

Getting to NO: Theory and Evidence for Instrumental Negotiations

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A substantial literature has examined negotiation problems. Throughout this literature, scholars have assumed that participants approach negotiations with the intent of reaching a deal and that negotiation participants cannot be significantly harmed by the negotiation process. In this paper, we challenge these assumptions. We define situations in which negotiators use the negotiation process to achieve goals other than reaching a potential agreement as *instrumental negotiations*. We explore the implications of this broader conceptualization of negotiations both theoretically and experimentally. We demonstrate that the mere possibility of encountering an instrumental negotiator significantly changes Nash equilibria and actual behavior; some negotiators are harmed by instrumental negotiators and other negotiators reject sincere overtures to negotiate. The possibility of instrumental negotiations significantly harms profits. We consider theoretical, prescriptive, and policy implications of these results.

1. Introduction

Negotiation scholars in both psychology and economics have assumed that individuals approach negotiations with the goal of reaching an agreement. This assumption is often implicit in the problem formulation, but many scholars have stated this assumption explicitly as well. For example, Fisher, Ury and Patton (1991: xvii) define negotiations as “back and forth communication *designed to reach an agreement*.” Similarly, Rubin and Brown (1975: 2) define negotiations as “two or more parties [who] *attempt to settle* what each should give and take.” Carnevale and Lawler (1986: 636) state that “Negotiation is a form of symbolic communication that involves two or more people *attempting to reach agreement* on issues where there are perceived differences of interest.” And Rubinstein (1982: 97) defines negotiation as a situation in which “two individuals have before them several possible contractual agreements. *Both have interests in reaching agreement* but their interests are not entirely identical. What will be the agreed contract, assuming that both parties behave rationally?” [emphases added]

While prior research has accepted that negotiators might fail to reach an agreement, extant work has attributed negotiation impasses to one of two causes. First, negotiation partners may lack a zone of agreement (e.g., the amount a buyer is willing to pay is lower than what a seller is willing to accept). Second, negotiation partners may fail to find their zone of agreement (e.g., the parties may fail to recognize opportunities for mutually beneficial trades). Prior work has not considered the possibility that negotiators may be motivated to use the negotiation process for an ulterior motive that is very different from reaching an agreement.

In this paper, we challenge the ubiquitous assumption that individuals enter negotiations with “interests in reaching agreement” (Rubinstein 1982:97). Instead, we argue that some individuals enter the negotiation process with ulterior motives. We define these negotiators as “instrumental negotiators.” Instrumental negotiations are situations in which one or more parties enters negotiations with the goal of using the negotiation process to achieve an outcome different from reaching an agreement.

We adapt Carnevale and Lawler’s (1986) definition of negotiations to incorporate the possibility of instrumental negotiators. We redefine negotiations:

Negotiation is a form of symbolic communication that involves two or more people with the *professed* objective of reaching an agreement. These parties may have divergent interests, including interests that may be orthogonal to reaching an agreement.

In this paper, we describe how the possibility of encountering an instrumental negotiator influences the nature of the negotiation process and negotiation outcomes. We report results from both a theoretical model and a laboratory experiment, and we discuss the theoretical and practical implications of accounting for instrumental negotiations.

2. Motivation

Prior research has assumed that individuals enter negotiations with the intent of reaching an agreement. In practice, individuals may enter negotiations *instrumentally* to achieve goals that are very different from reaching an agreement. One reason individuals may enter negotiations is to stall for time. A second reason individuals may enter negotiations is to

create a (false) cooperative impression. A third reason individuals may enter negotiations is to learn information about their counterpart.

Instrumental negotiators seek to increase their payoffs by using the negotiation process for an ulterior motive. Instrumental negotiations are characterized by intentional misdirection. For instrumental negotiators to succeed, instrumental negotiators need to mislead their counterpart into thinking that their intentions for reaching an agreement are sincere.

A classic example of the successful use of instrumental negotiations involves the Peruvian government's negotiation with the radical MRTA in 1996. In this case, the Peruvian government led by Fujimori, used negotiations to gain time and to gather information. As the Canadian ambassador to Peru who participated in the negotiations later asserted, Fujimori's negotiating team "...had served as little more than a cover to give [Fujimori] time to put in place the physical and political elements of a raid" (Schemo 1997).

