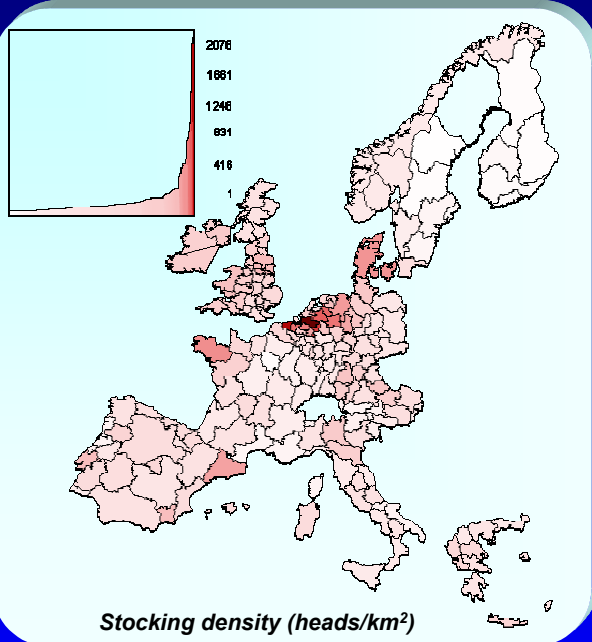


Modelling the Impact of Compulsory Foot and Mouth Disease (FMD) Insurance

Poster presented at the XIth congress of the EAAE in Copenhagen, Denmark, August 24-27 2005



Problem

- Animals are unevenly distributed across regions
- Higher stocking density implies higher cost of FMD in case of an outbreak
- FMD risks are not reflected in the cost of production with the present tax financed FMD combating system
- Too much risky production is likely to occur in densely stocked regions, whereas low risk regions are disadvantaged
- Conclusion: The present system may be inefficient

Insurance vs. tax financing

Tax financed

Tax payers finance the FMD policy. 40% of the costs are borne by the country hit by the outbreak, 60% reimbursed by the EU budget, i.e. redistributed among remaining EU member states in proportion to budget shares.

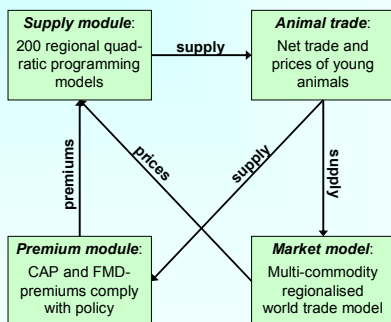
Insurance

The expected annual cost for FMD is split up per animal and charged to producers as an insurance premium.
Only risks depending on stocking density and animal kind are considered.

SIMULATIONS

CAPRI Simulation System

Five insurance scenarios were analysed using the CAPRI System, illustrated below. The system is solved iteratively as indicated by arrows.



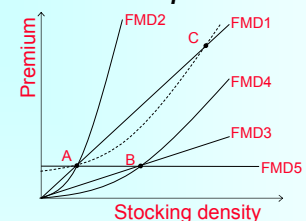
Computation of premiums

The insurance premium was set to equal expected costs. Expected costs were assumed to depend on stocking density (number of susceptible animals per square km) and animal kind.

A linear function was fit to pass through the origin and the point given by the costs per animal kind in Sweden reported in DS 2002:31 at the average stocking density in Sweden in 2001 (point A in figure below).

For sensitivity analyses, scenarios with lower average costs for the EU (FMD3, 4 and 5) were also analysed, as well as a scenario with extremely high insurance premiums (FMD2).

Illustration different premium functions



- Point A is the expected cost per animal in Sweden in DS 2002:31¹ at the average stocking density in Sweden in 2001.
- Point B is the same cost per head but at the average stocking density of the EU
- Point C is the computed expected cost per head in a Dutch region, adapted from Asseldonk, Meuwissen, Huirne (2003)².

¹DS 2002:31. Att belämpa FMD- och Mjvolycka - en ESO-rapport om ett bristbeaktat ämne. Government offices of Sweden, Department of Finance.

²Asseldonk, M., Meuwissen, M., Huirne, R. (2003). A risk financing model for footstock epidemics in the European Union. Institute for Risk Management in Agriculture (IRMA, Wageningen University, Netherlands).

RESULTS

Improved welfare with FMD premiums

Switching to a system where FMD risks are reflected in costs would improve welfare in the EU, although the improvement is moderate.

Considerable redistribution effects

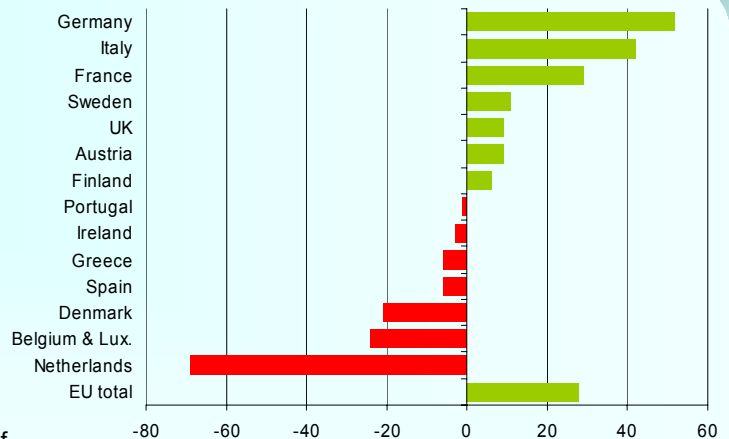
In the present system, compared to a system with FMD premiums, low risk countries are subsidising high risk countries and tax payers are subsidising farmers in regions with high stocking density.

Reallocation of production to low risk regions

In high risk regions the premium cost would lead to a slight decrease in stocking density and production. A small increase in prices increase production in low risk regions.

Limitations of the study:

Including other risks than stocking density and animal kind in the premium might improve welfare further. A more accurate prediction of outbreak scenarios would also improve efficiency of an alternative system. The welfare calculations do not consider transaction costs.



Welfare implications of compulsory insurance, mio euro. (Comparison of FMD1 to respective baseline)