Consider a set of agents who play a network game repeatedly. Agents may not know the network topology. They may even be unaware that they are actually interacting with other agents in a network. Possibly, they just understand that their optimal action depends on an unknown state, that is, actually, an aggregate of the actions of their neighbors. In each period, every agent chooses an action that maximizes her instantaneous subjective expected payoff and then updates her beliefs according to what she observes. In particular, we assume that each agent only observes her realized payoff. A steady state of the resulting dynamic is a selfconfirming equilibrium given the assumed feedback. We identify conditions on the network externalities, agents' beliefs, and learning dynamics that make agents more or less active (or even inactive) in steady state compared to Nash equilibrium.

Indeed, Nash equilibrium action profiles are limit outcomes of learning paths when agents have perfect feedback about the payoff-relevant aspects of others' behavior. Yet, as we argue, such perfect feedback hypothesis may be too strong for some social networks applications and, if learning is based on imperfect feedback, non-Nash action profiles may result as the steady-state limits of learning paths.

In our analysis we assume that the only feedback agents receive is their realized payoff. This implies that they do not always identify the payoff-relevant aspects of the actions of others, represented by a payoff state. We analyze how agents use the feedback they receive to update their conjectures about the payoff state and best respond to them, and we characterize their limit behavior under different settings of local and global externalities. We show that if externalities are only local, active players are always able to infer the correct payoff-relevant state, whereas inactive players fall into an inactivity trap, and stay inactive even when it would be objectively optimal not to do so. We study sufficient conditions over the network topology to ensure existence and stability of the selfconfirming equilibria. Conversely, if also global externalities are at play, these externalities play a confounding role and a multiplicity of equilibria arise where an arbitrary set of agents can be inactive and consistently decide to stay so, and the level of activity depends on the level of each agent's perceived centrality in the network. In particular, players may be more active if they think that they are more linked in the network than they actually are, and this can be welfare improving for the whole society. Also, agents with excessive perceived connectedness may prevent convergence of best reply paths to interior equilibria.

All these conditions are based on the network structure and on the type of externalities, on the conjectures that agents have, and on the rules that they use to update their conjectures. Thus, in some applications, knowing these conditions, a social planner or the owner of the network can try to change the beliefs of people to induce them to increase their activity levels.