On December 17, 1996, fourteen hostage takers belonging to the MRTA, a radical rebel movement, took over the Japanese Ambassador's residence. At the time, the Japanese Ambassador was hosting a large party and several prominent members of the Peruvian government were in attendance.

The hostage takers initially held approximately 600 people including the president's brother, two generals, and the chief justice of Peru. The MRTA made an initial demand for the release of 400 comrades. During the course of negotiations, the Peruvian government and the hostage takers negotiated over a wide range of issues. The progress of these negotiations was very slow. The head of the Red Cross, Michele Minick, served as a mediator, and the primary focus of the negotiations was on the composition of a Committee of Guarantees to enforce a potential agreement. For example, the two sides negotiated heatedly over the inclusion or exclusion of a representative from Guatemala on this panel (Shaw and Newman 1997).

Concurrent with the meandering negotiation process, the Peruvian military began preparations to storm the compound. Starting in late December just days after the hostage situation began, the Peruvian government built a full-scale model of the Japanese Ambassador's residence on a remote naval base. Special units from Peru's military began to practice storming the compound. The military also dug 170 meters of tunnels under the Japanese residence. The negotiations extended through April 1997, and in early April, Fujimori proclaimed that "We are not contemplating the use of force [except] in an unmanageable emergency, which we don't expect to happen" (Anderson 1997).

On April 23rd, 1997, while most of the hostage takers were playing soccer in the living room, the Peruvian military stormed the compound. During the operation one hostage was killed, two soldiers were killed, and all fourteen hostage takers were killed.

Instrumental negotiations are prevalent across a very wide range of domains. For example, technology companies may enter merger or acquisition negotiations with a competitor with the real objective of learning technological secrets. One such example involved negotiations between Microsoft and Stac Electronics. After the (unsuccessful) negotiations process, Stac accused Microsoft of stealing its data compression code and using it in MS-DOS 6 (Stac Electronics' patent infringement complaint against Microsoft Corp., January 25, 1993). In this case, a California jury awarded Stac \$120 million in compensatory damages in 1994 (Fisher 1994).

In another example, the Boston Red Sox initiated negotiations to keep a pitcher from signing up with a rival baseball team. "When they began their pursuit of Daisuke Matsuzaka [in the fall of 2006] one of their main motivations was to keep him from the Yankees." (Chass 2007) By engaging Matsuzaka in negotiations, the Red Sox were able to preclude other baseball teams from negotiating with him. "If the Red Sox were unsuccessful in reaching a deal, possession of Matsuzaka would have reverted to his Japanese team, the Seibu Lions, for at least one season and the Red Sox would have recouped their \$51.1 million bid. No money lost, and, at least for now, no Matsuzaka in the Bronx." (Chass 2007)

Similar accusations have been made of individuals, corporations, and governments which have used the negotiation process to achieve aims very different from the classical notion of using the negotiation process to reach an agreement.

3. Literature Review

Negotiation and bargaining research spans several disciplines. Early bargaining research, such as Nash's (1950) classic research, used axiomatic methods to solve bargaining problems. This work mapped initial endowments and strategies to specific solutions. A large body of research extended Nash's results, and in the process, relaxed a number of assumptions. For example, Kalai and Smorodinsky (1975) replaced the axiom of "independence of irrelevant alternatives" with the less stringent "axiom of monotonicity." Binmore *et al.* (1986) and Rubinstein (1982) extended early bargaining models by challenging the static formulation of mapping initial positions instantly to outcomes. Instead, these scholars began to focus on

the negotiation process. For example, Binmore *et al.* (1986) considered strategic delay as a way to communicate credibility. Similarly, Rubinstein (1982) began to consider negotiation process issues by introducing a discrete-time bargaining game with alternating offers. This approach to studying negotiations spawned a substantial stream of subsequent research (see Osborne and Rubinstein 1990).

