"Collective Bounded Rationality:Theory and Experiments"

Yukio KORIYAMA and Ali Ihsan OZKES

Abstract. This paper introduces an endogenous cognitive hierarchy model in which players are assumed to best-reply holding heterogeneous beliefs on the other players' cognitive levels. Contrary to the previous models, players are allowed to consider presence
of opponents at their own cognitive level. This extension is shown to eradicate the incompatibility of standard cognitive hierarchy models in the games where the best-reply
function is an expansion mapping. We employ the model to explain asymptotic
voting behavior in information aggregation problems of the Condorcet Jury Theorem. Behavioral assumption of the strategic thinking turns out to be a crucial factor in whether
the asymptotic effi ciency is obtained or not. We conducted laboratory experiments and obtained evidences that the endogenous cognitive hierarchy model provides significant improvements upon standard cognitive hierarchy models and symmetric Bayesian Nash equilibrium in explaining observed behavior of voters.