

Coalitional Bargaining Games with Random Proposers: Theory and Application

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Abstract

We consider a non-cooperative coalitional bargaining game with random proposers to bridge a gap between non-cooperative game theory and cooperative game theory. Theoretical results include the existence of a stationary subgame perfect equilibrium (SSPE) and the characterization of the grand-coalition SSPE as a generalized Nash bargaining solution, provided that it lies in the core. We also prove that the grand-coalition SSPE is a unique symmetric SSPE in a symmetric game with nonempty core. In the last part, we apply the bargaining model to a production economy with one employer and multiple workers. If players are sufficiently patient, the economy has a unique SSPE allocation. The equilibrium allocation is compared with cooperative solutions such as the core, the Shapley value and the nucleolus. The SSPE allocation and the nucleolus have similar distributional properties.