The Value of a Reputation under Imperfect Monitoring

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Extended abstract

We study commitment and reputation (in the sense of Kreps and Wilson (1982), Milgrom and Roberts (1982) and Fudenberg and Levine (1989,1992)) in two-player repeated games with *equally patient players* in which the stage game is one of *common interests* (i.e. there is a strongly Pareto dominant payoff vector). The novelty of our analysis is to consider the impact of *imperfect monitoring of the informed player.* We show that even small amounts of noise in the observation of the informed player's actions can lead to powerful reputation effects: If the (public) signals of player 1's actions have full support and the repeated game is perturbed by a positive probability that player 1 may be a type committed to playing the Stackelberg action in every period, then there is a lower bound on the set of sequential equilibrium payoffs of the normal type of player 1 that converges, as the common discount factor tends to 1, to the Stackelberg payoff.

Our result is in stark contrast to previous research, which has shown that, unlike the case when the informed player is infinitely more patient than the uninformed player, reputation effects are elusive when players discount the future at comparable rates. Indeed, Cripps and Thomas (1997) have shown that in a wide range of repeated common interest games with equal discounting and perfect monitoring reputation effects have no power whatsoever: if the prior probability on the commitment type is sufficiently small, then there are sequential equilibria that yield the informed player a payoff arbitrarily close to his minmax payoff, irrespective of patience. Chan (2000) extends this result to all repeated games with perfect monitoring (except for two cases of stage games that are shown to give rise

to reputation effects). Our result shows that negative reputation results with equal discounting have relied too crucially on the knife-edge of perfect monitoring.

Finally, reputations with equal discounting and imperfect monitoring have also been examined by Atakan and Ekmekci (2012), who have shown that if the uninformed player is imperfectly monitored while the informed player is perfectly monitored then reputation effects emerge in a wide class of repeated games. By contrast, we assume that the informed player is imperfectly monitored, while the uninformed player can be perfectly or imperfectly monitored.