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Competing for Influence: An Experiment on Multi-Agent Targeting

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Abstract

The problem of identifying optimal targets and key players who are those considered as being important in social and economic networks is widely studied in different fields and with support of various methods and techniques. The issue of targeting is of particular interest in economics, sociology, computer science, complex systems, mathematics, physics, marketing and organizational science, political science, among other disciplines. In economics, a common feature to empirical studies on network targeting is that they usually study cases where one external actor has the monopoly of targeting. The novelty of our lab experiment is that we focus on a setting where two strategic agents with opposite opinions engage in a targeting competition for influence. We frame our problem in the context of information diffusion on networks. This issue has recently gained major attention in relation to the spread of legitimate information and/or fake news. In our experiment, we have an exogenous social network of nodes where information spreads in the simplest way, i.e. through the DeGroot updating mechanism. Two strategic agents observe the network and can choose to form one link to influence the opinion of the chosen node. As these two agents hold opposite opinions on a matter of importance (e.g. political preferences), they want to steer the public opinion in their preferred direction. This defines a zero-sum game between the two agents who compete by choosing their target. The theoretical analysis suggests that best-response strategy of this game depends on the relative influence of the agents. The scope of our experiment is to study to which extend players in the lab play best-response, and which behavioral strategies drive their targeting choices. Our results point at novel behavioral biases in the targeting choice: subjects tend to target nodes who are central in the network, share their same initial opinion, and are also targeted by their rival.