Equilibrium and the Flow of Information in Repeated Games with Frequent Interactions

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Abstract. The paper examines the impact of the frequency of interactions on the set of perfect public equilibrium payoffs in repeated games where the (public) monitoring technology depends on the length of the period. It is shown that the frequent-interaction limit depends crucially on the *flow of information* in the repeated game, a measure of signal informativeness (per unit of time) based on the Kullback-Leibler divergence. A general condition on the flow of information is established which ensures that, irrespective of the stage game, the set of PPE payoffs in discrete time converges, as the period length tends to zero, to the set of PPE payoffs in a continuous-time game with Brownian signals (as characterized in Sannikov (2007)). The condition on the sequence of monitoring structures is tight, and it is more stringent than the conditions for Donker's Invariance Principle (under which the (interpolated) discrete-time process of public signals converges weakly to a diffusion process, for each fixed pure action profile).