

ENDOGENOUS CHOICE OF A MEDIATOR*

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ABSTRACT

In this paper, I build a game theoretic model explaining why parties get stuck with a bad mediator and not choose a neutral facilitator in the first place. My main insight is that a mediator is endogenously selected badly for signaling reasons. In particular, when two parties bargain over the choice of a mediator, they do not want to reveal weakness, so they choose the one who mediates in a way that is good for the strong type of both parties. Thus, a mediator with high probability of failure making peaceful settlement is often chosen, which, in fact does not maximize efficiency.

I analyze a two-person bargaining game of selecting an optimal mediator, utilizing [Myerson \(1984b\)](#)'s neutral bargaining solutions for my solution concept and refinement of Nash equilibria in the signaling game, incorporating some features of [Nalebuff \(1987\)](#)'s setting.

Keywords: Cooperative Game; Two Person Bargaining; Incomplete Information; Signaling.

JEL Classification: C71, C78, D80.

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[†]This version only contains abstract and brief overview of the paper. An updated version with a rigorous model and theoretical results will be available soon.

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1 INTRODUCTION

A central problem in two-person bargaining problem, in which the outcome is jointly determined by the parties' actions, is that of two parties having partial information and conflicting interests that might lead to a disagreement.¹ In attempt to improve the efficiency of the interaction and to make more informed decisions, two parties often involve third parties in communication to help them reach agreements as one of the primary tools of dispute resolution.²

In many economic, political, and social situations, however, two parties in conflict often get stuck with a “bad” mediator.³ In international relations setting, for example, parties can get stuck with a certain historical agent where they cannot have anybody else, as in the conflict between the U.S. and North Korea with China as a mediator. Also, we often see that many “great” (at the time and ex-post) Middle East policies never get signed off in Israeli-Palestinian conflict because they involve the U.S. as an intermediary.

Then, how do two parties choose this particular mediator? Why do they not choose a neutral facilitator in the first place? My interest is in understanding *how the parties bargain over the choice of a mediator* and why some parties always involve a particular mediator who has lower probability of success.

My main insight is that a mediator is endogenously selected badly for signaling reasons. In particular, when two parties bargain over the choice of a mediator, they do not want to reveal weakness, so they choose the one who mediates in a way that is good for the strong type of both parties. Thus, a mediator with high probability of failure making peaceful settlement is often chosen, which, in fact does not maximize the ex-ante efficiency. In this paper, I utilize [Myerson \(1984b\)](#)'s neutral bargaining solutions for my solution concept and refinement of Nash

¹If the parties have complete information, conflict will be easily avoidable in such bargaining situations.

²In international relations setting, disputing two parties with partial information may (ex-ante) think that having a mediator would provide them higher payoffs, in hope of obtaining better settlement terms.

³In the existing literature of third party intervention, the essence of intermediaries is often in conveying information and “mediated” communication involves a nonstrategic communication device that receives and transmit messages. Throughout this paper, however, when I say a third party, it is not restricted only to a trustworthy neutral facilitator without any preferences over outcomes nor an arbitrary mechanical intermediary. I use the word “mediator” who could be referred to as a mediator, an informed agent, an expert, a leader, or a neutral intermediary.

equilibria in the signaling game, incorporating some features of [Nalebuff \(1987\)](#)'s setting.

In my model, two parties with incomplete information initially agree to bargain over choosing a mechanism that I call mediation. Third party intervention and mediation can indeed be useful in joint decision making or bargaining situations by facilitating resolution of disagreements, in a way that a mediator may reduce the likelihood of disagreement and prolonged conflict or stalemate. However, the general tenor of the results in this paper would suggest that it is often the case that the parties are stuck in an equilibrium where mediation is ex-ante inefficient.

2 BRIEF OVERVIEW

I consider a Bayesian bargaining problem in which two parties can coordinate over selecting a mediator, or else remain in status quo if they fail to agree.

The game is characterized by the following structures⁴

$$\Gamma = (D, T_1, T_2, u_1, u_2, p_1, p_2),$$

where

- D is the set of feasible bargaining outcomes. In particular, $d_0 \in D$ denotes the status quo outcome which the two parties get if they fail to coordinate on choosing a mediator.
- T_i , $i = 1, 2$, is the set of possible types for party i . Let $T = T_1 \times T_2$ be the set of all possible type combinations $t = (t_1, t_2)$. The parties are uncertain about the other party's types, where the parties' types are unverifiable.
- $u_i(d, t)$, $i = 1, 2$, denotes the payoff to party i if $d \in D$ is the outcome and $t \in T$ is the true vector of parties' types. Without loss of generality, assume that $u_i(d_0, t) = 0$ for all i and for all t . Here, I take preferences of the parties from international relations context.

