

CISEPS Seminar

Nash and the degree heuristic in network games: An online experiment

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Abstract

We investigate experimentally a game of strategic complements on a network: the game has a unique Nash equilibrium where the player's effort depends on its Bonacich centrality. The experiment tests the prediction on 4 networks where subjects can choose any integer effort in the $[0; 100]$ range, and the equilibrium is interior to this range for every node in all networks. In two networks with 15 and 21 nodes, subjects' play converges to the Nash equilibrium on almost every node. We provide evidence that subjects play according to a degree heuristic: their effort is increasing in the degree of the node they are assigned to. This heuristic is mostly effective at converging to Nash, and it explains the observed systematic deviations from Nash. In two simpler networks of 9 nodes, the circle and the wheel, subjects are able to coordinate on an interior collaborative norm that gives higher payoffs than Nash. Methodologically, the paper shows the capabilities of UbiquityLab: a novel platform to perform online experiments that involve live interactions among a large number of participants.

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