



Final-offer arbitration with uncertainty averse parties [☆]

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ABSTRACT

Final-offer arbitration (FOA) is a widely used binding dispute resolution mechanism, where an impartial arbitrator is constrained to choose one of the two final offers proposed by two disputing parties. We build an equilibrium model of FOA with players averse to arbitral uncertainty to study three important issues: the role of FOA in incentivizing negotiated settlements, the convergence of final offers, and the normative effect of diversity of arbitrator opinion. We show that increase in arbitral uncertainty increases the likelihood of negotiated agreements, and make the final offers converge to each other. Risk aversion is not necessary for convergence of offers. Precision and mean of arbitral uncertainty matter differently and can be controlled separately. Moreover, as also argued by the industry practitioners, carefully selected level of diversity (of opinion) in the arbitrator roster increases the welfare of negotiating parties.

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1. Introduction

Disputes, as well as agreements, are part of ordinary economic life. There are times where parties to a negotiation fail to reach a resolution to their differences and find themselves in an impasse. Unless some binding dispute-resolution mechanism is in place, impasses might result in costly outcomes such as legal or illegal strikes,¹ expensive judicial proceedings, and loss of economic value. Arbitration is one such private form of binding dispute resolution mechanism. In an arbitration case, an impartial third party—often called the arbitrator—makes a binding decision, based on the facts of the case and his expertise. Several compulsory arbitration schemes, including conventional arbitration, and various forms of final-offer arbitration (FOA henceforth) are widely used in practice. In FOA, the subject of the present paper, two disputing parties present their final offers to an arbitrator. The arbitrator must choose one of the two final offers as the binding solution.²

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¹ A significant number of public-sector employees (e.g., firemen's and policemen's unions) are frequently denied the strike privilege (Crawford, 1979; Hebdon, 1996).

² Most commonly used methods in practice are conventional arbitration and FOA. In contrast with FOA, in conventional arbitration, the arbitrator is free to choose any settlement he deems appropriate. For a thorough comparative discussion see Crawford (1979).

FOA is commonly used in many labor and commercial relationships, and in a large number of jurisdictions,³ and resolves certain strategic issues that plague other forms.

FOA was first proposed by [Stevens \(1966\)](#) in response to the well-known criticism of conventional arbitration, that it had a ‘chilling effect’ on bargaining, that arbitrators tended to “split-the-difference” between players’ final offers, and that consequently, parties tended to rely excessively on the arbitrator to reach an agreement as a result. Successive studies have investigated models of FOA as a response to this criticism of conventional arbitration ([Feuille, 1975](#); [Crawford, 1979](#); [Farber, 1980](#); [Starke and Notz, 1981](#); [Neale and Bazerman, 1983](#)). [Crawford \(1979\)](#) gave the definitive answer under complete information, in the first formal model of comparative study of different compulsory arbitration schemes, under very general conditions, that both mechanisms would lead to the same outcome.⁴

A consensus that has emerged from successive research on arbitrator behavior is that an arbitrator’s decisions contain an unpredictable component (see for example [Farber, 1980](#); [Chatterjee, 1981](#); [Crawford, 1982a](#); [Ashenfelter and Bloom, 1984](#); [Farber and Bazerman, 1986, 1987](#); [Ashenfelter, 1987](#); [Ashenfelter et al., 1992](#)). Consequently, this literature has introduced models with uncertainty (risk) as to the preferences of arbitrators. In this setting, outcomes under different schemes generally differ, and negotiated settlements depend on parties’ prior views and attitudes towards risk. This recognition in the data of the stochastic nature of arbitrator decisions allows an arbitrator to be conveniently modeled as a random variable. In this paper, we label this randomness that is pertinent to an arbitrator’s preferences as the arbitral risk.

As is the case in almost all negotiations, before the impasse arises the parties do not know who the arbitrator is going to be. It is common practice that the arbitrator is chosen from a roster of arbitrators. The process of arbitrator selection and that of adjudication that follows are complex⁵ and choosing an arbitrator is itself a bargaining problem ([Crawford, 1985](#); [de Geoffroy et al., 2014](#)). This is to say that while a given arbitrator introduces arbitral risk, facing a roster of potential arbitrators during the negotiation introduces another level of randomness. We model the latter randomness as Knightian uncertainty and call it arbitral uncertainty.