⁴The baseline model follows [Myerson \(1983, 1984b\)](#).

- $p_i(t_{-i}|t_i)$, $i = 1, 2$, denotes the conditional probability that party i of type t_i would believe about the other party's type being t_{-i} .

Instead of bargaining over a specific bargaining outcome in D , two parties agree on a mechanism which can be thought of as a mediator who determines the outcome $d \in D$ depending on the parties' types. As the parties choose on a mediator and not an outcome, they can conceal their true types in order to get a better bargaining deal. Allowing randomized strategies of a mediator, a *mediation mechanism* can be defined to be a function $\mu : D \times T \rightarrow R$ such that $\sum_{c \in D} \mu(c|t) = 1$ and $\mu(d|t) \geq 0$ for all $d \in D$ and for all $t \in T$. That is, $\mu(d|t)$ is the probability that d is the bargaining outcome chosen by the mediator if two parties of type t selects the mediator μ .

3 CONJECTURED RESULTS

An (interim) incentive efficient mechanism is defined relative to the status quo. Durability of an incentive efficient mechanism is defined relative to each alternative mechanism.⁵

Through analyzing the above two-person bargaining game over an optimal mechanism, I characterize the set of feasible mediators for coordinating the conflict outcome. Then, theoretical questions I answer are: What is the durable subset of weakly interim incentive efficient mechanisms, or mediation rules? And what kinds of mediation rules are durable with two-sided incomplete information?⁶

I conjecture the following kinds of results: The parties, given type distributions, think from the ex-ante point of view that most of the times it is Pareto efficient to have a treaty; However, the best mediation mechanism, once the parties have learned their types, is something that most of the times they stay in status quo.⁷ That is, the optimal mediation rule over-implements the status quo disagreement payments.

⁵See [Holmström and Myerson \(1983\)](#). They show that durable incentive efficient mechanisms always exists for any finite Bayesian collective decision problem.

⁶[Holmström and Myerson \(1983\)](#) show that with one-sided incomplete information all incentive efficient mechanisms are durable.

⁷This has a flavor of [Myerson and Satterthwaite \(1983\)](#).

4 APPLICATIONS

Through this paper, I hope to make a contribution in wider applications of third party intervention to explain how a third party is chosen in various economic, social, and international interactions, including that in international relations, collective bargaining in industrial relations, mergers, etc.

First of all, one of many applications of my model is to international conflict. Mediation, arbitration, and peace talks are optimal international conflict resolution institutions.⁸ When adversaries attempt peace negotiations over issues such as territorial boarder or security, it is common for them to choose third parties in hope of obtaining better settlement terms. Another form of bargaining game where my model could be applicable is collective bargaining negotiation between the firm and the union in industrial relations setting. In addition, in economics setting, I could look into situations where two or more firms jointly bargain over selecting an investment bank to advise them on mergers.

APPENDIX: OTHER MODELS TO CONSIDER – A SEQUENTIAL GAME

Two countries are involved in bargaining problem over selecting a mediator. One side, A, offers either a neutral facilitator (a) or a biased intermediary (b). The other side, B, demands a surplus of size S , which is common and public knowledge. The bias toward B of a biased intermediary is captured by a parameter β . B knows b's true bias. A believes that β is drawn from a nonatomic distribution over the interval $[0, \bar{\beta}]$, with distribution $F(\beta)$ and density $f(\beta)$.

Having a biased intermediary involves costs for both countries, summarized by C_A for country A and C_B for country B. The process of mediation reveals b's true bias, β . b then enforces a transfer of βS from A to B. The expected payoffs from mediation by a biased intermediary are $\beta S - C_B$ for B and $-\beta S - C_A$ for A.

As an alternative to mediation by the biased intermediary, A offers a neutral facilitator who then settles evenly for an amount $\frac{1}{2}\theta$.

⁸Mediation efforts are a recurrent and potentially important feature of international conflict, and international mediation is an intriguing facet of international conflict.

The timing of the game is as follows. Party A first makes an offer of either mediator a or b without knowing b's bias, β (still in progress)

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