep farms in the LFA, highly dependent on Pillar 1 payments for viability. In 2008-09 SFPS accounted for 136% of Farm Business Income.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>in Pillar 1</td>
<td>• While SFPS has some significant impact on cattle and sheep production, the change in support remains very modest to have any significant impact on production.</td>
<td></td>
</tr>
<tr>
<td>Dairy (LFA)</td>
<td>13% decline</td>
<td>• Not particularly dependent in support for viability although SFPS accounts for significant share (41%) of farm business income.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>in Pillar 1</td>
<td>• As dairy production never received support through direct payments, impacts from changes in levels of support will be overall modest.</td>
<td></td>
</tr>
<tr>
<td>Dairy (Non-LFA)</td>
<td>14% fall</td>
<td>• Not particularly dependent in support for viability although SFPS accounts for significant share (50%) of farm business income.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>in Pillar 1</td>
<td>• As dairy production never received support through direct payments, impacts from changes in levels of support will be overall modest.</td>
<td></td>
</tr>
<tr>
<td>Mixed (LFA)</td>
<td>36% decline</td>
<td>• Significantly dependent on farm support for viability due to dominance of grazing livestock enterprises. In 2008-09 SFPS accounted for 109% of Farm Business Income.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>in Pillar 1</td>
<td>• The reductions in support will have notable negative impacts on especially beef and sheep production given the production of these commodities is influenced by the level of the Pillar 1 payments. However, headage payments may dampen these negative effects.</td>
<td></td>
</tr>
<tr>
<td>Mixed (Non-LFA)</td>
<td>15% decline</td>
<td>• Not particularly dependent on farm support for overall viability although Pillar 1 payments account for a very significant share of Farm Business Income – 85% in 2008-09</td>
<td></td>
</tr>
<tr>
<td></td>
<td>in Pillar 1</td>
<td>• Reduction in support will have some negative impact on beef and sheep production. However impact will be small given relatively modest impacts on farm incomes. However, headage payments may dampen these negative effects.</td>
<td></td>
</tr>
<tr>
<td>Specialist Beef (LFA)</td>
<td>28% decline</td>
<td>• Highly dependent of farm support for viability. In 2008-09 Pillar 1 payments represented 138% of Farm Business Income. Inquiry proposal represent a very significant reduction in income – 48%.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>in the level of</td>
<td>• The reductions in support will have notable negative impacts on especially beef and sheep production given the production of these commodities is influenced by the level of the Pillar 1 payments. However, headage payments may dampen these negative effects.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pillar 1 support</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Significant element of beef headage payments</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6. Wider economic impacts

6.1. Industries like agriculture that produce goods for sale to the rest of the economy are linked to other industries by the flows through businesses and households of income, inputs into production, labour and other factors of production, and finished commodities and services. Through these linkages, the Inquiry’s proposal may create “ripple effects” in the form of impacts on economic activity in other sectors the economy - particularly in other sectors and industries linked to farming. These impacts would typically manifest themselves as changes in overall levels of output, employment and income across the other parts of the economy.

6.2. Broadly, the total impact of changing activity in the agricultural industry (like other industries) consists of direct, indirect and induced impacts. The direct impacts represent changes in activity in the sectors directly affected by the proposals. The indirect impacts result from changes in domestic business sectors providing inputs to or processing output from the farming industry. The induced impacts consist of the economic activity caused by household consumption in the local economy as a result of the direct and indirect effects.

6.3. In economics, the degree of these interrelationships between businesses and households are captured by economic multipliers. The economic multipliers measure the aggregate impact of a given external change on economic activity in a given geographic unit (e.g. Scotland). Depending on which economic indicator is of interest, they can be calculated for employment, income or output. They can also be calculated for the whole economy (aggregate multipliers) to measure the interrelatedness of the entire economy, or for individual sectors (sectoral multipliers) to measure the change in total economic activity as a result of changing activity in a given sector.

6.4. Multipliers can also be calculated to show the extent to which a sector being affected by policy changes are interrelated to industries which they provide inputs to. Such “forward economic multipliers” will, for example, capture the extent to which the agricultural industry is linked to the food processing sectors as a source of inputs. However, care needs to be taken, particularly when interpreting forward multipliers, as they often implicitly assume that in the absence of output from Scotland’s agriculture, the downstream industry would experience supply constraints that cannot be overcome or that the industry would cease to exist. To some extent some of these industries (e.g. retailers, restaurants, etc) will be able to substitute output from Scottish agriculture by imports, or some restructuring would take place to secure supplies. However, for other downstream industries such as auction marts,
abattoirs, livestock haulage companies, etc. this will not be the case and forward multipliers are to some extent important.

