Beauty, beast and biodiversity: what does the public want from agriculture?

FINAL REPORT

Report to The Scottish Executive Environment and Rural Affairs Department

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EXECUTIVE SUMMARY

The Scottish Executive’s “A Forward Strategy for Scottish Agriculture” and CAP reforms have placed greater emphasis on both the provision of environmental goods and measures for rural development. Emphasis on non-market goods, both environmental and social, marks a change from traditional support for market production. There are many stakeholders in the outcome of this change and it is important to understand the views that the public might assign to policies designed to deliver combinations of outputs.

This report provides information on the relative values placed by the public on the outputs from agriculture, with emphasis on the trade-off between production and non-market goods. The objectives of the project described were as follows.

- Identify the range of opinions on outputs from agriculture held by a sample of the general public in Scotland.
- Estimate the level of support for changes in rural policy, and the readiness of the public to pay for these changes.
- Explore the determinants of individual preferences, including geographical location, socio-economic factors and attitudinal information.

Preliminary work with focus groups identified the general environmental and social attributes foremost in the public’s perception of Scottish agriculture. These included environmental features, landscape appearance, public access and rural development. Views were then evaluated using two quantitative survey methods, choice experiments (CE) and the analytical hierarchy process (AHP). These methods helped to determine the relative weight put on attributes by a sample of the Scottish public.

The main findings are given below, followed by a discussion of their policy implications.

Public opinion and focus group synopsis

- The link between farming and the countryside was not always spontaneously drawn. But when a link was drawn it is generally a positive association. Other agencies beyond agriculture were also regarded as having some responsibility for the countryside

- People recognised that in the current economic climate farmers were burdened by extra responsibility. Participants felt that public subsidy was justified if farmers were trading off production and thus their own livelihoods for the supply of public goods. In order to finance the aid to farmers, any price increases on food were widely rejected in favour of taxation to try to prevent the less well off being adversely affected

- Opinion was divided on the basis for distributing public funding to farmers. A number of options for allocating funding were discussed. These included allocation according to the number of visitors to an area, by area with the most potential for supplying environmental and social goods, or by discounting areas where financial aid would have little perceived impact

Overall, the small number of focus group participants suggested some preferences for changing the status quo mix of outputs, and a willingness to pay for these changes through general taxation. The empirical questions that followed were, did the general public support these changes and would they be prepared to pay for them? These questions were the basis of a wider quantitative survey of the general public.
Results of quantitative research

Respondents were asked a number of attitudinal questions to encourage them to think about rural policy issues before being asked to make choices between policy scenarios. These responses indicate that the public take a very positive view of the role agriculture plays in the countryside, and approve the provision of central support for rural areas. The only area of contention seemed to be whether a cessation of farming would improve conditions for wildlife: opinion was split either way, with relatively few people taking a neutral stance.

Choice experiment results

The choice experiment format presented pairs of policy scenarios, each scenario containing a combination of policy options including an associated cost to the taxpayer payable via general taxation. Analysis of the observed choices revealed the relative weight of public preferences assigned to the different policy options and, from the trade-off between cost and policy options, an implicit valuation of the policy options.

The policy options fell into four groups according to the strength of preferences expressed by the combined sample of 673 respondents.

- **Group 1 - Most preferred:** Promotion of locally grown food
- **Group 2 - Upper group:**
  - Enhanced quality of lochs, rivers and wetlands
  - Enhancing wildlife habitats
  - Maintaining farming communities
- **Group 3 - Lower group:**
  - Targeting environmental and landscape benefits
  - Enhancing public access
  - Enhanced landscape appearance
  - Targeting towards social benefits
- **Group 4 - Least preferred:** Status quo

Statistical analysis revealed evidence of a difference in preference in the general public between policy options in different groups, but no evidence of a difference in preference in the general public between policy options within groups.

Preferences for policy options were broadly consistent between the North, South and Central sample regions; likewise, there was no evidence to suggest preferences were influenced by whether respondents came from urban or rural areas.

Attitudes to agricultural policy had a demonstrable influence on preference. For example, respondents who gave more positive responses to attitudinal questions on rural development tended to express stronger preferences for the rural development attribute than respondents who gave less positive responses to attitudinal questions on rural development.

The average implicit valuation of individual policy changes in groups 1, 2, 3 and 4 was £74, £52, £27 and £0 per household per year respectively.
Analytical hierarchy process results

- In the analytical hierarchy process, respondents were asked to state their strength of preference, either between two policy areas or between two policy options within each policy area.

- In terms of policy areas the ordering was that environment was preferred to rural development, both being preferred to landscape and access. These differences were significantly different.

- Across the policy options, preferences were strongest for improving water quality, but were not significantly different from those for improving wildlife habitats. Both were strongly preferred over maintaining farming communities and promoting locally grown food. As with the choice experiment, improved landscape appearance and public access had lower preferences than for environment and rural development.

- Targeting of payments was considered separately in the AHP, and suggested targeting of payments towards social payments was preferred to targeting of payments towards environmental and landscape benefits.

Implications and policy relevance

The study attempts to simplify a very complex set of issues and to represent policy-relevant trade-offs. Several messages arise from the study:

- The findings suggest an appetite to see something more delivered from rural policy. There is an awareness of the difficulties experienced by farmers, but also a belief that more can be derived from the countryside than is presently the case.

- There is no reaction against farm support. Moreover, recognising the trade-off between production and public good supply, and providing that public goods are forthcoming, the public favours compensation to safeguard farm livelihoods.

- Given the condition on the supply of public goods, the public shares the notion that farm viability and public goods should be collectively funded. Accordingly the notion of taxes on food, or higher food prices, was rejected in favour of financing through general taxation.

- Other agencies are present in the public consciousness when considering the state of the rural environment, although it is less clear what roles and responsibilities the public assigns to which agency. The level of expectations on farming may be misplaced when the public is uncertain as to who has responsibility for delivering on what outputs.

- Some strong opinions were evident from the output of the focus group work, but these statements are largely unconstrained by the need to consider costs in terms of personal tax liability. In contrast, the tax obligations inherent in the choice experiment leads to a more ambiguous picture with less certainty over whether there is a uniform preference ordering over the different attributes. While the public may want more of all attributes, but with the exception of local food, the combination they want is unclear.

- Where significant weight has been assigned, it is to outputs that can be linked to them in a direct use sense (i.e. food, which is consumed), whereas lesser weight appears to have been given to more indirect use attributes.
CHAPTER ONE  
INTRODUCTION

Summary
This chapter has two aims.
1. Discuss the background to the project, and its objectives.
2. Describe the structure of the report.

1.1 Background

In common with other EU member states, Scottish agriculture is in transition as the system of agricultural support is re-appraised. The reduction in production-related support payments and a move towards stewardship schemes has led to wider debate about the purpose of sector support and the role of public preferences in determining the forms of aid that are extended to farmers. This debate has dovetailed with other public concerns arising from a series of food and animal related health scares. Overall the public has been sensitised to the wider impacts of agriculture on the rural environment and the fact that there are some unavoidable trade-offs to be considered as part of the policy design process.

As part of the evolution of agri-environmental policy, governments have attempted to demonstrate the benefits of reform using an array of methods to measure the value of public goods from agriculture. Some research has also been directed towards the characterisation of the variety of public goods and other benefits such as rural employment, local foods and the economic and social vibrancy of rural communities. While environmental economic techniques have been used to reveal the values attached to specific public goods, few studies have attempted to gain insights into the nature of trade-offs that are inherent in public preferences over the range of policy outcomes. For example, how much more is the public willing to pay for water quality relative to rural employment and or the production of local food?

