The Greatest Common Decision Maker as a Group Decision Cooperative Game

Pedro García-del-Valle-y-Durán
Universidad Iberoamericana Ciudad de Mexico

ABSTRACT

This research is understanding and managing consensus and conflict, under the context of a single voter whose preferences determine the social outcome, regardless of the preferences of all other voters. As established by the Gibbard-Satterthwaite (G-S) Theorem, which states that in a group social choice with three or more eligible alternatives, a voting rule or grouping function is strategy-proof only if it is dictatorial. The rule of the Greatest Common Decision Maker (GCDM) can be interpreted as a Cooperative Game Theory problem or as a Group Decision Game (GDM), given that agents seek a collective outcome that satisfies their individual objectives in an environment of strategic interdependence. GCDM as a non-dictatorial Preference Selection Rule (PSR) that achieves strategic stability in the domain of a static voting game with incomplete information. The success of the GCDM in reducing conflict suggests that its mechanism can discourage manipulation by not seeking a direct winner among the alternatives, but rather an agent whose strategy is already aligned with the "common good" (highest match). It differs from classical game theory methods in a change of approach: instead of simply identifying a single winning alternative, it linearly ranks all alternatives to better understand the consensus or conflict profile of the group decision without imposing a dictatorship or leadership over any alternative or profile.

Keywords: conflict; consensus; preferences; dictatorial; stability