Efficient Collusion with Entry and Cost Uncertainty

Abstract

This paper studies collusion in an infinitely repeated Bertrand duopoly where firms have private information about their costs and firms pay an avoidable fixed cost of entry. Each period both firms receive a cost shock that is independently and identically distributed (IID) across firms and across periods. Firms are allowed to communicate about their cost types before making their entry decisions. We study fully efficient collusion, where the total gain from collusion is at maximum, in this setting and it requires only a least costly firm to enter and to charge a monopoly price. We present a necessary and sufficient condition for a sequential equilibrium achieving fully efficient collusion to exist when the firms are sufficiently patient. The condition is more likely to hold when the entry cost increases, signifying that the entry cost is an important factor facilitating the fully efficient collusion. Although our sufficiency result is based on a particular equilibrium sustaining an equal division of fully collusive payoffs, we also show that under some parameter restrictions there are asymmetric equilibria that sustain fully collusive outcomes for a wider range of discount factors. The latter result exemplifies importance of studying asymmetric equilibria even under symmetric environments which has wide theoretical applicability in many areas of economics.

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