

Stable Organizations with Externalities

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ABSTRACT

We study the architecture of stable organizations in partition function games, describing cooperative situations with externalities. An organization is defined as a connected graph, describing a group of agents endowed with a set of bilateral relations (links). In case of coalitional defection from an organization, a residual graph is (uniquely) obtained by deleting defecting players from the organization. The profitability of the defection is assessed by looking at the partition induced on non coalitional members by the components of the residual graph so obtained. We identify a clear-cut relation between the structural properties of stable organizations and the sign of the externalities faced by members. Under positive externalities, minimally connected organizations achieve stability under the largest class of partition functions, while the same is true for the fully connected organization (the complete graph) under negative externalities. The restriction of objecting power to connected coalitions selects the most hierarchical minimally connected organization - the star - under positive externalities, and two regular horizontal organizations - the wheel and the fully connected - under negative externalities.