In a related vein of research, scholars have studied negotiator behavior (Bazerman *et al.* 2000). Most of this research has explored behavior within laboratory or classroom settings. As with the theoretical work, this literature has assumed that “negotiation involves discussion between the parties with *the goal of reaching agreement*” (Carnevale and Pruitt 1992: 532, emphasis added).

Negotiation experimentalists have used both structured and unstructured negotiation tasks (see Camerer 2003 for a review). In structured negotiation tasks, like the ultimatum game, participants follow a specific bargaining procedure. Although participants’ actions are constrained, scholars have been able to use structured negotiation tasks to generate a number of important insights into the negotiation process. For example, this research paradigm has been used to study important constructs such as generosity (Larrick and Blount 1997), rationality (Robert and Carnevale 1997) and trust (Lewicki *et al.* 1998; Croson and Buchan 1999) as well as how structural and situational factors such as framing (Blount and Larrick 2000), the physical appearance of a counterpart (Solnick and Schweitzer 1999) and communication flows (Curhan and Pentland 2007; Valley *et al.* 2002) influence bargaining outcomes. For example, using a modified ultimatum game framework, Boles *et al.* (2000) were able to study deception and vengeful reactions to deception.

Many negotiation studies have also used unstructured negotiation tasks. In most unstructured negotiation experiments, participants are given background information and asked to play a specific role. In these studies, participants are usually free to discuss a wide range of issues with their counterpart either face-to-face or via computer. This research has explored important constructs within negotiations, such as self-efficacy (Sullivan, O’Connor, and Burrell 2006), biased judgment (Larrick and Wu 2007; Morris *et al.* 1999), emotions (Van Kleef *et al.* 2004), and gender differences (Bowles *et al.* 2005) as well as the dynamics of the negotiation process, such as how first-offers anchor negotiations (Galinsky and Mussweiler 2001), how time pressure affects agreements (Carnevale and Lawler 1987; Moore 2004a; Moore 2004b), and how changes in the communication process impact outcomes (Bolton *et al.* 2003; McGinn and Keros 2002).

In addition to using structured and unstructured negotiation tasks, negotiation scholars have also used survey methods (e.g., Lewicki and Robinson 1998; Lewicki and Stark 1996; Robinson *et al.* 2000) and developed psychological models of the negotiation process that integrate results from experimental research (e.g., Lewicki *et al.* 1992).

Across all of these paradigms, negotiation research has presumed that negotiators approach negotiations with the intent of searching for and reaching a deal. In fact, the dominant experimental paradigm in this research has involved structured (e.g., ultimatum games) and unstructured (e.g. role-play exercises) tasks with positive zones of agreement and rewards for participants who reach an agreement.

In this paper, we challenge a key assumption of prior negotiation research. We allow for the possibility of instrumental negotiations, and in both theoretical and experimental research we study the implications of this possibility.

4. Theoretical Model

Consider a bargaining game between two players with initial (pre-bargaining) endowments α_1 and α_2 , where $\alpha_1, \alpha_2 \geq 0$. Each player is risk-neutral and seeks to maximize his own expected surplus. Without loss of generality, we normalize the initial size of the total pie to unity; i.e., $\alpha_1 + \alpha_2 = 1$. The model we construct will apply to bargaining among individuals, firms or governments, with the model parameters interpreted according to context.¹ Player 1 can make a bargaining overture to player 2, who could in turn consent to enter into negotiations, or reject the overture in favor of the status quo. Further, player 1's overture could be sincere or instrumental, and player 2 has no way of distinguishing *a priori* between the two cases. We discuss the structure of the payoffs under each kind of negotiation below.

The case of sincere negotiations corresponds to the conventional paradigm with a positive zone of agreement; in this case, the size of the total pie expands to $M > 1$.² In practice, the allocation of surplus among the players, which determines their final endowments, will depend on many factors such as players' relative bargaining power, their outside options and perceptions of equity. Since our objective is to model instrumental negotiations rather than

¹When the players are two firms in competition, α_1 and α_2 can be interpreted as their market shares.