1.2 Objectives

The overall objective of this project is to provide information on the relative values placed by the public on the outputs from agriculture. Specific emphasis is placed on the trade-off between market and environmental goods. Though not always the case, the implication is that there is some degree of mutual exclusivity between some of the outputs.

Our research is set against a background of policy reform that limits the likely resources directed towards the supply of public goods. Accordingly the objectives were to:

• Identify the range of opinions and expressed preferences held by a sample of the general public in Scotland

• Determine the relative weight placed on these preferences using qualitative and quantitative methods

• Compare the results of two different quantitative methods for estimating strength of preferences

• Explore regional variation in preferences

• Explore the determinants of individual preferences and choice.
1.3 Work stages and report structure

The project comprised a number of distinct stages as set out in Figure 1.1. First a literature review assessed the current state of knowledge of public preferences for non-market outputs from agriculture, both in terms of outcomes and methodology. This stage set the research agenda for the empirical work that is reported here. Second, qualitative focus groups helped to develop an understanding of how the Scottish public regards agriculture and its wider role in the Scottish countryside. The groups also served to provide a set of non-market attributes that can be provided by agriculture. Together with further attributes gathered from the literature review, a postal rating survey was then undertaken. The aim was to determine the importance of each identified attribute in order to reduce the list into one more manageable for the quantitative research. This quantitative research took the form of a choice experiment survey.

![Project Work Stages Diagram](image)

**Figure 1.1: Project work stages**

The main differences in the lines of enquiry taken is that the choice experiment format is based on a wider sample of the population and forces respondents to consider trade-offs that need not constrain focus group opinions. Close correspondence between the results of qualitative and quantitative stages was not expected and was not the objective of this study. The report is divided into four chapters. The next chapter introduces the methodologies used in the study. Chapter three provides an overview of the qualitative stage of the study. The penultimate chapter outlines the quantitative stage of the study utilising choice experiments. Finally the report considers the policy relevance and implications of the findings.

There is also an accompanying technical report that contains more detail on the empirical results presented in this document. The technical report covers the quantitative preference and valuation surveys. It also includes copies of questionnaires used in the main survey and the topic guide used in the focus groups.
CHAPTER TWO    STUDY METHODS

Overview
This chapter provides details of the empirical methods used in the study, both qualitative and quantitative.

Details of the respondent sample characteristics and locations are also presented.

2.1 Information gathering

The first phase of this project was to gather published and unpublished material on the application of methods to assess public preferences for complex environmental policy changes. Our review uncovered a range of public opinion surveys that had asked some similar questions about the future of agriculture and/or several dimensions of the agriculture-environmental linkages. But none of these surveys required respondents to make realistic tradeoffs involving a range of policy objectives and financial implications. This stage allowed an understanding about existing public preferences and knowledge, which was useful for developing a topic guide for focus group discussions later. A complete literature review from this study, and the topic guide for focus group discussion, can be found as an annex to the accompanying technical report.

2.2 Qualitative research in focus groups

In the second phase of this project, six focus groups of between seven and nine participants were held, spread over three locations (Table 2.1). Focus group discussions lasted for 1½ hours and were based around the topic guide developed in the first phase. The focus group discussions allowed an exploration of opinions of participants in some depth, indicating a selection of topics to explore in population-based studies. Recruitment of participants, moderation and transcription of the focus groups was undertaken by qualitative researchers from NFO Worldgroup.

Table 2.1 Overview of the focus groups, including location and principal participant characteristics.

<table>
<thead>
<tr>
<th>Group Number</th>
<th>Gender</th>
<th>Age</th>
<th>Location</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mixed</td>
<td>20-34</td>
<td>Inverness</td>
<td>11/12/02</td>
</tr>
<tr>
<td>2</td>
<td>Mixed</td>
<td>35-55</td>
<td>Inverness</td>
<td>11/12/02</td>
</tr>
<tr>
<td>3</td>
<td>Mixed</td>
<td>20-34</td>
<td>Edinburgh</td>
<td>12/12/02</td>
</tr>
<tr>
<td>4</td>
<td>Mixed</td>
<td>35-55</td>
<td>Edinburgh</td>
<td>12/12/02</td>
</tr>
<tr>
<td>5</td>
<td>Mixed</td>
<td>20-34</td>
<td>Jedburgh</td>
<td>14/01/03</td>
</tr>
<tr>
<td>6</td>
<td>Mixed</td>
<td>35-55</td>
<td>Jedburgh</td>
<td>14/01/03</td>
</tr>
</tbody>
</table>
2.3 Attribute development

The focus group discussions provided considerable detail about the views of a small number of people. In order to obtain a broader picture of the views of the Scottish population, a selection of key issues was developed that respondents could identify with in a questionnaire context. The third phase of the project developed a rating survey, to be sent to a broad spectrum of the population.

From the focus group discussions, a list of twelve statements relating to the aims of farm policy was developed. Respondents were asked to rate the level of importance that each issue should have in relation to decisions about how to spend public funds. The question of whether the spread of public support should be targeted (narrow and deep) or not (broad and shallow) was explored in ratings of three further statements. Participants were also asked to rank a list of 7 specific environmental features, to allow selection of those with the greatest public support.

Finally, respondents were asked whether they would be willing to pay additional taxes for their favoured combination of policy options. For those responding “yes”, a follow up open-ended question asked them to state a willingness to pay value. The purpose of this question was to indicate an appropriate range of prices to use in the population-level work.

The rating survey was undertaken as a postal questionnaire using a sample drawn from the NFO Worldgroup Access Panel. The Access Panel is a group of individuals who are periodically sent postal questionnaires on a range of subjects on behalf of different clients. Although Panel members might be considered to be “professional” survey respondents, they will typically have no more interest or knowledge of the issues at hand than the population at large. A total of 93 useable responses were received from the 170 questionnaires despatched. Analysis of the responses allowed selection of a reduced number of policy options to be explored formally through by quantitative mechanisms.

2.4 Quantitative research

The fourth and final phase of the project involved the implementation of a face-to-face questionnaire survey to establish the preferences of the wider Scottish public for the policy options selected in the first three phases. In addition, respondents were asked about their attitudes to a range of aspects of rural policy. The attitudinal questions were included primarily to concentrate the respondents’ minds more specifically on various aspects of rural policy prior to being asked questions to elicit policy preferences. However, the attitudinal questions also provide useful information in their own right about attitudes to rural policy.

For sampling purposes, Scotland was divided up into South, Central and North (Figure 2.1). The South broadly corresponded to Dumfries and Galloway and the Borders. Central broadly covered the central belt including Edinburgh, Glasgow and Stirling. North included the Highlands and Aberdeenshire. This division of Scotland into three regions allowed estimation of regional differences in preference. Within each area, sample points (towns) were selected from across the area to ensure that the sample broadly reflected the spread of population. Sampling quotas were based on sex, age and social class to ensure the sample was demographically representative. The surveys were administered in respondents’ homes by trained interviewers employed by NFO Worldgroup. See Figure 2.1.
Figure 2.1: Map indicating sample regions by postcode area. (Sample points did not encompass all of the larger postcode areas such as IV and PA)

**Choice experiment (CE)**

The choice experiment involved asking respondents to choose between two multi-attribute policy scenarios, each with a cost in terms of an increased annual tax payment. Each policy scenario comprised statements about four attributes, namely: environment; landscape and access; rural development; and targeting (broad and shallow versus shallow and deep). For each attribute, the three possible levels were either of two statements describing changes believed to have public support, or a statement of no change (current practices). The attributes and associated level descriptions given to respondents are presented in Box 2.1. An example of a choice set is given in Box 2.2. Six pairs of choice sets were presented to each respondent according to a formal statistical design that allowed efficient estimation of preferences between attribute and price levels.