**Empirical Estimates of Economic Multipliers for Scottish agriculture**

6.5. Broadly, the empirical evidence on economic multipliers for agriculture, let alone its subsectors, tends to be very sparse largely due data requirements and complexities in deriving estimates. For Scottish agriculture, however, there is some evidence from studies that estimate upstream and downstream multipliers associated with different subsectors or enterprises making up the farming industry.

6.6. The literature quotes the upstream agriculture output multiplier to be around 1.84 (Slee et al. 2001), suggesting that for every £1 million of demand for agricultural output an additional £0.84 million is generated from upstream industries. Such national multipliers, however, only show the relationship between the agricultural industry and the rest of the economy; they do not show the relative strengths of the linkages between specific farm enterprises or farm-types in agriculture with the rest of the economy. Such information is probably more important when assessing priorities within farming.

6.7. Schwarz et al. (2006) shows that the backward (upstream) and forward (downstream) output multipliers for different sectors in agriculture differ – reflecting their differences in demand for inputs and also demands for their outputs across the food supply chain. Of the farm types covered in this analysis, it appears dairy farms have the largest cumulative backward output multipliers – 1.79, which means for every £1 million of demand for output from dairy farms an additional £0.79 million is generated from upstream industries. This probably reflects strong links with upstream industries like animal health and vet services, animal feeding stuffs and fertiliser, which are sources of inputs for dairy farms and have large backward multipliers themselves. Cereal and mixed farms tend to have the smallest cumulative backward multipliers (around 1.55-1.6), reflecting relatively smaller links with upstream industries.

6.8. Overall, the forward multipliers tend to be smaller when compared to the backward multipliers. Comparing across the farm types, dairy farms appear to have the smallest cumulative forward output multiplier – largely because wider economic effects are limited to sectors processing milk, and milk as a product tends to have relatively small marketing chains (Roberts, 1995). This is unlike, for example, the

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12 Slee, B. et al. (2001) Agriculture’s contribution to Scottish Society, economy and environment: A literature review for the Scottish Executive Rural Affairs Department and CRU.
cereals sector, where initial purchasers from the farm will process the commodity before selling it on to other sectors, often for further processing.

6.9. None of the studies reviewed for this paper provide output multipliers for the Scottish pig and poultry sectors. However, Slee et al. (2001) quote other studies \(^{14}\) that estimate employment multipliers for these sectors at 3.0 and 3.2, respectively. This compares to an employment multiplier of 1.6 for sheep, 1.8 for cereals, 1.7 for milk and 2.8 for cattle. While these employment multipliers are not directly comparable to the output multipliers in Schwarz (2006), they do suggest that pig and poultry sectors probably have, based on employment, stronger economic linkages with the rest of the Scottish economy when compared to the livestock grazing or cereal sectors.

6.10. Where support is not ring-fenced to agriculture and can be allocated, for example, to other industries, it is important to compare the farm-type multipliers with other land-based non-agricultural sectors. While the agriculture multipliers are overall larger when compared to forestry planting (1.57), they are significantly lower when compared to forestry harvesting (1.94). This would suggest, for example, that other things being equal, supporting forestry might in the long term represent better opportunities for the economy at the harvesting stage.

**Implications of the Inquiry’s proposals**

6.11. The above discussion on the cumulative backward and forward multipliers for different farm types in Scotland confirm significant economic links between the farming industry and the rest of the economy, it also suggests that the impacts of changing support schemes will vary across commodity sectors. It is important to note, however, that these multipliers do not on their own imply the same wider economic for the Inquiry’s proposals. Notably, the relevance of the multipliers in assessing the wider economic impacts of changes to Pillar 1 payments depends on the extent to which these payments stimulate economic activity in the different parts of the economy. For example, the relatively low dependence of cereal production (Table 5.1 and Figure 5.1) on Pillar 1 payments coupled with relatively small changes in payments to cereal farmers suggests the impacts of the Inquiry’s proposals on upstream and downstream industries linked to cereal production will be small.

6.12. Table 5.2 in the previous section provided the anticipated production impacts of the proposed changes in Pillar 1 payments for each of the farm types covered by the modelling work. This provides some insights into which farm types

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and associated upstream and downstream industries will have production affected by the Inquiry’s proposals. The multipliers presented in Schwarz (2006) will (for these farm types) provide an indicative estimate of the relative sizes of the wider economic impacts. As Table 5.2 shows, there is no significant anticipated impact on production for Cereals, General Cropping, and Dairy (LFA and non-LFA) farms. Thus, for these farms the production linked economic linkages would be overall very small.