²One such example is the acquisition of one duopoly company by the other. Consider two firms—each producing at zero marginal costs—selling in a market characterized by the demand curve $P(q) = 1 - q$. Theory predicts that under Cournot competition, each firm would make a profit of $\frac{1}{9}$. Were one firm to acquire the other, the resulting monopoly firm would make a profit of $\frac{1}{4}$. In this case, the multiplier $M = \frac{\frac{1}{4}}{\frac{1}{9}} = \frac{9}{8} > 1$, which is a measure of the benefit of eliminating competition through (sincere) negotiations in this context.

focus on specific bargaining solutions, we will abstract away from the specifics of surplus allocation. Let $(1 - P, P)$ denote the fractions of the pie obtained by player 1 and player 2 respectively from sincere negotiations, where $0 < P < 1$. Thus, players' final shares of the pie are $M \cdot (1 - P)$ and $M \cdot P$. Our analysis will apply to all surplus allocation schemes, with the value of P determined by the specifics of the scheme; the only constraints we impose are that $M \cdot (1 - P) \geq \alpha_1$ and $M \cdot P \geq \alpha_2$; i.e, neither player is worse off after entering into sincere negotiations.³ The traditional approach (see Bazerman *et al.* 2000) assumes that negotiators cannot be harmed by the negotiations process; this is consistent with “sincere negotiations” in our model.

Instrumental negotiations create no surplus for the system. Rather, such negotiations aim at increasing the payoffs of player 1 at the expense of player 2. To be beneficial, instrumental negotiations inevitably require specific preparations by player 1, entailing a significant investment. Further, this investment cannot be easily observed by Player 2. The nature of these investments depends on the context. In the Peruvian hostage crisis of 1996-97, these investments included President Fujimori's preparations for military action and his pretence of sincere negotiations. These efforts entailed both financial and political costs for Fujimori. To benefit from instrumental negotiations with Stac Electronics, with the aim of leap-frogging over Stac's data compression product, Microsoft required some *a priori* expertise in data compression technology. Without such prior investments in the relevant technology, Microsoft's benefit from studying Stac's technology would have been minimal (Stac was too far ahead in the race). In an industrial dispute, management might build up inventories of key components or seek alternative (costly) sources of raw material even while dragging out negotiations with the labor union, to buffer against labor strikes and prepare for layoffs of the union workers.

We develop a parsimonious model that can be applied to all the above settings. Player 1's level of preparation for instrumental negotiations (unobserved by player 2) is denoted by the parameter t ; this level of preparation incurs an investment cost $c(t)$. A higher t denotes a higher level of preparation and entails higher costs; so we assume that $c(t)$ is increasing in t , and $c(0) = 0$. $c(t)$ is *common knowledge*, i.e., both players know the cost function $c(t)$. Under instrumental negotiations, player 1's final endowment (excluding costs) increases by γt , where $\gamma \in [0, 1]$ is a scaling factor, and player 2's final endowment falls by an identical amount.⁴

³A little thought reveals that without these constraints, we obtain the trivial outcome that one or the other player will never enter into negotiations, and so the status quo is maintained.

⁴ γ measures the marginal value of additional investment for player 1 (equivalently, the marginal loss for

(Recall that no net surplus is created under instrumental negotiations.) Thus, instrumental negotiations would result in final endowments of $\alpha'_1 = \alpha_1 + \gamma t$ and $\alpha'_2 = \alpha_2 - \gamma t$. Under all other outcomes (sincere negotiations, or continuance of the status quo), t has no impact on either player's payoffs, while $c(t)$ remains a sunk cost for player 1. Under instrumental negotiations, player 1 can 'steal' all of player 2's initial endowment in the limit, leading to a maximum final endowment (excluding the investment $c(t)$) of $\alpha_1 + \alpha_2 = 1$ for player 1, and 0 for player 2. Thus, we let $t \in [0, \alpha_2]$, so that, at the maximum values of γ and t (1 and α_2 respectively), player 1's final endowment (not including costs) is $\alpha'_1 = \alpha_1 + \gamma t = \alpha_1 + \alpha_2 = 1$, and player 2's final endowment is $\alpha'_2 = \alpha_2 - \gamma t = 0$.