A pilot study of 106 respondents was carried out to test the CE protocols. The main outcome of this pre-test was that the price range was widened to include higher values. This was necessary to get a good estimate of the effect of price on preference because respondents were less sensitive to price than anticipated. As little change was made between pilot and main surveys, no distinction was made between them in the analysis.

The intended full CE design was 216 respondents per area, a total of 648 respondents altogether. In fact, 673 questionnaires were completed, leading to 3899 expressions of preference. By recycling unanswered choice sets, a preference was obtained between the alternatives in all but 6 of the intended pairs. The 114 questions for which a least preferred (see Box 2.2), rather than preferred, option was selected were treated as part of the main data set.
Table 2.1: Attributes and levels used in the Choice Experiment

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environment</td>
<td>1 = current practices;</td>
</tr>
<tr>
<td></td>
<td>2 = enhance wildlife habitats;</td>
</tr>
<tr>
<td></td>
<td>3 = enhance the quality of lochs, rivers &amp; wetlands</td>
</tr>
<tr>
<td>Landscape and access</td>
<td>1 = current practices;</td>
</tr>
<tr>
<td></td>
<td>2 = enhance landscape appearance;</td>
</tr>
<tr>
<td></td>
<td>3 = enhance public access</td>
</tr>
<tr>
<td>Rural development</td>
<td>1 = current practices;</td>
</tr>
<tr>
<td></td>
<td>2 = maintain farming communities;</td>
</tr>
<tr>
<td></td>
<td>3 = promote locally grown food</td>
</tr>
<tr>
<td>Targeting</td>
<td>1 = current practices;</td>
</tr>
<tr>
<td></td>
<td>2 = towards social benefits;</td>
</tr>
<tr>
<td></td>
<td>3 = towards environmental &amp; landscape benefits</td>
</tr>
<tr>
<td>Additional annual taxes</td>
<td>(pilot) £5 £10 £20 £40 £70 £100</td>
</tr>
<tr>
<td>(six levels)</td>
<td>(main study) £5, £10 £25 £50 £100 £200</td>
</tr>
</tbody>
</table>

A breakdown of respondents for the pilot and main surveys was as follows.

Table 2.2 Geographical breakdown of respondent sample

<table>
<thead>
<tr>
<th>Area</th>
<th>Sample sizes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pilot</td>
</tr>
<tr>
<td>Borders, Dumfries and Galloway</td>
<td>South</td>
</tr>
<tr>
<td>Central Belt</td>
<td>Central</td>
</tr>
<tr>
<td>Highlands and Aberdeenshire</td>
<td>North</td>
</tr>
</tbody>
</table>

Piloting for the CE took place over one week in May 2003 with the full survey taking four weeks during July and August 2003.

Analytical Hierarchy Process (AHP)

In the analytical hierarchy process, respondents were asked to state their strength of preference, either between two policy areas or between two policy options within a policy area. The distinction here is broadly between the attributes in Table 2.1 and the levels in the same table. The policy areas used were environment, landscape and access, and rural development. The policy options within policy areas were the same as the attribute levels used for the CE, with an additional rural development level, “Preserve rural character”. This level represents a more general rural development aim not necessarily associated with agriculture. Constraints on the number of levels in the CE due to design and sample sizes do not apply with the AHP. Thus a wider range of attributes/levels can be considered; within the bounds of the length of task we can realistically expect respondents to engage in.

Face-to-face interviews were carried out with 169 adults, age 16+ representative of the population of Scotland. Sample points were selected across Scotland, and correspond to those used for the choice experiment. Again, sub-stratification was determined using a quota system based on social grade, age and gender.
Box 2.1: Descriptions of attribute levels presented to respondents.

**Enhance wildlife habitats:**
Farmers would receive additional payments to improve both the quantity and quality of wildlife habitats on their land. For example, work might include the planting or restoration of features such as hedgerows or field margins that act both as habitats and as “corridors” between areas of uncultivated land.

**Enhance the quality of lochs, rivers and wetlands:**
Farmers would receive additional payments for actions such as the creation of strips of uncultivated land alongside watercourses to reduce the risk of pollution from pesticides, fertilisers and animal waste.

**Enhance public access to the countryside:**
Farmers would receive additional payments to improve public access, for example, through the maintenance of paths, stiles and the provision of signposts.

**Enhance landscape appearance:**
Farmers would receive additional payments for undertaking work such as the restoration of features like dry stone walls or traditional farm buildings. They can also be paid for environmental features such as woodlands and hedgerows, which have landscape impacts too.

**Maintaining farming communities:**
Farm policy would have the aim of maintaining farming communities and supporting rural employment. This would involve encouraging young farmers to stay in the industry and ensuring the viability of traditional smaller farms, which might be done through setting up local co-operatives to allow farmers to share machinery and labour.

**Promoting locally grown food:**
Farm policy would support efforts by farmers to promote their produce in local markets and to develop schemes such as labelling to add value to their products in wider markets.

As well as the above options, farm payments can be targeted in the following two ways:

1. **Where social and economic benefits are greatest**, for example in the number of jobs being created or protected.

2. **Where environmental and landscape benefits are greatest**, for example in areas where there is potential for a higher number of different animals.
Box 2.2: Example of choice experiment scenario.

“Imagine if the only way to improve the management or the amount of these landscape features was through an increase in annual taxation paid by your household, the revenue from which would only be spent on improving these features. We would like you to consider the following sets of policy options and in each case tell us whether you prefer option A or option B”.

<table>
<thead>
<tr>
<th>Environment</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landscape and access</td>
<td>Current practices</td>
<td>Enhanced wildlife habitats</td>
</tr>
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<td>Enhanced public access</td>
<td>Enhanced landscape appearance</td>
</tr>
<tr>
<td>Targeting</td>
<td>Promoting local food</td>
<td>Maintain farming communities</td>
</tr>
<tr>
<td>Additional annual taxes</td>
<td>Towards social benefits</td>
<td>Towards environmental and landscape benefits</td>
</tr>
<tr>
<td></td>
<td>£30</td>
<td>£75</td>
</tr>
</tbody>
</table>

Which option do you prefer?

If neither, which option did you least prefer?

A  B  Neither
A  B  A  B
CHAPTER THREE   QUALITATIVE RESEARCH

Overview
This chapter details the outcome of the focus group discussions under a number of topic headings. Three key questions formed the basis of focus groups.

1. What are the public's perceptions of, and involvement in, the countryside?
2. Who does the public think is responsible for the countryside and what would happen if farming did not exist?
3. What expectations does the public have of farmers?

3.1 Level of personal involvement with countryside

There were some notable differences between the different sample groupings in relation to their general relationship with the countryside. Those living in the Borders tended to view themselves as living in the countryside. Therefore, simply leaving their homes was deemed as an 'encounter' with the countryside. This contrasts with those in Inverness who perceived the edge of town to be where the countryside began, classifying Inverness as a ‘small town on the edge of the countryside’. Those dwelling in Edinburgh unequivocally classified themselves as urban dwellers.