6.13. In principle, the increase in support for lowland cattle & sheep farms is likely to have a positive impact on production – with some knock on impacts on associated upstream and downstream industries. However, as changes to payments to farms of this type are expected to be small (only 2%), such production and associated wider economic impacts will be very small.

6.14. The falls in Pillar 1 support for LFA specialist beef and mixed farms are likely to have negative production impacts, which will lead to negative knock-on impacts on both upstream and downstream industries for these farm types. To the extent that these farm types will have significant beef and sheep enterprises, the relevant multipliers from the literature will provide relative sizes of the knock-on effect across other parts of the economy. Upstream industries for these farm types, such as veterinary services, feed processors and merchants, etc. are likely to see a decrease in the demand for their goods and services. Some of the increased production on Specialist Sheep (LFA) and Cattle and Sheep (LFA) could offset, at the economy level, for some of the impacts of declining production on the Specialist Beef (LFA) and Mixed (LFA and non-LFA). However, a closer look at the geographic distributions of farm types becomes important in understanding spatial redistributions and impacts on regional economies.

6.15. Compared to the upstream impacts, downstream industries are likely to be less severely affected by this negative impact of changing direct payments to farms (given that the forward multipliers tend to be small relative to backward multipliers). For example a £10m decline in output for these farm types would be likely to have a negative impact on downstream sectors worth around £5.5m. Those downstream sectors that rely most heavily on Scottish produce for inputs – e.g. haulage, auction marts and slaughter houses will be particularly badly hit. Sectors that are further downstream of the supply chain (i.e. restaurants and retailers) will probably have some opportunity for the substitution of Scottish produce with inputs from elsewhere. This implies the economic impact of changing payments on downstream sectors may in fact be smaller than is implied by the forward multipliers.
6.16. It is possible that the projected decline in production for Specialist Beef (LFA) will affect demand for store cattle, particularly where the specialist beef units are largely made up of finishing enterprises. In such cases part negative impact on Specialist Beef (LFA) farms will in the long run be transmitted to producers of store animals. However, it is not possible at this stage to measure the sizes of such impacts on producers of store cattle.

6.17. Another consequence of the suggested changes to farm support is that sectors that previously were not in receipt of EU government funding could now be eligible to receive area payments. These sectors include fruit and vegetable producers, as well as pig, poultry and deer farms. These businesses (with the exception of deer) are likely to be relatively intensive operations, with any area payments likely to account for only a very small amount of total turnover, thus having little impact on returns or activity in these sectors. Therefore it is unlikely that the wider economic impact of payments to the unsupported sectors through production related channels will overall be significant.

6.18. Whilst this paper considers the immediate and short-run knock on impacts of changes to farm support, it is likely that in the long-run the industry will restructure in response to these changes. Some businesses will leave the industry, freeing up resources for others to use, whilst resources may also move into other industries. In the long-term this could have a positive impact on sustainable economic growth, as the Scottish economy will become more allocatively efficient in its use of resources. Alongside the industry wide adjustment, there is likely to be a rebalancing of agricultural land prices and input costs to fit with the new policy landscape (Hart et al. 2010). This is likely to dampen any impacts on farm incomes, production and wider economic impacts, especially as some of the impacts of current support payments are capitalised into the value of the land.

7. Conclusion

7.1. This paper has assessed the economic impacts on Scottish farms of the Inquiry’s proposal for Pillar 1 payments presented in the Inquiry’s final report. It finds that the financial and production impacts of the proposals on Cereal, General Cropping, Lowland Cattle and Sheep, Dairy (LFA) and Dairy (non-LFA) farms are anticipated to be relatively small. This is because the proposals only imply small changes in payments relative to the baseline and/or these farm types do not strongly depend on Pillar 1 payments for their viability.

7.2. The most significant financial and production impacts of the proposals will be on Mixed (LFA), Mixed (non-LFA) and Specialist Beef (LFA) farms – significant falls in Pillar 1 payments relative to the baseline, and Specialist Sheep (LFA) and Cattle and Sheep (LFA) – significant increases in payments relative to the baseline. As there is evidence that production, especially on LFA beef and sheep enterprises, is dependent on the amount of Pillar 1 payments received by a business, these changes in payments are anticipated to have impacts on production. Notably beef and sheep production on the Mixed (LFA) and Specialist Beef (LFA) farms is anticipated to fall. Although production on Specialist Sheep (LFA) and Cattle and Sheep (LFA) farms is anticipated to increase, it is also likely to be constrained by the relatively poor returns to production on these farms and the constraints imposed by the physical environment.

