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**Negotiator Behavior and the
Occurrence of Disputes**

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Abstract

It is generally recognized that possible gains from cooperation are not always realized because negotiating parties sometimes fail to reach agreement. Such negotiation failures are ex post inefficient and have long defied economist's attempts to explain them. In this paper we discuss breakdowns in collective bargaining when disputes are resolved by compulsory arbitration. We argue that the study of arbitration offers insights into the nature of negotiation failures which may be of general interest.

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It is generally recognized that gains from cooperation are sometimes lost because negotiating parties fail to reach agreement. Table 1 shows dispute rates that have been reported in a wide variety of negotiating situations. The estimates in Table 1 suggest that between 10 and 49 percent of negotiations end in a dispute. Such negotiation failures are ex post inefficient and have long defied economists' attempts to explain them. After all, if the parties know the probability distribution of the outcomes that may be forced upon them by an arbitrator, judge, or jury, why don't they reach an agreement that avoids costly conflict? In this paper we discuss the recent empirical research on the causes of disputes.

Our focus is primarily on the analysis of disputes that are resolved by arbitration systems. In practice nearly all of the empirical research on the determinants of disputes (apart from that devoted to the study of strikes in labor negotiations) has been devoted to the study of arbitration systems. Since 1960, compulsory arbitration has become an increasingly common means of resolving contract disputes in the American public sector. Half of the states now have arbitration statutes covering some group of public employees. Arbitration is also widely used to settle labor disputes in Canada and Europe, and as an alternative to the court system in the United States. In short, arbitration systems have become a rich and varied source of data for empirical tests of alternative theories of the causes of disputes.

Arbitration systems are highly structured. The parties first agree on an arbitrator.¹ They then present their cases, and the arbitrator imposes a settlement. Under conventional arbitration, the arbitrator can impose any settlement, while under final-offer arbitration, the arbitrator must

choose the position of one of the parties. Tri-offer arbitration, a variant of final-offer arbitration in which the arbitrator may also choose a fact-finder's position, has been used in Iowa since 1974.

The study of these more structured approaches to dispute resolution offers additional insights into the causes of negotiation failures. We focus on four factors that are thought to be important determinants of dispute rates both under arbitration systems and in the courts. They are 1) divergent beliefs about the expected outcome if the dispute must be arbitrated, 2) principal-agent problems where it is in the interests of a principal, but not his or her agent, to proceed to arbitration 3) attitudes towards the uncertainty associated with going to arbitration, and 4) dispute costs. In the last section we discuss some of the emerging evidence directed at tests of models that attribute the cause of disputes to divergent beliefs.

I: Divergent Expectations

Crawford (1979) points out that if both parties to a negotiation knew the arbitrator's preferred outcome, they would never use the procedure: they would simply settle on that outcome and avoid the arbitral costs. Thus, in order for the procedure to be used at all, there must be some uncertainty associated with the arbitral outcome.² Moreover, as Ashenfelter (1987) points out, it is very unlikely that the parties would ever voluntarily agree to submit their dispute to a deterministic system since this is tantamount to agreeing on a settlement.

In a pioneering early paper Farber and Katz (1979) show that if the parties were risk averse and had identical expectations about the uncertain arbitral settlement, then there would be a range of settlements that both

parties would prefer to incurring the cost and the uncertainty associated with arbitration. It follows that the parties may go to arbitration solely because they have differing beliefs about the expected outcome of arbitration. Intuitively, if each party believes that it will "win" in the arbitration hearing, then the incentive to reach a negotiated settlement is diminished.

The role of divergent expectations is similar to the role of different beliefs about relative delay costs in the "war of attrition" model of strikes discussed by Kennan and Wilson (1988). In both cases the parties know the size of the pie to be divided, but they have differing beliefs about the likely winner in the event of a dispute. This analogy suggests that divergent expectations might reflect private information. Farber and Bazerman (1989) cite the psychology literature and argue that divergent expectations might also reflect a human tendency to over-estimate the probability of success in any uncertain situation. A question they do not address is to what extent learning would cause expectations to converge in the course of repeated negotiations.

