

AFTERNOON SESSION II – 14.00-16.00 (V72)

“Changes in management and economics of the agricultural sector”

The value of economic simulation experiments in analyzing changes in direct payments and Dutch dairy farmers' strategies

Sabrina Samson

This research shows the value of using economic simulation experiments in analyzing farmer behavior with respect to proposed Common Agricultural Policy changes and the provision of public goods by farmers. Explicit attention is paid to the way experimental economics complements existing neo-classical microeconomic producer theory when analyzing farm behavior. Most important differences found between neo-classical microeconomic models and the specific simulation experiment we evaluate in this study are first, neo-classical models presume cost minimization or profit maximization, whereas in the experiment this was not presumed. Second, the experiment is more flexible in context of farming strategies; in neo-classical models strategies are limited to adjusting only in- and output quantities and the simulation experiment is not. Third, in neo-classical models the production factors are assumed to be homogenous, whereas in the simulation experiment they are allowed to be heterogeneous. Fourth, the simulation experiment with farmers allows for heterogeneous price expectations, formulated by the farmers themselves whereas neo-classical models usually use uniform price expectations defined by the modeler. Finally, this assessment is useful in setting a suitable implementation of the Common Agricultural Policy in the Netherlands for the future.

Effects of volatile output prices on land-use change in agriculture

Esther Boere

Volatile output prices lead to fluctuating shadow prices (profitability) of agricultural land, and therefore may impact land use decisions. For a producer, shadow price of land is the marginal contribution of land to profit. Maximum profit, assuming no constraints on land use, is where shadow price is equal among alternative land uses. Equal shadow prices only account for risk-neutral producers and for expected output prices because the producer does not know the price for the product at the moment the production decision is made. Production decisions with a high expected output price and low expected profit fluctuations, therefore, are preferred by a risk-averse producer. A risk-averse producer, faced with increased volatility in output price, is likely to switch either to less volatile production activities or to stop producing.

Land allocation decisions have either been estimated by a system of output supply, input demand and land-use equations or by land response equations. This paper used the latter approach to build a framework that determines optimal allocation of land among agricultural activities. The objective was to assess the effect of volatile agricultural output prices on changes in agricultural land-use over the past decade in the Netherlands. The Netherlands was divided for this purpose into 66 agricultural regions, using yearly data from 2000 through 2009. For each year and each region, the share in total land use for 10 land uses was calculated, using Dutch agricultural census data. Land share equations were econometrically estimated using panel data.

Our results show significant effects of increased price volatility on land use. Share equations show larger decreases in land allocated to land uses that experience larger volatility than to land uses that experience less volatility. Producers' output responses, therefore, were consistently affected by risk-averse behaviour and increased volatility of prices among land uses.
