Layered Networks, Equilibrium Dynamics, and Stable Coalitions

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○ 研究分野：ゲーム理論

○ キーワード：Club networks, stable coalition structures, discounted stochastic games, stationary Markov perfect equilibria.

研究概要

An important aspect of network dynamics that has been missing from our understanding in various applied settings is the influence of strategic behavior in determining equilibrium network dynamics. In addition to constructing a discounted stochastic game model (i.e., a DSG model) of club network formation, we show that our DSG of network formation possesses a stationary Markov perfect equilibrium in players' membership-action strategies, and identify the assumptions on primitives which ensure that the induced equilibrium Markov process of layered club network formation satisfies the Tweedie Stability Conditions (2001).

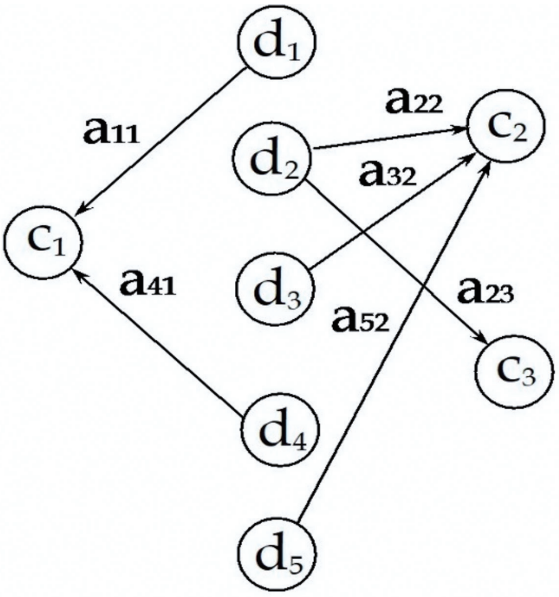

Figure 1. Time Allocation Network

As a running example we consider a DSG over time allocation networks. We show that because players' payoff functions are naturally affine over the convex, compact feasible set of time allocation networks, players' stationary Markov perfect equilibrium network formation strategies are bang-bang. Thus, rather than diversifying their club time across several clubs, each player in each state spends all club time in one and only one club inducing stable coalition structures.

利点特徴

Integrate into the analysis of network dynamics the essential role played by the strategic behavior of players in the network formation process.

応用分野

Stable club networks could be applied in determining how best to remedy, via policy interventions, shortfalls in the endogenous incentives of institutions to form networks that minimize systemic risks, maximize resiliency, and thereby allow investable funds to flow to their socially optimal uses, creating productive investments where they matter.

SUSTAINABLE DEVELOPMENT GOALS