Exploring the decision processes of Irish farmers in the adoption of Greenhouse Gas (GHG) mitigation options

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1. The Adoption Challenge

The decision to adopt, or not, is ultimately a decision of an individual farmer, based on their own particular circumstances and attitudes. Developing policy interventions that change behaviour and support the adoption of greenhouse gas (GHG) mitigation practices relies on better understanding this individual farmer decision process.

2. Introduction

Agricultural technology **adoption** has tended to focus on adoption as a yes/no decision at a point in time, identifying those farm/farmer characteristics associated with increased probability of adoption.

The impact of different **sources of knowledge** on the probability of adoption is also complex, driven not only by the farm/farmer characteristics but the type of learning institution. This includes agri-environment schemes, often identified as an important source of information.

The impact of intrinsic factors such as **attitudes** on the probability of adoption may be more complex, yet offers an important lever for policy makers to change behaviour and influence the adoption decision process.

3. Methods

Data come from a face to face Agri-Environment survey of 1,000 Irish farmers, undertaken during the period October to December 2012 and nationally representative of the Irish farming population.

The survey included questions relating to the **adoption** of a number of farming practices with reduced GHG emissions, including:

- *Extended grazing season*
- *Reduced beef finishing times*
- *Use of low-emission slurry spreading methods*

Rather than begin with the decision to adopt these practices this research begins by exploring **sources of knowledge and information**, such as agri-environment schemes, farm discussion groups and agricultural education.

The research then focuses on knowledge gaps or lack of **awareness** around the feasibility of adoption. Attitudes towards agri-environment schemes and faming/non-farming issues were also considered.

Finally, the research explores the **adoption** decision.

Across each stage leading to adoption the impact of a similar set or three categories of characteristics are used to understand behaviour:

- *Farm and farmer characteristics*
- *Awareness, knowledge and attitudes*
- *Institutions*

4. Results

Three sets of results were generated, moving from sources of information, to levels of knowledge/awareness and finally the adoption decision. Those specific to agri-environment schemes are presented below.

- Agri-environment scheme participants use a variety of information sources
- Favourable attitudes towards agri-environment schemes encourages participation
- Concern for environmental protection encourages participation
- Those who participate in agri-environment schemes have a positive attitude towards such schemes
- Non-participants were more likely to hold a negative view of agri-environment schemes
- Agri-environment schemes increase awareness of the feasibility of adoption of farming practices that can mitigate GHG emissions, but not across all practices
- Agri-environment schemes increase adoption of farming practices that reduce GHG emissions, but not across all such practices

5. Conclusions

Reducing GHG emissions in agriculture via the adoption of different management practices and technologies relies on the individual decision of thousands of farmers.

This research highlights the complexity of this decision process, with multiple factors driving adoption, but changing as the mitigation option or farming practice changes.

Policy needs to focus on changing behaviours, beginning with sources of information for farmers. Sources such as agri-environment schemes are important but participation is dependent not only on the characteristics of the farmer and the farm but attitudes towards the schemes and farming and non-farming attitudes more generally.

Knowledge gaps remain even amongst agri-environment scheme participants, suggesting an opportunity to broaden the focus of such schemes to include specific GHG mitigation practices and knowledge.

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Farm and farmer characteristics + Awareness, knowledge and attitudes + Institutions

Adoption ⇕ Awareness, Knowledge and Attitudes ⇕ Institutions

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