7.3. The analysis also considered the wider economic impacts of the changes in payments, which it anticipates will be relatively small. First, it finds that the production related linkages between Cereal, General Cropping, Lowland Cattle and Sheep, Dairy (LFA) and Dairy (non-LFA) farms will largely be small because the changes in payments are negligible and/or production for these farm types does not strongly depend on Pillar 1 payments.

7.4. The anticipated fall in production, especially on Mixed (LFA) and Specialist Beef (LFA) farms is anticipated to have some wider economic impacts. These will be in the form of negative impacts on sectors of the economy supplying these farm types or depending of the outputs of these farm types for supplies. To the extent that the proposals may increase activity on the Specialist Sheep (LFA) and Cattle and Sheep (LFA) farms, this will offset some of the wider impacts of falling production elsewhere. This will make the overall impacts at a Scotland level smaller, although variations in the geographic distribution of farm types means the implications for some regional economies may be relatively more pronounced.

7.5. The linkages between agriculture and the rest of the economy also arise in the way farm households will spend money, including Pillar 1 payments, outside of agricultural production. As the Inquiry’s proposal merely involves redistributing Pillar 1 payments among farms, it is anticipated that at an aggregate level the impacts on the economy through these channels will be small – especially if spending patterns do not vary significantly between farm households. However, impacts on the local economy may be more pronounced – reflecting the differences in the geographic distributions of the farm types.

7.6. Moreover, the farm types that will be significantly affected by the Inquiry’s proposal, and overall the agriculture industry, account for a very small part of the
Scottish economy, the impact of the Inquiry’s proposal on the economy will be very small.
### Annex 1 – Farm Accounts Survey data and results

#### Table A: Baseline technical information from FAS 2008/2009

<table>
<thead>
<tr>
<th></th>
<th>Specialist Sheep (LFA)</th>
<th>Specialist Beef (LFA)</th>
<th>Cattle and Sheep (LFA)</th>
<th>Cereals</th>
<th>General Cropping</th>
<th>Dairy (LFA)</th>
<th>Dairy (NLFA)</th>
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### Table B: Baseline financial information from FAS 2008/2009

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<th>General Cropping</th>
<th>Dairy (LFA)</th>
<th>Dairy (NLFA)</th>
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<th>Mixed (NLFA)</th>
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<tr>
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<td>£70,468</td>
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<td>£0</td>
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<td>£1,571</td>
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<td>£52,314</td>
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<td>£39,537</td>
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<tr>
<td>Total livestock output</td>
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### Average inputs - £ per farm

| Total average inputs      | £54,737                | £99,484              | £115,370              | £154,358 | £238,892        | £296,897   | £231,940    | £101,148                   | £160,571    | £151,227    |
| Diversification Margin    | £4,190                 | £2,459               | £2,001                | £5,559   | £5,024          | £1,498     | £1,354      | £698                      | £42         | £2,408      |
| FARM BUSINESS INCOME      | £16,268                | £27,105              | £26,911               | £42,372  | £57,278         | £88,475    | £58,391     | £23,338                   | £45,693     | £53,193     |

### Table C: Estimates of financial information under the Inquiry’s proposals

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<th>General Cropping</th>
<th>Dairy (LFA)</th>
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**Average inputs - £ per farm**

|                          |                       |                       |                       |         |                  |             |              |                           |             |              |
| Total average inputs     | £54,737               | £99,484               | £115,370              | £154,358| £238,892         | £296,897    | £231,940     | £101,148                  | £160,571    | £151,227     |
| Diversification Margin   | £4,190                 | £2,459                | £2,001                 | £5,559  | £5,024           | £1,498      | £1,354       | £698                     | £42         | £2,408       |
| FARM BUSINESS INCOME     | £24,072                | £16,557               | £30,889                | £43,283 | £62,865           | £83,804     | £54,225      | £24,075                   | £27,851     | £46,642      |
Annex 2 – Results from econometric studies of land allocation in USA

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<th>Explanatory variable</th>
<th>Dependent Variable</th>
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<td>Farm</td>
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<td>MLA Payments</td>
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<tr>
<td>Goodwin and Mishra (2003)</td>
<td>No</td>
<td>PFC Payments</td>
<td>Wheat Area</td>
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<td>0.08</td>
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<td>Farm</td>
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<tr>
<td>Key et al. (2004)</td>
<td>No</td>
<td>Farm Program Participation (Yes or No)</td>
<td>Change in Total Area in Program Crops, 1992-1997</td>
<td>Farm</td>
<td>Yes</td>
<td>0.08*</td>
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*The change in total area in program crops between 1992 and 1997 was 8% higher for farms participating in government programmes than those not participating among farms with the same total amount of land in the two years.

Source: Alber and Blanford, 2005