Figure 1 depicts the sequence of events, and the payoffs from the various possible outcomes, in an extensive game tree. Player 1 moves first: he can content himself with the status quo or decide to negotiate with player 2. In the latter case, the Negotiation Subgame begins: player 1 can then make an investment of t , at a cost $c(t)$, which yields a benefit only under instrumental negotiations. Hence, player 1's choice of t is directly correlated with his decision to be sincere or instrumental in his overture to player 2. As discussed, player 2 always loses under instrumental negotiations, and is always better off under sincere negotiations. The challenge for player 2 is that he cannot observe t , and so his decision either to enter into negotiations or to reject player 1's overture is a function of his estimate of player 1's motives.

4.1 Analysis of equilibria

We first compare player 1's payoffs from sincere versus instrumental negotiations to derive his preferences. As figure 1 shows, the payoffs for player 1 for any value of t are $M \cdot (1 - P) - c(t)$ under sincere negotiations and $\alpha_1 + \gamma t - c(t)$ under instrumental negotiations. Clearly, player 1 *maximizes* his payoff from sincere negotiations by setting $t = 0$ (Recall that $c(0) = 0$). For instrumental negotiations to play a meaningful role in the negotiations game, player 1's payoffs from instrumental negotiations must exceed his maximum payoff from sincere negotiations for at least *some* choices of t . For the rest of this Section, we will assume the minimal sufficient condition that guarantees this, i.e.,

$$\exists t \in [0, \alpha_2] \text{ such that } \alpha_1 + \gamma t - c(t) > M \cdot (1 - P).^5 \quad (1)$$

player 2) under instrumental negotiations. It has important governance and policy implications, discussed in Section 4.2.

⁵A regulatory agency that desires to eliminate instrumental negotiations altogether needs to enact policy measures that ensure that condition (1) is never satisfied. Section 4.3 studies the means for, and implications

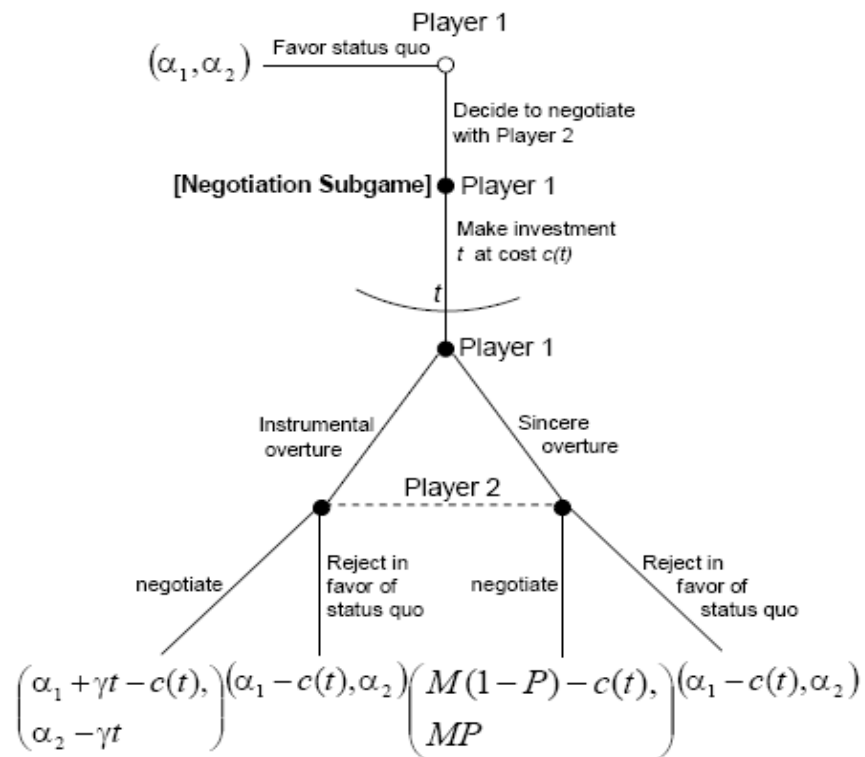


Figure 1: Sequence of Events in the Extensive Form Game: Tuples in the end nodes depict Player 1's and Player 2's payoffs respectively.