There was little variation between the regions when it came to activity in the countryside. Urban dwellers were active in a number of areas whether they are ‘very local’ such as the Pentland Hills or farther afield such as areas of the Highlands. The Borders were thought to be a rather easily accessible region and some paid visits to the West Coast of Scotland on occasion.

The main discriminator in terms of activity was the age split between the focus groups. As can be expected the younger groups tended to be more active in their outdoor pursuits (although this was not always the case). Activities included:

- Hill walking
- Cycling
- Climbing
- Camping
- Canoeing
- Horse-riding
- Dog-walking
- Taking a stroll / break from the day
- Short weekends away

On the whole, spontaneous associations with the countryside were made on three levels: emotional, perceptual and visual or physical (Figure 3.1). It is noteworthy that the associations made were overwhelmingly positive. Of paramount importance too, is the fact that farming or agriculture was not something that was spontaneously referred to. This helps us to understand how important, or how much thought and consideration is afforded to farming when people think of the countryside. The closest association was in the Borders where ‘Farmland’ was mentioned as a characteristic.
Under examination the associations can be distilled into benefits provided by the countryside. There were clear psychological benefits provided by the countryside, such as the feeling of escaping and ‘getting away from it all’. This was not confined to the urban groups, as individuals in both the Borders and Highlands also felt that they benefited from a feeling of freedom. As well as providing a good source of physical exercise the countryside also provides the opportunity to interact with nature. Nature was referred to in relatively vague terms, although generally included encountering wildlife\textsuperscript{1} and flowers. Likewise, ‘scenery’ was referred to in relatively broad terms as a benefit of the countryside. However, it is seen as something quite distinct from ‘nature’, and merits consideration in its own right. The vast range of scenery available in Scotland was seen to be one of the Scottish countryside’s greatest assets, ranging from the rolling hills of the Borders to the imposing mountains of the Highlands.

### 3.2 Responsibility for the countryside

During the discussions it became clear that responsibility for the countryside is an area that had been afforded little previous consideration. It was acknowledged that many of the benefits of the countryside, already generated by the participants, were taken for granted to a large extent. There was little engagement with the notion that there may indeed be an element of management behind the Scottish countryside. As a result of this, the initial reactions to the notion of responsibility were somewhat vague. The broad response was that anyone who uses the countryside has a degree of responsibility for its upkeep. This manifested itself in a general respect for surroundings, such as observing the ‘Countryside Code’, minimising littering, and following pathways.

Having been encouraged to give further thought to this matter the following were also associated with having responsibility for the countryside:

- Big land owners
- Forestry Commission
- Farmers
- Wildlife Trust
- Scottish Executive
- Local Authorities

Landowners were consistently cited and usually associated with substantial areas of land. Farmers were not thought to belong with this group mainly due to the perceived scale of the land that they own and the fact that some farmers are indeed tenants.

\textsuperscript{1} Birds of prey, otters, deer, rabbits, hares, badgers, squirrels
Farmers were not always spontaneously associated with responsibility for the countryside. In particular, for the younger groups, farmers were less likely to be considered. This is a further example of how weak the link between countryside and agriculture can be amongst a public, which does not often consider the relationship between the two.

The crux of this lies in the fact that there is often no immediate association between farming and the countryside. This seems to be driven by a tacit expectation of farmers to naturally look after the countryside as a result of their agricultural activity. The overriding impression is that farmers have a principal responsibility to their own trade. By having a degree of pride in their work, farmers are expected to exert some positive effects on the countryside. Not only this, but, by looking after the countryside the farmer is more likely to reap better rewards, resulting in the opinion that it is actually in farmers’ interests to maintain the land. Without considerable prompting the degree of engagement relating to the links between the two concepts is relatively low and at a somewhat rudimentary level. The feeling is that maintenance of the countryside is akin to a naturally occurring phenomenon as a by-product of agricultural activity.

3.3 What if farming no longer existed?

This topic challenged individuals to think about the implications of a cessation of Scottish farming. Respondents were required to give greater consideration to what farming actually contributes to the Scottish countryside.

The general opinion was that this would have a predominantly negative effect on the countryside. Putting aside issues raised relating to the production of food, as these fall outwith the remit for this study, the principal concern was that the countryside would be given over to an altogether wilder environment. Participants anticipated that areas with a relatively high level of farming activity at the moment would take on a derelict appearance. Examples of ‘set aside’ land that currently has a look of neglect were seen as a sign of what may result if farming were to totally vanish. Overall this was not welcomed in any way.

The vast range of types of countryside was a benefit associated with Scotland, identified spontaneously, early in the sessions. This variety was later seen to have an impact on how people perceived the effect of the disappearance of farming. For some the Highlands were automatically associated with a wilder demeanour than the rest of the country. This was extended further to the mountain ranges in the Highlands where it was thought that little would change due to the permanent nature of this land. Therefore the areas most affected by the absence of farming would be Lowlands, in fact any area where farms constitute a large part of the countryside. That these areas would become overgrown would not be attractive to the eye, potentially leading to fewer visitors and all round neglect.

The other, equally unpopular, potential threat to the countryside would be the increased development of rural landscape. The build up of housing and commercial properties was a real concern, particularly amongst those dwelling in the Borders where they have already seen some of the results of heightened development activity.

It is interesting to note however what was not mentioned as a concern. There was little thought given to the economic impact on rural communities or on tourism in Scotland. Whilst this is noteworthy of mention care should be taken not to deduce too much from this point. That the discussion itself was primarily around the physical attributes of the countryside will no doubt have influenced the emphasis placed in individuals’ responses.

It is clearly evident that there is not a strong spontaneous link between Scottish farming and the Scottish countryside. However when challenged to consider if any such link exists, individuals are able to appreciate the relationship between the two on a predominantly physical or visual level.
3.4 Expectations placed on farmers

Overall there was a generally sympathetic view of farming as an industry. Farmers were thought to be operating in a particularly tight market place nowadays with some even adopting the view that it is an industry in crisis. For most this was viewed as unfortunate and coincided with a relatively high awareness of farmers as recipients of various grants and subsidies (although this awareness was at a very generic level). There was a minority who were more resistant to the aid given to farmers citing the notion that the market presents difficulties for a number of other industries that do not currently receive any government aid.

When considering the roles and responsibilities of farmers, the participants followed a logical progression in a series of quid pro quos. In light of this, the main priority for farmers was identified as earning a living for themselves and their family. This was seen to be the primary reason for operating as a farmer. This was achieved through the provision of farm produce and other goods. The food provided by farmers was expected to be of a good quality and supplied at a reasonable price thereby providing value for money. As a fall out from this activity of production, the countryside will be tended to and looked after. This leads to an assumption that farmers will maintain their land in order to continue to function in the market place. There was little expectation for farmers to actually allocate resource to ‘improving’ the countryside as this was seen to fall outside their priorities. This builds on the assertion that in many ways the countryside looks after itself. Whilst there is an understanding of the role farming plays in this, the assumption seems to be that if farmers wish to, not only make a living, but also to ensure that the farm can be taken on by future generations, they have an obligation to themselves to look after the countryside.

The emphasis for managing the upkeep of the countryside was very much placed on maintenance as opposed to improvement. Some considered the very notion of farmers being responsible for the ‘improvement’ of the countryside risible. One of the issues here is a matter of interpretation; ‘improvement’ being far too subjective a term for people to be comfortable with. Others were more moderate in their responses preferring to see farmers having the responsibility to restore and respect the land that they use.