II: Principal-Agent Problems

A recurrent theme in the Industrial Relations literature about arbitration is that union negotiators may have incentives which are different from those of the rank and file. McCall (1988) appears to be the first author to formalize this idea, and he does so in the context of interest arbitration. In his model, the negotiator can procure a better settlement for the union by expending more effort. The settlement is also affected by the state of the world, which is observable to the negotiator but not to the union rank and file. Hence, the rank and file cannot

distinguish between a bad state caused by the negotiators shirking and one due to a bad state of the world. McCall shows that requiring the negotiator to use arbitration in the bad state will solve the incentive compatibility problem.

Although the model's principle prediction is that arbitration will be used only in the bad state of the world, the available evidence suggests that there is no difference in wages between arbitrated and negotiated settlements within jurisdictions (c.f. Currie 1989). However, McCall does point out that if there is also a principal-agent problem on the management side, then there will not be any simple relationship between arbitration and wages.

Ashenfelter (1989) has also set out a model where disputes may arise when the agent's role is to manipulate the outcome, as do lawyers in arbitration and legal proceedings. In such situations the parties may well face incentives similar to those in a prisoner's dilemma payoff structure. In such situations it is a dominant strategy for each party to engage the agent, who in turn causes the parties to engage in a dispute in order to collect a larger fee. It is well known that it pays for the parties to write a contract that specifies cooperation in this situation, but it is also known that such contracts may be difficult to enforce. Although Ashenfelter presents evidence that indicates that several arbitration systems appear to contain a prisoner's dilemma payoff structure, it is not possible from this evidence alone to determine the extent to which the observed number of disputes is greater than would be the case in the absence of an agency problem.

III: Attitudes Towards Risk

If the parties to a negotiation are risk averse, the degree of uncertainty associated with arbitral outcomes will also affect dispute rates. Other things being equal, an increase in uncertainty should reduce dispute rates. Ashenfelter et al. (1989) report results of an experiment designed to test this hypothesis.

Each pair of subjects bargained over a sum of money twenty times. During the first ten rounds of bargaining, they each received a zero payoff if they were unable to agree within a fixed time. During the next ten rounds, if they could not agree within the fixed time the division was decided by "arbitration". The arbitral decision was modeled as a random number drawn from a normal distribution. Thus the uncertainty associated with arbitration could be varied by changing the variance of the distribution of arbitral decisions. Table 2 shows dispute rates associated with different levels of uncertainty. The first column shows that as the variance of the distribution of arbitral outcomes was increased, dispute rates fell.

It is likely that attitudes to risk vary across bargaining pairs. For example, Ashenfelter and Bloom (1985) offer evidence that some parties to arbitration hearings are more risk averse than others. In an examination of final-offer arbitration of New Jersey police contracts, they found that unions made offers that were more conservative than those of their employers in the sense that they were closer to a measure of the mean arbitrator's preferred award. Several authors have shown that there is a great deal of unexplained variability in dispute rates which is associated with individual bargaining pairs (c.f. Currie (1989a), Ashenfelter et al., and Reder and Neumann, 1980). Differing attitudes towards risk might help

explain this variation.

Finally, Farber and Katz suggest that parties who use arbitration learn about arbitrator preferences and reduce their subjective evaluation of the degree of uncertainty associated with the procedure. Hence, risk aversion offers a potential explanation for state dependence in the occurrence of arbitrations. Currie (1989a) shows that parties who used arbitration in the last negotiation are more likely to use arbitration in the current round of negotiations, but that there is no evidence of a more enduring "narcotic effect" of arbitration.

IV: Dispute Costs

Bloom (1981) suggests that in some cases the cost of continuing negotiations may be high enough that it will be less costly to use arbitration. Whatever the cause of bargaining failures, any economic theory of disputes predicts an inverse relationship between dispute rates and the cost of disputes. In a bargaining experiment with 171 sets of negotiations, Farber, Neale and Bazerman (1989) show that higher direct costs of arbitration are associated with a decrease in dispute rates.