Condition (1) ensures that there exists a value of t , for which instrumental negotiations are more attractive than sincere negotiations. Now consider player 1’s options *after* picking $t \in [0, \alpha_2]$. His choice of instrumental or sincere negotiations depends on the payoffs under each. Define

$$T^* = \begin{cases} \frac{M(1-P)-\alpha_1}{\gamma}, & \text{for all } \gamma > 0; \\ \alpha_2, & \text{when } \gamma = 0. \end{cases}$$

It is straightforward to show that player 1 prefers to negotiate instrumentally when $t > T^*$ and sincerely otherwise.⁶ Thus, player 1’s choice of t directly determines his “negotiation type” – i.e., whether he would be a sincere or instrumental negotiator. We build up to the study of the complete game by first analyzing the Negotiation Subgame in the following Section.

4.1.1 Analysis of the Negotiation Subgame

The *Negotiation Subgame* begins if player 1 decides to negotiate with player 2 rather than remain content with the status quo (See figure 1). First, player 1 picks t and chooses whether to make a sincere or an instrumental overture. Then, player 2 can either enter negotiations or reject the overture in favor of the status quo. Since player 2 has no information about player 1’s choice of t , the negotiation subgame, in which players move in sequence, is *equivalent* to one in which the two players move simultaneously. This equivalence is helpful to us from an analytical standpoint. *We derive and analyze the Nash equilibria of the simultaneous-move game, since these are equivalent to the Perfect Bayesian Nash equilibria for the sequential (dynamic) negotiations subgame.* We denote player 1’s strategy by the shorthand “ t ”, since the value of t (whether $\leq T^*$ or $> T^*$) uniquely determines whether he is sincere or instrumental. Player 2’s strategy is either to “negotiate” or “reject” the overture. Each pair of strategies for the two players (for example, $\{t = 0, \text{“negotiate”}\}$) is an equilibrium candidate. The following Lemma shows that there are no pure strategy equilibria in the *Negotiation Subgame*.

Lemma 1 *There do not exist any pure strategy equilibria in the Negotiation Subgame of figure 1.*

Proof: We established that the sequential negotiations game is equivalent to a static game in which both players move simultaneously. We prove the result by exhaustively examining

of, relaxing this constraint.

⁶We will assume that in the knife-edge case when the two payoffs are equal, player 1 favors sincere negotiations.

the equilibrium candidates and showing that one or the other player can unilaterally deviate from each equilibrium candidate to improve his payoff. Now consider a candidate $\{t : t > T^*, \text{“negotiate”}\}$ for some t . Player 2 obtains $\alpha_2 - \gamma t$ from the ensuing instrumental negotiation, and can improve his payoff to α_2 by rejecting the overture. Next, consider the pair of strategies $\{t : t > T^*, \text{“reject”}\}$. Since $c(t)$ is increasing in t , player 1 can improve his payoff by choosing any $t' < t$ (Such a t' obviously exists.). $\{t : t \leq T^*, \text{“reject”}\}$ also cannot be an equilibrium for any t in the relevant range, because if $t \leq T^*$, player 1 is a sincere negotiator, and so player 2 can improve his payoff by negotiating. Lastly, we prove that $\{t : t \leq T^*, \text{“negotiate”}\}$ cannot be an equilibrium for any t . If $t > 0$, player 1 is better off by unilaterally deviating to $t = 0$. Further, even at $t = 0$, if player 2’s strategy is to always negotiate, player 1 can improve his payoff by choosing a $t > T^*$ such that $\alpha_1 + \gamma t - c(t) > M \cdot (1 - P) - c(0)$ (We know by condition (1) that such a t exists). ■

We now look at mixed strategy equilibria. In the interest of analytical tractability, we assume from now on that the parameter t can take one of two values $\{t_L, t_H\}$, where $t_L < t_H$. Without loss of generality, we normalize t_L to 0. Condition (1) applied to this binary case requires that

$$\alpha_1 + \gamma t_H - c(t_H) > M \cdot (1 - P), \quad (2)$$

i.e., $t_H > T^*$. This means that player 1’s payoff under instrumental negotiations with $t = t_H$ is greater than that under sincere negotiations with $t = 0$. The following Lemma derives the *Negotiation Subgame’s* unique equilibrium.