It may be more effective to consider what farming should not do to the countryside. As part of a farmer’s duty to maintain the countryside as it is now, they should also restore land, ensure that they do not intentionally harm wildlife nor should they knowingly pollute any rivers or lochs. This wish list corresponds with the perceived threats to the countryside:

- Over usage of fertilisers and / or pesticides leading to water pollution, damage to wildlife and a potentially negative effect on farm produce.
- The selling of land for commercial development due to adverse market conditions.
- Over-farming or generally mistreating their land, such as damaging soil quality thus impairing future benefits provided by the land.
- Over-expansion of farming into a more intensive operation leading to unsightly factory farms and aesthetic damage to the countryside scenery.
- The discouragement of wildlife through, for example, the removal of hedgerows.
- Refusing to grant access to other countryside users.

It can be derived from this what people actually desire from the relationship between countryside and farming. The overriding sentiment is one of minimising damage and ensuring maintenance. Individuals realised that there were a number of potential trade-offs to be made and that they themselves may indeed be driving elements of these by demanding cheap, good quality produce
whilst simultaneously enjoying other benefits of the countryside. The broad dilemma seems to be achieving a satisfactory balance between a farmer’s need to make their livelihood and produce food for the public and the effect that this process can have on the countryside. This was also given the added context of a market place that is deemed to be competitive and sufficiently difficult to operate in without making additional demands on farmers. A number of specific areas were identified as potential areas of conflict of interests:

- Maximising yields through usage of pesticides / fertilisers vs. water quality.
- Quantity of produce vs. quality of produce (and the price effect of this).
- Maximising yields through intensive farming vs. aesthetics of countryside.
- Maximising land usage vs. hedgerow preservation.
- Utilising own land vs. providing public access.

3.5 Compensation

Previous research hinted that there might be public resistance to the provision of public monies for the purpose of maintaining the countryside (cf. “Public perceptions of food and farming in Scotland: Management summary report of qualitative research findings” NFO System Three, October 2002, p8). However, when challenged to consider the role that agriculture plays in the countryside individuals were much more prepared to support financial aid. This is particularly true once individuals had made the connection between farming and the non-market benefits that it can provide. However this area remained one of debate resulting in no real consensus or single solution to the problem.

A set of criteria were established as a minimum requirement:

- Farmers who relinquish any part of their land for the benefit of the countryside should be recompensed.
- In any case where a recognised environmental project is underway, or it is evident that farming practices are benefiting the countryside, farmers should receive aid.
- Strict monitoring should be in place to ensure that any funds received are being properly utilised.

It is evident that the allocation of financial support was thought to be an onerous task. Whilst some thought that only areas with the most potential to benefit the countryside should be given any help, others found it difficult to see how this would be decided. One potential measure would be to provide support for those in areas that are visited most by the public as this was seen as some indication of areas that would possibly benefit the public. However there was also recognition that there may well exist areas where few visit due to lack of knowledge or indeed due to the fact that the land has not been developed to its full potential. The difficulty in reaching a conclusion is indicative of the fact that the decision-making process for such distribution of finance would indeed be a gruelling one, not to be relished. Where there was agreement was on deciding where financial help should not be directed. Areas with little perceived development potential were seen as distractions in this sense. There is no real benefit in financing areas where the effect of this will be minimal. Areas that fall into this category are mountain ranges and bog-land in the Highlands where the feeling is that no matter how much investment is made, the returns would be tiny.
Any rise in food prices to finance the aid given to farmers would be opposed. There is severe concern that this is a flawed means of collection in that any rise would in fact be a blanket tax without discrimination. This would potentially affect the less well off more so than those who could afford a small increase. In addition there was a feeling that local produce has a tough enough battle against imported goods at the moment without making the task even more difficult by increasing prices. In light of this, an increase in taxation was seen to be a better alternative. As is often the case when taxation is discussed there was a preference expressed for ring-fencing the tax to ensure that it does get used for the correct purpose.

A number of other avenues were also explored. As most were aware of farmers currently receiving subsidies and grants there was some support for an audit of this process and subsequent redistribution of current aid, thereby negating the requirement for other means of raising funds. If this were also combined with an appeal to other groups with an interest in the countryside, such as industries that gain from the countryside (e.g. bottled water firms) or charities (Wildlife Trust), there may be sufficient money raised to benefit the farmers who are eventually allocated aid.

3.6 Conclusions

Despite media coverage of agricultural issues, the link between farming and the countryside is not uppermost in the mind of Scotland's population.

Any associations that are made are firmly grounded in the benefits that the countryside provides. These are also generally positively framed, with few individuals spontaneously identifying potential drawbacks relating to the Scottish countryside. In relation to agriculture, people view the farmers’ priority to provide. This is on two levels. By providing food as an output the farmer is supplying goods to the public. As a result of this they are able to provide for their own livelihood. Given the somewhat pessimistic view of the agricultural industry’s prospects it was thought that this role as provider for one’s own family or business was becoming an increasingly arduous task. In this context farmers were considered in a relatively positive and often flattering light, notwithstanding a modicum of reservation around the provision of grants and subsidies.

In terms of the role that farmers play in the upkeep of the countryside, theirs was seen as a role in conjunction with many other bodies, including – Forestry Commission, big land owners, general users of the countryside, The Scottish Executive, Local Authorities and other related bodies such as charities. To lay sole responsibility at the door of agriculture was seen to be both unrealistic and unfair.

In many ways the notion of imposing a role of ‘agent of improvement’ or at the least, ‘maintainer’ of the countryside was seen as a step too far given the relative struggle that farmers were perceived to undergo in the course of their role as ‘providers’. Upkeep of the countryside is seen as low on the list of priorities for farmers, and improvement of the countryside is seen as of lower priority.

Taking this all into account an awareness of the trade-offs involved in output from the countryside began to form. In principle, most were in favour of subsidies for farmers in return for upkeep of the countryside. This was deemed to be a fair deal, in particular if a farmer’s ability to provide was adversely affected, for instance if a portion of land was given up or if resource was directed into an environmental project. Any subsidies would need to be monitored closely to ensure that they were being satisfactorily used for the intended purpose.

In order to finance the aid to farmers any price increases on food were widely rejected in favour of taxation to try to prevent the less well off being adversely affected. Where debate raged and no conclusion was reached, was how to distribute the funding. This was seen to be an almost thankless task, with no simple solution. Potential methods identified were, by number of visitors to an area, by area with the most potential or by discounting areas where financial aid would have little perceived impact.
Overview
This chapter reports on the results of the choice experiment (CE) survey that considered public preferences and values for policies delivering a range of non-market outputs from agriculture.

The chapter considers the following outputs from the quantitative research:

1. Public attitudes to policy issues
2. Public preferences expressed through the choice experiment
3. Public preferences expressed through the analytical hierarchy process

A detailed report of the study can be found in Technical Report B

4.1 Attitudinal responses

The attitudinal questions were grouped under five main themes, namely:

1. Views of knock-on effects if farming were to cease in Scotland;
2. Attitudes towards subsidies and payments;
3. Attitudes towards targeting of future payments;
4. Aims of environmental policy; and
5. Aims of rural development policy.

Analysis of the responses indicated a considerable amount of consistency across differences in regional geography (South vs. Central vs. North), local geography (Urban vs. Rural) or Gender. The following sections summarise the attitudinal responses, drawing attention to the relatively minor sectoral differences.

