Environmental & Trade Implications of Animal Welfare

Supporting the land-based industries for over a century

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Background

Any approach to assess animal welfare and the creation of strategies, policies and standards must involve a multidisciplinary approach dealing with:

- production aspects (competitiveness);
- aspects of livestock sciences;
- legislative aspects (labelling and voluntary assurance schemes; cross-compliance with animal welfare standards; agri-environmental measures);
- trade aspects (trade liberalisation may lead to unfair competition);
- environmental aspects (trade-offs between mitigating the effects of animal production on the environment and increasing animal welfare may occur).

This poster outlines on-going research with these features.

Aims and Objectives

This research:

- analyses the impacts of animal welfare issues (e.g., changes in animal welfare levels, welfare regulations and their implementation) upon the environment and trade in Scotland (and/or UK) using a partial equilibrium (PE) modelling approach.

- uses two case studies – improving pig neonatal survival (through improved sow diet during pregnancy); and improving the housing environment for laying hens (using true aerial perches in non-cage systems).

Additional related research aims are:

- analysis of the environmental impacts of Scottish poultry/pig production;
- assessment of environmental and animal welfare standards in the poultry/pig sectors in Scotland/UK and its trading partners;
- research into the feasibility and possible mechanisms of extending EU animal welfare and environmental standards to non-EU trading partners.

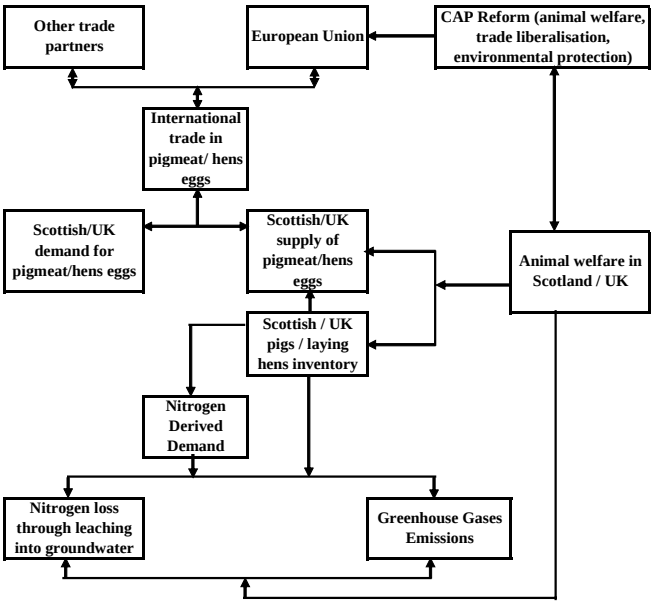
Methodology

The PE models analyse the linkages between animal welfare issues, production, trade and the environment.

The PE approach models a baseline scenario (equilibrium between demand and supply for a specific commodity, such as pig meat and hen eggs), adds shocks (i.e., a change in animal welfare, such as improved housing for laying hens and improved diet for sows during pregnancy) and sees how the system responds (shifts in prices, quantities, welfare and trade).

Adding to the production and trade impacts of an improvement in animal welfare, our PE models also look into the environmental impacts (through an environmental module linked to the rest of the model, which analyses nitrogen loss through leaching into groundwater and greenhouse gas emissions).

PE models are useful for understanding a particular response to changing policy scenarios and can capture the impacts of small changes that do not (seriously) affect sectors other than agriculture.



Schematic representation of the PE model, showing the main components and linkages required for the two case studies

Policy Relevance

The PE modelling approach offers a means to address the externalities of animal welfare and health, i.e., their impacts beyond the farm gate. Trade effects are becoming significant and must be incorporated into the decision support framework. Furthermore, considerable value may be added to animal health and welfare programmes through better understanding of the environmental implications. PE modelling offers a way for us to explore simultaneously the environmental and trade implications of progress in animal welfare and health research.

This research:

- involves strong interdisciplinary collaboration (combines work on animal health with environmental and international economics);

- provides policy relevant information and an improved understanding of the interactions between economic and environmental variables and animal welfare;

- is flexible and therefore can be adapted to explore new policy challenges as they emerge.

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