Lemma 2 *The Negotiation Subgame has a unique equilibrium. Further, this equilibrium is one of mixed strategies, in which both players randomize. Player 1 chooses $t = t_H$ with probability $q = \frac{MP - \alpha_2}{MP - \alpha_2 + \gamma t_H}$, and $t = 0$ with probability $(1 - q)$. Player 2 agrees to negotiate with probability $r = \frac{c(t_H)}{\alpha_1 + \gamma t_H - M(1 - P)}$ and rebuffs player 1’s overtures with probability $(1 - r)$.*

Proof: We first find the mixed strategy equilibrium of the *Negotiation Subgame*. We analyze mixed strategies for player 1 where he mixes between sincere ($t = 0$) and instrumental ($t = t_H$) overtures. If player 1 mixes between $t = t_H$ and $t = 0$, he must be indifferent between the two choices in equilibrium, which implies that player 2 must randomize appropriately between agreeing to negotiate and rebuffing player 1’s overture. Suppose player 2 chooses to negotiate with probability r and rejects the overture otherwise. To make player 1’s payoffs identical for $t = t_H$ and $t = 0$, r must satisfy:

$$r(\alpha_1 + \gamma t_H - c(t_H)) + (1 - r)(\alpha_1 - c(t_H)) = r(M(1 - P)) + (1 - r)\alpha_1 \quad (3)$$

Similarly, for player 2 to mix between agreeing to negotiate and rebuffing player 1's overture, he must be indifferent between the two choices, i.e., his payoffs are identical under each. This requires that player 1 mix between $t = t_H$ and $t = 0$ appropriately. Let player 1 choose $t = t_H$ with probability q , and $t = 0$ with probability $(1 - q)$. Then, q must satisfy

$$q(\alpha_2 - \gamma t_H) + (1 - q)M \cdot P = \alpha_2 \quad (4)$$

Every mixed strategy equilibrium must satisfy equations (3) and (4). The unique solution is $r = \frac{c(t_H)}{\alpha_1 + \gamma t_H - M(1 - P)}$ and $q = \frac{MP - \alpha_2}{MP - \alpha_2 + \gamma t_H}$. We have already shown that there is no pure strategy equilibrium for the *Negotiation Subgame*. Thus, the unique equilibrium for this game is defined by the probability function tuple (q, r) . ■

4.1.2 Analysis of the complete game

We build on the preceding analysis of the Negotiation Subgame to derive the equilibria for the complete game of figure 1. The following Theorem establishes that the complete game has a unique mixed strategy equilibrium in which player 1 always decides to negotiate with player 2.

Theorem 1 *The game of figure 1 has a unique equilibrium. In this equilibrium, player 1 always makes a negotiation overture to player 2 and then randomizes between instrumental negotiations with probability $q = \frac{MP - \alpha_2}{MP - \alpha_2 + \gamma t_H}$ and sincere negotiations with probability $(1 - q)$. Player 2 randomizes between agreeing to negotiate (with probability $r = \frac{c(t_H)}{\alpha_1 + \gamma t_H - M(1 - P)}$) and rebuffing player 1's overture with probability $(1 - r)$.*

Proof: To find the equilibria of the entire game, we proceed by backward induction. At the initial node, player 1 chooses whether to favor the status quo or to make an overture to player 2 followed by the *Negotiation Subgame*. Favoring the status quo ends the game, leaving player 1 with his initial endowment of α_1 . Alternatively, player 1 may decide to make an overture and play the negotiation game, which, as proven above, results in the unique mixed strategy equilibrium (q, r) . In this case, player 1's expected profit is determined by either side of equation (3). Rearranging the terms of the RHS of equation (3), we obtain player 1's expected profit in the *Negotiation Subgame*:

$$E[\Pi_1] = r(M(1 - P)) + (1 - r)\alpha_1 = r(M(1 - P) - \alpha_1) + \alpha_1 > \alpha_1$$

