A model for policy change – from the farm to the global market

Researchers from 15 European countries have come together to build a computer model that can evaluate the effects of policy changes on agriculture. This new model allows policy makers to investigate the likely effects of policy change on agriculture. Importantly, the model will allow the effects of policy to be examined at all scales, from farming in a single region to the whole European and global food market.

Although models have already been designed to test agricultural policy scenarios, they fall short in a number of ways:

- They fail to bridge the gap between the effects on single farm types and the whole market
- There is a tendency for studies to focus on either economic or environmental impacts, but not both
- Some social and institutional issues, which are harder to quantify than, for example, food prices, and farm incomes tend to be missed
- Most models are developed for specific cases, and while they may map out the wider effects of a particular policy change, they cannot be applied to new cases

To overcome these challenges, a large-scale European project known as SEAMLESS1 (System for Environmental and Agricultural Modelling; Linking European Science and Society), is developing the model containing separate components, each designed to predict changes in food production, wider-scale effects on the agricultural market and impacts on a specific farming region.

The first two prototypes of SEAMLESS tested each of the separate components and showed that the components can be linked together and used to predict the effects of policy change on different scales of agriculture (e.g. regional, national, pan-European). The ‘policy test case’ used was a trade liberalisation proposal of the G20 developing countries put forward at the Doha Round of the World Trade Organisation.

The test case shows reductions in price for agricultural products receiving high levels of protection, such as beef. However, it predicts regional variations in the effect of price reductions on production levels of highly protected products, due to differences in profitability across the EU-27. Effects on single products are relatively small on an EU-wide basis but when the effects are combined across a range of products, the model predicts a significant drop in agricultural incomes.

The model was designed to allow it to evolve. Further components, measuring for example effects of agricultural policy on biodiversity, can be added at later stages. And as the EU expands, its geographical scope can also be widened. The full working version of the model will be available in 2009, following additional testing and functionality.

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