A new two-party bargaining mechanism. (English) Zbl 1267.91036

Summary: If resources and facilities from different partners need to be engaged for a large-scale project with a huge number of tasks, any of which is indivisible, decision on the number of tasks assigned to any collaborating partner often requires a certain amount of coordination and bargaining among these partners so that the ultimate task allocation can be accepted by any partner in a business union for the project. In the current global financial crisis, such cases may appear frequently. In this paper, we first investigate the behavior of such a discrete bargaining model often faced by service-based organizations. In particular, we address the general situation of two partners, where the finite Pareto efficient (profit allocation) set does not possess any convenient assumption for deriving a bargaining solution, namely a final profit allocation (corresponding to a task assignment) acceptable to both partners. We show that it is not appropriate for our discrete bargaining model to offer the union only one profit allocation. Modifying the original optimization problem used to derive the Nash Bargaining Solution (NBS), we develop a bargaining mechanism and define a related bargaining solution set to fulfill one type of needs on balance between profit-earning efficiency and profit-earning fairness. We then show that our mechanism can also suit both Nash’s original concave bargaining model and its continuous extension without the concavity of Pareto efficient frontier on profit allocation.

MSC:
91B26 Auctions, bargaining, bidding and selling, and other market models

Keywords:
project; bargaining model; bargaining mechanism; bargaining solution set; balance

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References:

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