Views of knock-on effects if farming were to cease in Scotland

Overall, the public took a negative view of the effect of cessation in farming, although the impacts on conditions for wildlife were more finely balanced. The responses to this issue are shown in Figure 4.1.

There was a general consensus that a cessation in farming would be detrimental to the rural and Scottish economies, that food would become more expensive and that this would create derelict land that would be used for property development. There was also agreement that other industries would move into the area, this view being more strongly held by women than by men. Most people thought the landscape would become less attractive. This was more strongly felt by the urban than the rural population. This feeling was matched by a belief that fewer people would visit the countryside; a belief was held equally strongly amongst rural and urban dwellers.

More people disagreed than agreed with the notion that a cessation in farming would lead to the improvement in the quality of lochs and rivers. The level of disagreement was stronger in the South and Central regions than in the North, and was stronger among females than males. There was a divergence of opinion about whether a cessation of farming would make conditions more favourable for wildlife, with roughly equal proportions agreeing and disagreeing and relatively few taking a neutral stance. Men were more likely to consider that the cessation of farming would
improve conditions for wildlife than women. Respondents in the South and North were more likely to take this view than those in Central.

**Attitudes towards subsidies and payments**

Overall, the results indicate that the public has a positive attitude towards farm payments. The results are shown in Figure 4.2. A majority of respondents felt rural areas deserved more support that towns and cities. More people disagreed than agreed with the suggestion that farmers received too much support, particularly so in Central. The consensus was less strong in supporting farming over and above other rural industries. On the whole, the respondents did not register negative consequences for the subsidy system, either in terms of increased food prices or environmental damage.

**Attitudes towards targeting of future payments**

Overall, there was approval for all suggested forms of targeting. The results are shown in Figure 4.3. Large majorities agreed that money should be targeted towards rural employment, disadvantaged areas and the environment. Smaller majorities agreed with targeting for landscape improvement and the provision of public access, whilst just over half felt that further food production should be targeted. Respondents in the North were more likely to disagree with targeting towards public access than elsewhere.

**Aims of environmental policy**

Large majorities of respondents supported provision of wildlife, landscape and public access. The results are shown in Figure 4.4. The provision of wildlife habitats, and ensuring these habitats support a wide range of wildlife (biodiversity), were very strongly supported. Providing public access, and maintaining traditional landscape appearance, were also strongly supported, though somewhat less so in the North than elsewhere.

**Aims of rural development policy**

Large majorities of respondents agreed with policies supporting rural development. The results are shown in Figure 4.5. There was very little variation between different groups of respondents in terms of the extent to which they agreed with the policy aims presented. Slightly more respondents favoured a concentration of support for rural employment rather than for employment specifically on farms.

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2 The question presented to respondents did not distinguish between agricultural and broader rural employment. But this distinction was made subsequently in relation to rural development policy aims.
**Figure 4.1:** Attitudes to possible effects of a cessation of farming in Scotland.

- **The landscape would become less attractive:**
  - Disagree: 19%
  - Neither: 6%
  - Agree: 73%
- **Land would become derelict:**
  - Disagree: 17%
  - Neither: 8%
  - Agree: 74%
- **The Scottish economy would suffer:**
  - Disagree: 5%
  - Neither: 43%
  - Agree: 88%
- **The rural economy would suffer:**
  - Disagree: 4%
  - Neither: 23%
  - Agree: 92%
- **Fewer people would visit the countryside:**
  - Disagree: 23%
  - Neither: 14%
  - Agree: 59%
- **Food would become more expensive:**
  - Disagree: 12%
  - Neither: 7%
  - Agree: 78%
- **Other industries would move into rural areas:**
  - Disagree: 23%
  - Neither: 11%
  - Agree: 62%
- **Land would be used for property development:**
  - Disagree: 8%
  - Neither: 7%
  - Agree: 83%
- **The quality of lochs and rivers would improve:**
  - Disagree: 52%
  - Neither: 21%
  - Agree: 22%
- **Conditions would be more favourable for wildlife:**
  - Disagree: 39%
  - Neither: 15%
  - Agree: 42%

**Figure 4.2:** Attitudes towards subsidies and payments.

- **Farmers receive too much support:**
  - Disagree: 50%
  - Neither: 19%
  - Agree: 22%
- **Other rural industries should be supported instead of farming:**
  - Disagree: 43%
  - Neither: 26%
  - Agree: 26%
- **Rural areas do not deserve any more support than towns and cities:**
  - Disagree: 60%
  - Neither: 14%
  - Agree: 23%
- **Farm payments result in too much food being produced:**
  - Disagree: 45%
  - Neither: 17%
  - Agree: 29%
- **Farm payments result in environmental damage:**
  - Disagree: 53%
  - Neither: 16%
  - Agree: 22%
Figure 4.3: Attitudes to the targeting of agricultural subsidies and payments.

- **Producing more food:** 29% Disagree, 12% Neither, 55% Agree, 0% Don’t know
- **Helping disadvantaged areas:** 6% Disagree, 6% Neither, 86% Agree, 0% Don’t know
- **Environmental improvement schemes:** 8% Disagree, 10% Neither, 80% Agree, 0% Don’t know
- **Landscape improvement schemes:** 19% Disagree, 17% Neither, 62% Agree, 0% Don’t know
- **Providing public access to the countryside:** 20% Disagree, 18% Neither, 61% Agree, 0% Don’t know
- **Rural employment:** 5% Disagree, 90% Agree, 0% Don’t know

Figure 4.4: Attitudes to environmental policy.

- **It is important to provide wildlife habitats:** 3% Disagree, 93% Agree, 0% Don’t know
- **It is important that the landscape has a traditional appearance:** 9% Disagree, 12% Neither, 77% Agree, 0% Don’t know
- **Policy should ensure that habitats can support a wide range of wildlife:** 5% Disagree, 90% Agree, 0% Don’t know
- **The public should have access to the countryside:** 5% Disagree, 10% Neither, 84% Agree, 0% Don’t know
Figure 4.5: Attitudes to rural development policy.

4.2 Choice experiment results

The choice experiment was analysed in a way that provided a direct comparison of preferences for the policy changes with the status quo (current practices). For each of the attributes considered, there was a statistically significant difference in the weight of preferences between the levels offered by the status quo and any improvement scenario. This was true in all regions. Because of the way the question was posed, this finding suggests a readiness to support change and its delivery through general taxation.

Figure 4.6 illustrates the relative strength of preferences for each of the attribute levels across the three regional samples and for the combined sample. The relative strength of preferences has been scaled by setting the largest estimated score or willingness to pay for the combined sample (promote locally grown food) equal to 100, and setting the status quo policy options to zero. The strength of preferences for everything else is then measured relative to this scale. We can then also infer the willingness to pay for other categories.

The preference for the different policy options is clearest in the analysis of the preferences expressed by the combined sample of 673 respondents (Fig 4.6, left most panel). The policy options can be seen to lie in four statistically different groups.

- **Group 1** (most preferred) contains a single rural development attribute level: promotion of locally grown food.
- **Group 2** (upper group) contains the two environmental policy changes (enhance water quality; enhance wildlife habitats) together with the remaining rural development option (maintain farming communities).
• Group 3 (lower group) consists of the two targeting policy changes (target environmental benefits, target social benefits) and the two landscape and access policy changes (enhance public access, enhance landscape appearance).

• Group 4, not shown but defined as zero, consists of the status quo options.

