

How Perfect Is Subgame Perfect Equilibrium?

The theory of subgame perfect equilibrium suggests that noncredible threats should be ignored. Robert Rosenthal has questioned whether or not this is true. Should a manager ignore noncredible threats? Should a manager make noncredible threats even though rivals will ignore them? Richard Beil and T. Randolph Beard decided to test the subgame perfect equilibrium in an experimental market. The results are somewhat surprising.

Beil and Beard conducted seven variations of the *entry game* in which two Nash equilibria existed. In each game, one equilibrium was subgame perfect and one was not.

400 students at Auburn University participated in the experiments. Of the 200 pairs, 109 resulted in nonperfect equilibrium outcomes and 89 resulted in subgame perfect equilibrium outcomes.

None of the participants were ever told the identities of the other students with whom they were paired. Since no communication between participants was available, no explicit threats were involved; player A could only imagine the potential threat by player B. However, the experiments revealed that noncredible threats worked about 55 percent of the time, even when they were only imagined. However, they did prove to be noncredible, since only 2 subjects ever carried through with the imagined threat.

Sources: Robert Rosenthal, "Games of Perfect Information, Predatory Pricing, and the Chain Store Paradox," *Journal of Economic Theory* 24 (1981), pp. 92-100; Richard O. Beil, Jr., and T. Randolph Beard, "Do People Rely on The Maximization of Others? An Experimental Test," *Management Science* (forthcoming).