

On the Modelling and Testing of Groundwater Resource Models

Mabel TIDBALL (Center for Environmental Economics – Montpellier, Univ. Montpellier, CNRS, INRA, SupAgro, France), with M. Djiguemde, D. Dubois, A. Sauquet

Abstract : The optimal management of Common Pool resources (CPRs) remains a major concern. This study, through a laboratory experiment tries to analyze the behavior of farmers exploiting a renewable resource assumed to be a groundwater. Water extraction is the only input in farmers' production processes and the dynamics is given by the evolution of groundwater level. In the model, an externality is introduced through extraction costs which depend negatively on the level of the groundwater. We run the study in continuous time and infinite horizon first with a single farmer, and then with multiple farmers, in order to see which type of behavior between myopic, social optimum and feedback, they will exhibit. The results suggest low myopic behavior contrary to the literature and potential cooperation among optimal agents. Through the analysis, we propose several methodological contributions, notably the empirical identification of agent's type.