For the combined sample, these four groups have strong statistical support, in the sense that pairs of policy options in different groups are statistically significant at the 5% level, whilst pairs of policy options in the same group do not differ significantly at the 5% level. This statistical evidence implies that there is likely to be a difference in preference amongst the general public for policy options that are in different groups.

Comparison of preferences for policy options estimated separately for the three sample regions, North, South and Central, indicated a broad consistency between the regions. Thus the policy changes in Group 1 and Group 2 were always estimated as being more preferred to the policy changes in Group 3, and the statistical analysis indicated that differences between regions were no larger than expected by chance.

The sensitivity of respondents to increases in general taxation to pay for policy changes was rather lower than expected hence the increase in the range of payments between pilot and main surveys. Even then, respondents were not strongly selecting against scenarios with the highest increase in taxation (£200 per household per year). Analysis of the responses indicates that an increase in taxation of £50 is equivalent to a value of 68 on the (0 –100) preference scale used to measure or calibrate these preferences. In other words, our ‘price sensitivity’ bar allows us to approximate the relative values assigned to the different categories as implied by the choices made. Implied valuations for policy changes with other index values can be obtained on a pro-rata basis. Thus, for the mean implied valuations within Groups 1, 2, 3 and 4 were £74, £52, £27 and £0 per household per year respectively.

Although there was some variation in strength of preference between respondents in the South, Central and North, when taken as a whole the observed differences are within the range of statistical variation that would be expected if the preferences in the three regions were actually the same. Sensitivity to price was also consistent between the regions. Hence, although preference indices are given by region in Figure 4.2, the regional variation should be interpreted as indicating potential, rather than likely, regional differences and are discussed no further in this report.

There was statistical evidence that preferences were affected by the characteristics of individuals. These were strongest for attitudinal characteristics derived by averaging responses already given to groupings of similar attitudinal questions. The effect of attitudinal characteristics on preference expressed in the CE was always in the direction expected, providing validation for the results of the CE.

• More positive attitudes towards rural development were associated with greater support for rural development and reduced support for enhancing public access.

• Respondents who took more negative attitudes towards cessation of farming were also more likely to support rural development policies.

• Greater support for rural development, and an increased willingness to pay, were generally expressed by respondents who gave the most positive responses about the current subsidy system.
Conversely, more positive attitudes towards wildlife, landscape and access were associated with greater support for enhancing the environment, landscape and access, and targeting resources towards more locally produced food.

The socio-economic profile of respondents was, on the whole, found to explain a relatively small amount of variation in preference and so is not described in this main report. In particular, it is worth noting that there was no statistical evidence for variation in preference due to whether respondents lived in urban or rural areas.
Figure 4.6: Preferences for attribute levels, scaled such that 100 corresponds to the most preferred level in the combined sample and 0 corresponds to the status quo levels. The policy changes are grouped according to preference in the combined sample. Statistical analysis of the combined sample indicated evidence for differences in the general public between, but not within, groups. The price sensitivity bar illustrates the index value equivalent to a change in taxation of £50.
4.3 Analytical hierarchy process results

The series of pairwise comparisons between different policy attributes and levels undertaken in the AHP were analysed to produce weightings that reflect public preferences. These weightings are initially calculated for the levels within the individual attributes and between the attributes. In the AHP, respondents do not make direct comparisons between the levels of different attributes, such the importance of enhanced water quality versus promoting locally grown food, in the same way as the choice experiment. Overall weightings are therefore derived by multiplying within attribute weights by the weights associated with the attributes.

Figure 4.7 presents the derived weightings for the attributes, levels and also the support targeting options. The figure distinguishes between preferences between policy areas (top) and targeting objectives (bottom). Preferences between policy areas have been split into constituent policy options (centre). Each of these groups should be considered separately, with the weights within each summing to one. Error bars at the end of the main bars indicate 95% confidence intervals around the AHP weights.

The attributes and levels use in the AHP were the same as for the choice experiment with the addition of a further level in the rural development attribute. “Preserve rural character” referred to a broader rural development aim than those levels referring to policies directly aimed at farmers. Targeting of payments was not interacted with the other attributes as preferences between different targeting options were of more interest than those between targeting and other attributes.

The preferences elicited in the AHP exercise differ from those from the choice experiment in that environmental policies appear to be preferred over rural development. Although as with the choice experiment, landscape appearance and public access are not as highly favoured. This may reflect a public feeling that although these are important there is not a pressing need for policy intervention. The same could be true with respect to the preferences elicited in the choice experiment.

At the policy option level within the attributes, a similar pattern is observed with environmental policies the most preferred. Improved water quality is preferred over improved wildlife habitats, however, the associated confidence intervals overlap indicating that this difference is not significant. Similarly, preferences for maintaining farming communities are not significantly different from those for promoting locally grown food. Preferences for the remaining policy levels are not significantly different.

For the targeting options, the status quo option of no targeting was less preferred to the alternatives of either targeting environmental and landscape benefits or social benefits. The targeting of social benefits was the most preferred, with the difference between targeting environmental and landscape benefits being significant.

4.4 Synthesis of CE and AHP results

The two quantitative research methods used, namely CE and AHP, elicit preference information in different ways. Hence the two methods complement one another, and a fuller picture can be obtained by considering both sets of analyses. Whilst the CE requires respondents to choose between complex, multi-attribute, scenarios, the AHP requires respondents to make a more direct choice between individual policy areas or policy options. There are difficulties in interpreting the answers to the CE questions. A good illustration in relation to the preference for locally grown food, is that had respondents been asked to choose between the policy change with most support (promote locally grown food) and no change to rural development policy, 55% of respondents would have supported the change and 45% would not.
Only the AHP obtains information directly at a policy area level, and this suggests that the landscape and access policy area is much the least preferred. This is consistent with the CE comparisons, with changes in rural and environmental policy being preferred to changes in public access and landscape appearance.

On targeting of payments, the methods also concur, with either form of targeting preferred to none. However, there is divergence in preferences over whether social or environmental and landscape benefits should be targeted.

On the comparison of the two environmental policy changes, improving wildlife habitats and improving water quality, it is interesting to notice that the AHP obtains a statistically significant difference between the two, whereas the CE, despite a much larger sample size, did not. This is perhaps due to the directness of the questions associated with the AHP.

The biggest discrepancy between the CE and AHP is the preference shown for locally grown food in the CE. This is not reflected in the AHP analysis. There are no obvious reasons why the preference orderings should differ between the AHP and the choice experiment. We can speculate that these differences arise from the different approaches of the methods. In the choice experiment, respondents are presented with some combination of the policy options covering all of the attributes, so the trade-offs they are making are explicit. In the AHP only pairs of either attributes or policy options are compared at any one time resulting in an implied trade-off.
Figure 4.7: Preference between policy areas (top) and targeting objectives (bottom) estimated using the AHP methodology. Preferences between policy areas have been split into constituent policy options (centre). Error bars at the end of the main bars indicate 95% confidence intervals around the AHP weights.
4.5 Conclusion and recommendations for further research

Overall there was a high level of consistency and statistical significance in the choices made by survey respondents. From this information we can determine the relative weight of public preferences assigned to policy attributes and determine which trade-offs are statistically significant. This information goes some way in answering the main question posed by this project and in suggesting the policy avenues that deliver on what the public wants.

The public were willing to pay significant amounts of increased (annual) income taxation for all policy scenarios proposed as improvements on the current baseline or status quo levels of the attributes finally used in the CE trade-off experiment. This indicates that the public benefits of such policies would be substantial.