Little is known about the relative costs of disputes under different dispute resolution procedures, but the available evidence suggests that arbitration hearings are much less costly than strikes.³ This observation is no doubt the explanation for the fact that a regime in which disputes are resolved by compulsory arbitration is associated with far more disputes than a regime in which disputes result in a strike: it is simply that disputes are more common when they are less costly. Some evidence of this "chilling effect" is shown in Table 2: a comparison of columns 1 and 2 shows that the experimental dispute rates were about three times higher in

the rounds with arbitration than in the rounds without.

As a second example, Currie and McConnell (1989) study 3985 contracts covering Canadian provincial and municipal level employees between 1965 and 1987, and show that as reported in Table 1, thirty-two percent of negotiations subject to compulsory arbitration ended up in disputes compared to 13 percent for contracts negotiated under the right to strike. Controlling for occupation and jurisdiction does little to narrow the raw difference in dispute rates. Currie and McConnell show that even after taking into account the increase in dispute rates associated with arbitration, the total cost of contract disputes as measured by foregone wages is lower under compulsory arbitration than under the right to strike.

V: Testing Models of Negotiator Behavior

The fact that dispute rates vary in a predictable way with the uncertainty associated with arbitral outcomes and with the cost of a dispute suggests that bargaining failures are not simply accidents due to faulty negotiations (c.f Hicks, 1963, and Reder and Neumann). In this section we discuss some tests of negotiator behavior that will, in principle, allow us to determine whether disputes occur because of divergent expectations.

Given a particular model of arbitrator behavior, (c.f. Ashenfelter, et.al., 1986), it is possible to predict the offers that parties subject to tri-offer arbitration will make. It is assumed that arbitrators have a preferred outcome drawn from a normal distribution with a known mean and variance, and that from the three offers, (one from the fact-finder and two from the parties), the arbitrator chooses the one closest to his or her own

preferred outcome. Ashenfelter et al. show using this framework, that given the fact-finder's offer, the expected utility maximizing offer for each party is (usually) independent of the other party's offer.⁴ Hence actual offers can be compared to predicted expected utility maximizing ones.

Figure 1 shows a comparison between actual and predicted union wage offers for the Iowa tri-offer cases studied by Ashenfelter, Dow and Gallagher (1986). The parties were bargaining over percentage wage increases. The figure shows that although there is substantial variation around a 45 degree line, the actual and predicted offers move together. The fact that the points tend to lie below the line indicates that actual offers were more conservative than the predicted expected utility maximizing ones.

These predicted offers were computed assuming that both parties used the actual mean and variance of the distribution of arbitral awards in their computations. If parties had divergent expectations about the expected award, we would expect to see offers which were optimistic relative to the expected utility maximizing offers. The fact that the points tend to lie below the 45 degree line indicates that, on the contrary, actual offers were more conservative than predicted ones. Hence, the figure does not support the hypothesis that disputes are caused by divergent expectations.

VI: Conclusion

It is possible that 1) divergent expectations, 2) principal-agent problems, 3) attitudes towards risk, and 4) dispute costs may all play a role in negotiation failures. Our discussion indicates that the role of

these factors in the determination of dispute rates is only beginning to be understood. It is our hope that the insights and empirical methods gained from the study of arbitration systems can be used to develop a more general theory of negotiation failures that will allow us to address an important set of questions that have long resisted economic analysis.

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Footnotes:

1. Bloom and Cavanagh (1986) offer an insightful empirical analysis of the way in which arbitrators are chosen. Ashenfelter (1987) explains why the emerging evidence implies that arbitrators operate within a process that makes them statistically exchangeable.
2. The same observation can be made about the court system. If the outcome of a trial were known with certainty before the trial began, we would expect litigants to settle out of court.
3. Currie and McConnell summarize the available estimates and conclude that the cost of an arbitration hearing would be most unlikely to exceed \$50,000. Canadian.
4. Each offer is independent of the other parties offer as long as the offers are placed around the fact-finder's proposal.