In this study, we depart from the existing literature following this novel and arguably more realistic approach, and we build an equilibrium model of FOA with players averse to arbitral uncertainty. The important issues we consider include (i) the role of FOA in incentivizing negotiated settlements, (ii) the extent to which arbitral uncertainty influences the difference in parties’ demands during negotiations, and (iii) to what extent diversity (or lack thereof) of arbitrator opinion matters for the welfare of the parties involved.

Firstly, one of the principle roles of FOA is to incite the parties to arrive at a settlement by making the “disagreement” outcome (going to arbitration) sufficiently costly ([Stevens, 1966](#); [Donn, 1977](#); [Long and Feuille, 1974](#); [Nelson, 1975](#); [Farber and Katz, 1979](#); [Bloom, 1981](#); [Chatterjee, 1981](#)). The curious fact is that the best arbitration mechanism, in that regard, is the one that is used least frequently. To the extent that the parties are uncertainty averse, they are willing to concede in negotiations in order to avoid the costs that arbitration imposes on them through the prospect of an unfavorable arbitration award. The expected outcome of the arbitration phase essentially specifies a disagreement payoff for the negotiation phase. We show very precisely that there is an optimal amount of uncertainty, from a welfare perspective, that can be manufactured through the selection of the arbitrator roster, which makes the option of going to arbitration costliest, which in turn maximizes the likelihood of negotiated settlements.

Second, modeling players as Maxmin Expected Utility maximizers, after the seminal work by [Gilboa and Schmeidler \(1989\)](#),⁶ enables us to dissect arbitral uncertainty into two essential components. Increase in uncertainty in the sense of having a larger belief set makes players’ equilibrium final offers move closer to each other. An increase in uncertainty in the sense of expecting more variation in a particular arbitrator’s final awards makes the spread between the final offers larger. In a nutshell, these two components use the same impact channel: making a player’s least-favored arbitrator’s ideal settlement farthestmost and very precise! Moreover, players in our model have linear utility hence convergence arguments do not rely on risk aversion.

³ Some variant of this procedure is used to settle public sector labor contract issues where the right to strike is not available to labor in states including Connecticut, Iowa, Massachusetts, Michigan, New Jersey, Pennsylvania, and Wisconsin ([Farber, 1980](#); [Wittman, 1986](#)). FOA is also used to resolve salary disputes in Major League Baseball (MLB) since the 70s, to resolve salary disputes for players who are not yet eligible for free agency and can only bargain with their current club. (See State of California Commission on Health and Safety and Workers’ Compensation report ([Neuhauser and Swezey, 1999](#)), and the 2012–2016 Basic Agreement between Major League Baseball Players Association and MLB ([Basic Agreement, 2012–2016](#))).

⁴ Building his analysis on the earlier work by [Donn \(1977\)](#), [Crawford \(1979\)](#) demonstrated that if the notion of the arbitrator’s fair settlement was known to the parties with certainty, under reasonable economic assumptions, two versions of FOA in use are equivalent to imposing the same settlement that the arbitrator would impose in conventional compulsory arbitration, a result that goes against the original intent of the FOA statutes. Moreover, [Crawford \(1979\)](#) proposed a modification of FOA that would generate substantial gains in welfare, by leading to settlements that are likely to be much more consistent with FOA’s original intentions.

⁵ For example, New Jersey’s statutory procedure for selection of arbitrators in disputes involving police and firemen requires that the New Jersey Public Employment Relation Commission (PERC) present a list of seven potential arbitrators to the parties, from a roster of roughly seventy names they maintain. Each party is instructed to veto three names and indicate their preference ranking over the remaining four. PERC then appoints as arbitrator the individual who was not vetoed by either side and whose combined rank is highest; rank ties are broken randomly by PERC ([Ashenfelter and Bloom, 1984](#); [Bloom and Cavanagh, 1986](#)).

⁶ Decision theorists have developed several models to deal with this problem, all of which stipulate that the behavior of players facing uncertainty is described not by a single probability but rather by a set of those ([Schmeidler, 1989](#); [Gilboa and Schmeidler, 1989](#); [Klibanoff et al., 2005](#)). For good surveys of this fast-growing literature see ([Marinacci and Montrucchio, 2004](#); [Mukerji and Tallon, 2004](#); [Ghirardato, 2010](#); [Gilboa and Marinacci, 2013](#)).

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