

Summary of Research

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Favor-Trading with Incomplete Information (Job Market Paper)

Abstract:

This paper studies whether and how individuals who stand to gain from trading favors can best form cooperative relationships in an environment with private information about each player's ability and willingness to do favors. Previous models in the favor-trading literature focused on optimizing favor-trading relationships under complete information. This paper introduces incomplete information about player types. The central question addressed is whether cooperation can be maintained in favor-trading relationships after the introduction of non-cooperative players into the pool of potential trading partners, and if so how can the cooperative players separate themselves most efficiently from the non-cooperative types.

For the purposes of this paper favor-trading is considered to be non-monetary trade in goods, services or opportunities and favors are assumed to be efficient. The model contains a positive measure of players with a low discount factor (low types) who do not find cooperation beneficial, and a positive measure of players with a high discount factor (high types) who do. Players receive opportunities to do favors for each other (favor shocks) according to either a mutually exclusive or independent distribution, but these opportunities are private information.

As an example, consider a firm with several parallel divisions that function independently under separate managers. Suppose two new managers have been recruited to head the marketing and finance divisions, respectively. Each manager's job is to maximize productivity within her own division, but every once in a while one of the managers receives a new idea or opportunity that would be beneficial for her division but even more beneficial for the neighboring division. Monetary side payments are not allowed, but reciprocation in similar favors can provide a basis for mutual gains if both managers are sufficiently patient. However, the managers do not know each other's discount factor, which in this example could be interpreted as the likelihood of staying with the firm long-term. So how should the managers proceed?

The main result in this paper is that the high type players are almost always able to separate themselves from the low type players at the first available opportunity by using an "equality matching" (EM) mechanism if opportunities to make favors arrive independently. EM simply means that each agent waits for reciprocation of a previous favor before doing the next one. In the case of mutually exclusive favor shocks, separation is still guaranteed for high types with probability one if one of the players is designated to do the first favor, and separation will occur as soon as the designated player receives a favor shock, assuming she is a high type.

However, such strategies induce separation only half as quickly (roughly speaking) as strategies that call for the first player to receive a favor shock to do the first favor, and hence separate if she is a high type. In equilibria based on such symmetric strategies, separation is only guaranteed with probability one under independent favor shocks, but not under mutually exclusive favor shocks. The paper establishes a bound on the number of periods in the mutually exclusive favor shock case during which the low types would not mimic the high types with positive probability.

An important consequence of this result is that more information (mutually exclusive favor shocks) leads to a worse outcome.

The paper also compares the equilibria involving a designated first favor maker (DFFM equilibria) to equilibria characterized by symmetric strategies (SS equilibria) and finds that either may dominate depending on the parameter values. Numerical results suggest that SS equilibria dominate DFFM equilibria in cases involving relatively impatient agents likely to receive favor shocks early on, whereas DFFM equilibria dominate when agents are very patient, but the probability of receiving favor shocks is low. To see why, consider the case of mutually exclusive favor shocks and suppose the probability of receiving an opportunity to do a favor is approximately one half. Then it is almost certain that one of the two agents will receive a favor shock during the first period and hence under a symmetric strategy for signaling type, separation will almost certainly occur during the first period, which is all the more important for relatively impatient high type players eager to gain from the benefits of an EM endgame. Designating one of the two players to do the first favor would halve the chance of separation in the first period, which is all the more costly when the high type players are impatient to begin a cooperative relationship.

Favor-Trading with Concave Utility Functions (Paper in Preparation)

Abstract:

To date the prominent models of favor-trading assume agents have linear preferences, and favors have been assumed to be of greater benefit than cost. In this paper informal favor-trading is considered to be a form of insurance. We consider agents with concave utility functions and favors that derive their value from risk sharing. With concave utility functions agents can beneficially trade favors at some level for any discount factors. This is in contrast to the linear utility function case in which the incentive compatibility of the favors traded is independent of the size of the favors because agents are essentially risk-neutral with respect to favors.

Furthermore we show qualitative differences in some types of equilibria. For example, if utility functions are linear and agents' discount factors are just large enough to satisfy the incentive compatibility constraint for equality matching, the best the agents can do is to equality match full favors. If the same agents have concave utility functions, we show that the equivalent equality matching equilibria are dominated by equilibria involving a smaller than full first favor, which may be followed by a small second favor even before reciprocation is received. Consequently, the assumption of linear preferences drives some of the results in prominent favor-trading models.