Table 1: Reported Dispute Rates (Percent)

Author	Data	Rate
<u>Collective Bargaining: Strikes</u>		
Card (1989)	Canadian private sector contracts	22
McConnell (1989)	US private sector contracts	17
Currie and McConnell (1989)	Canadian public sector contracts	13
<u>Collective Bargaining: Arbitrations</u>		
Currie and McConnell	Canadian public sector contracts	32
Currie (1989a)	British columbia teachers	33
Ashenfelter and Bloom (1984)	New Jersey police	30-49
Ashenfelter et al. (1989)	Arbitration experiments	28-43
Boden (1989)	Worker's compensation	43
<u>Other Types of Negotiations</u>		
Roth and Ochs (1988)	Two-person bargaining games	15
Mnookin et al. (1989)	California child custody	22
White (1989)*	Medical malpractice	11

Notes:

* Percent of cases that go to court.

Table 2: Experimental Dispute Rates
(Ashenfelter et al.)

	<u># Disputes/# Negotiations</u>	
	(1)	(2)
	With	Without
	Arbitration	Arbitration
No Arbitration Controls ($\sigma=50$)	--	8/200
Conventional Arbitration		
Low Variance ($\sigma=12.5$)	119/289	40/290
Medium Variance ($\sigma=25$)	79/250	26/250
High Variance ($\sigma=50$)	71/250	24/250
Final-Offer and Tri-Offer (Combined) ($\sigma=50$)	216/537	66/540

Notes:

Parties bargained over a number between 100 and 500. Arbitral preferences were distributed normally with mean 350 and a standard deviation equal to σ . No arbitration controls bargained all 20 rounds without arbitration.

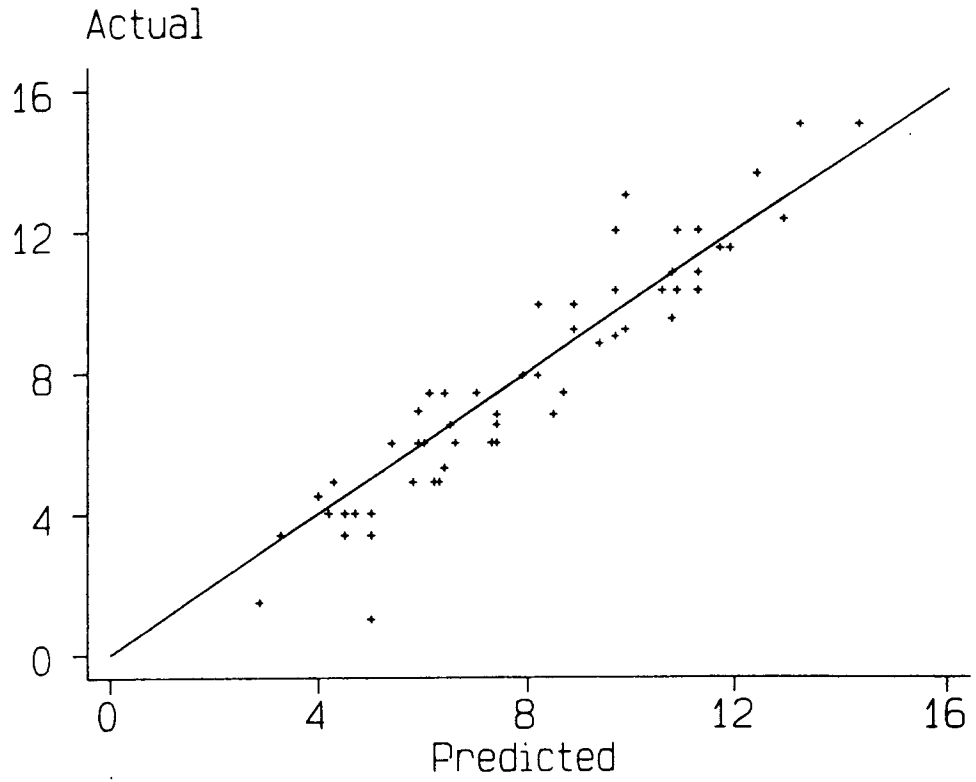


Figure 1: Union Offers