The strongest preferences were revealed for the promotion of locally grown food, followed by enhanced water quality and wildlife habitats. These preferences were consistent between sample areas and between rural and urban areas.

Attitudes to agricultural policy did have an influence on choices. For instance, respondents who were “pro” rural development as shown by analysis of attitudinal questions, had stronger preferences for that attribute in the CE.

The AHP results suggested a different preference ordering, with environmental options being the most favoured. However, the extent to which this difference arises from methodological differences or reflects a true divergence of preferences is unclear. We would suggest that greater confidence could be placed in the choice experiment results as respondents expressed preferences where multiple attributes were offered simultaneously. Consequently, the trade-offs were more explicit.

Overall our research has relied on a considerably abridged interpretation of the trade-offs in question. The relevant information was conveyed verbally with no visual cues. It could be suggested that some visual information might sometimes provide a more tangible representation of the attributes. However, this will only yield reliable results if it can be demonstrated that respondents are influenced by the attributes represented by the cues, rather than the visual cues themselves.

This study has not explored how stated preferences could be validated by or translated into real consumer choices or policy prescriptions. The use of an experimental format might be valid to explore whether the high value given to the local food attribute might be robust when considered alongside other food attributes such as safety or lower price non-local substitutes.

The complexity of the task means that the timing of benefits has not been well explored. Many of the changes suggested here have long-term implications and respondents were not directly asked to consider what the implications of time are either for themselves or future generations.

Due to considerations of sample size and the complexity of task that we can reasonably expect people to complete, this survey has considered a broad sweep of possible policy responses to meet public demands for multi-functional outputs from agriculture. Further research will be needed to further refine these policy objectives and explore public preferences and attitudes. For instance, what should policy to deliver the promotion of locally grown food consist of, and how should it be delivered?
CHAPTER FIVE  IMPLICATIONS AND POLICY RELEVANCE

This study addresses the issue of matching agricultural policy more precisely with public preferences and willingness to pay for the possible outputs that policy may deliver. The respondent sample was broadly representative of the Scottish public. The study attempts to simplify a very complex set of issues and to represent policy-relevant trade-offs using methods amenable to general public surveys. The two main stages of this project were first to define the relevant set of public concerns, and next to evaluate the strength of preferences when respondents had to consider trade-offs implicit in the delivery of agricultural outputs.

The more complex question implicit in the aims of this project is whether the study provides a consistent ranking for what the public wants more of. The answer is that for some attributes we can distinguish a broad preference ordering. But for others preferences are less clear.

If we take the output of the focus group work, then some strong opinions are evident. But these statements are largely unconstrained by any consideration of payment obligations. In contrast, the tax obligations inherent in the choice experiment and its more private nature (i.e. an individual rather than group exercise), leads to a more ambiguous picture. Under these conditions there is apparently much more heterogeneity in preferences and it becomes less certain whether there is a uniform preference ordering over the different attributes. Put another way, while the public may want more of all attributes, with the exception of local food, the combination they want is less clear-cut.

Overall the findings suggest an appetite to see something more delivered from rural policy. There is an awareness of the changes and difficulties experienced by farmers, but also a belief that more can be derived from the countryside than is presently the case; especially if farmers are reliant on public support. This message came through from both the qualitative and quantitative parts of the project.

A second important message is that there is not a reaction against farm support as a means for delivering environmental and social benefits. Although not spontaneously stated, people consider farming as having a role in how some of these goods are delivered. Moreover, once they recognise the nature of the trade off between traditional production and public good supply, the public favours the notion of compensation to safeguard farm livelihoods.

A third message is that given that farmers comply with the provision of public goods, the public shares the notion that farm viability and public good supply should be collectively funded. Accordingly, the notion of taxes on food was rejected in favour of financing through general taxation. In other words the public does not reject this part of the policy status quo.

When considering choices made at the policy level (in the AHP), the landscape and access policy area is much the least preferred. This is consistent with the CE comparisons, with changes in rural and environmental policy being preferred to changes in public access and landscape appearance. We can conclude from this that the Scottish public has preferences for existing landscapes and that the policy agenda on access is not a high priority or has been satisfied in Scotland.

There are preferences for the idea of targeting support. The methods also concur, with either form of targeting preferred to none. However, preferences diverge over what area of policy should be targeted.

But farming is by no means the only ingredient that the public considered as important in relation to the rural environment. In some cases a link between environmental issues and agricultural practices was not made at all. Furthermore, other agencies are also present in the public consciousness, although it is perhaps less clear what roles and responsibilities the public assigns to which agency. In a changing rural landscape this finding is worth exploring further, since the
level of expectations may be being misplaced when the public is uncertain as to who has responsibility for delivering on what outputs.

One interpretation of all this all information is that the public does have a mental model of how the countryside should work but that this is a somewhat idealised and frequently limited perspective. The public has difficulty spontaneously associating agriculture with some outputs and in defining priorities among the outputs. In this sense, public preferences are perhaps lagging behind the new policy agenda on delivery of agricultural reform with its increased emphasis on public goods.

Public preferences can obviously change very rapidly. While recent crises have increased public awareness about some countryside and agricultural issues, we do not detect that any of these (e.g. disease control) has dominated. Evidently this might be different were the exercise to be conducted in the midst of any crisis. But the counterpoint to this is whether policy on agricultural reform actually requires proactive advertising to increase public buy-in. It is a paradox that while support is directed to the sector, nominally for the benefit of a wider public constituency, that very constituency may be least aware of the policy objectives. Instead, they are reliant on a range of sources and mixed messages that are difficult to moderate. This may explain why industry performance in recent years has been tarnished by messages that are predominantly negative. One policy objective then could be to consider how to communicate new policy objectives beyond the sector to the target beneficiaries. By extension, some effort would then be required to measure uptake of policy messages.

Where significant weight has been assigned, it is apparently to outputs that can be linked to the public in a direct use sense (i.e. food and water quality, which are consumed), whereas lesser weight appears to have been more indirect use attributes. This is hardly surprising since people rarely have direct experience in transacting for intangible goods. But beyond the need to improve the policy messages, even these findings suggest that there are policy options (e.g. the promotion of locally grown food) that could respond to these preferences.

Caveats must be attached to some of the findings. As already mentioned the qualitative and quantitative parts of the project used different methods to understand preferences. Both parts rely on abridged attribute descriptions. But even the abridged list of elements can still leave questions about the underlying motivations and potential trade-offs. A preference for locally grown food carries a range of associated questions that may require further exploration. This study did not explore what exactly constitutes locally grown food (e.g. very local or national). Nor did it consider whether people really want to pay more for locally grown food that might have other less desirable attributes, e.g. in terms of product quality and seasonal availability. In short, there is possibly some merit in stripping such preferences back to the essence of what people will pay for when the full implications of each option are apparent. Locally grown foods may sound appealing, but this preference may be as telling about the preferred spatial configuration of many other goods and services than just food. If this is the case then it would be erroneous to base policy on support for local food alone, at the expense of other unexplored trade-offs.

Finally the complex design of this study did not allow an exploration of time preferences. That is, when these goods should be provided. Preferences are surprisingly homogeneous across Scotland. Urban and rural preferences did not diverge greatly. But it is inconceivable that this uniformity of preferences will hold when options about delivery horizons vary. Thus while time preference for environmental benefits may be common over the population, it is unlikely that this will be the case for the provision of social benefits such as employment and rural services. In designing a policy response, the question about what services the public prefers needs to be supplemented by asking about when they prefer them and the nature of time trade-offs.