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Repeated games with public deterministic monitoring

Marie Laclau* and Tristan Tomala†

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Abstract

We consider repeated games with compact actions sets and pure strategies in which players commonly observe a public signal which reveals imperfectly the action profile. We characterize the set of payoffs profiles that can be sustained by a perfect equilibrium, as players become increasingly patient. There are two conditions: admissibility and joint rationality. An admissibly feasible payoff can be achieved by an action profile that offers no unilateral deviation which is both undetectable and profitable. It is jointly rational if for all weights on players, the weighted average payoff is greater than or equal to the minmax level of the weighted average payoff function. This characterization is alternative to the one provided by the "score method" of Fudenberg and Levine (1994). We provide a simple construction of equilibrium strategies based on cooperation, punishments and rewards. Punishments rely on Blackwell's approachability algorithm.

Keywords: Repeated games, Public monitoring, Pure strategies, Approachability.
JEL Classification Numbers: C73

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