

# Multilateral Bargaining over Coalitional Externalities<sup>1</sup>

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## Abstract

This paper analyzes economic agents' bargaining behavior towards forming an efficient coalition structure in the presence of coalitional externalities. We first address this issue by proposing an explicit and intuitive sequential negotiation process, through which players' marginal contributions can be well identified in the complex situation where players can affect each other by taking strategic moves to generate externalities. This leads to the so-called *rational belief Shapley value* for partition function form games. The main objective of the paper is to investigate the strategic foundation of this solution concept. We construct a non-cooperative bargaining game and show that every subgame perfect equilibrium outcome coincides with the value allocation. It extends the existing models of multilateral bargaining by allowing players to have more freedom in organizing themselves, which highlights the feature of coalitional externalities. Possible variations of the bargaining game are also discussed.

**JEL classification codes:** C71; C72; D62.

**Keywords:** externality; bargaining; partition function form game; Shapley value; implementation; bidding mechanism.