Since $E[\Pi_1] > \alpha_1$, player 1 will *always* prefer to make an overture and negotiate with player 2 than to maintain the status quo. The unique equilibrium of the game is therefore the outcome of the Negotiations Subgame, which was derived in Lemma 2. ■

4.2 Implications for Policy

Governance structures, including the court system, play an important role in determining outcomes for individuals and firms when negotiations go sour (or, specific to our research, when one party turns instrumental). Stac Electronics could take legal recourse against Microsoft, and was awarded \$120 Million in compensatory damages by a jury in California. Other regulatory agencies can modulate the gains and risks from instrumental negotiations through their policies. For example, companies' incentives to negotiate instrumentally are affected by patent laws, and the degree of strictness or lenience in awarding and enforcing intellectual property rights.

In the negotiations game of figure 1, the parameter γ plays such a modulatory role. Mathematically, it determines the marginal value of additional investment in instrumental negotiations for player 1. Condition (2) can be equivalently expressed as: $\gamma > \gamma_{LB}$, where $\gamma_{LB} = \frac{c(t_H)+M(1-P)-\alpha_1}{t_H}$; i.e., γ must be greater than the lower bound γ_{LB} for instrumental negotiations to be relevant to outcomes. As γ increases, the governance structure becomes less protective and more *laissez-faire* with respect to patents and intellectual property, with $\gamma = 1$ corresponding to the most extreme form of 'free markets'. The question is whether, from a policy perspective, a more relaxed governance structure (implied by higher γ) is desirable. The following Lemma shows that the answer is not obvious: In fact, there are two countervailing effects at play when γ increases.

Lemma 3 *Under the mixed strategy equilibrium of Theorem 1,*

- (i) *The probability of occurrence of instrumental negotiations decreases as the policy parameter γ increases.*
- (ii) *The probability of rejection of sincere overtures increases as the policy parameter γ increases.*

Lemma 3 follows directly from the expressions for the probabilities q and r in Theorem 1. Observe that both q and r are decreasing in γ . Instrumental negotiations will occur with

probability $q \cdot r$, since q is the probability of an instrumental overture, and r is the probability of player 2's accepting that overture. Sincere overtures are made with probability $(1 - q)$, and these are rejected with probability $(1 - r)$. From the perspective of a social planner, the successful conclusion of sincere negotiations is desirable, since the surplus to both firms is augmented by the multiple M . Since overtures are either sincere or instrumental, part (i) of Lemma 3 suggests that a higher γ is desirable. However, part (ii) of the Lemma shows that the probability of rejection of sincere overtures increases with γ . Rejection of sincere overtures leaves money on the table for both parties. This suggests that the social planner should enforce a stricter governance structure (lower γ). To gain more insight to inform policy prescriptions, we derive the expected total profits for each player and the industry as a whole as a function of the model parameters.

Lemma 4 *The profits for each player, and the total industry surplus, in the range $\gamma \in (\gamma_{LB}, 1]$ (i.e., under the equilibrium of Theorem 1), are as follows:*

$$\begin{aligned} E[\Pi_1] &= \alpha_1 + \frac{c(t_H) [M(1 - P) - \alpha_1]}{\alpha_1 + \gamma t_H - M(1 - P)} \\ E[\Pi_2] &= \alpha_2 \\ E[\Pi_{Tot}] &= 1 + \frac{c(t_H)(M(1 - P) - \alpha_1)}{\alpha_1 + \gamma t_H - M(1 - P)} \end{aligned} \tag{5}$$

Lemma 4 shows that in the range $\gamma \in (\gamma_{LB}, 1]$, where the mixed strategy equilibrium of Theorem 1 applies, the expected total profits for the industry $E[\Pi_{Tot}]$ are falling in γ . Thus, from the perspective of a social planner, a lower γ is desirable. As γ increases, instrumental negotiations become more attractive to player 1, since his final endowment through instrumental negotiations, $(\alpha_1 + \gamma t_H)$, is linearly increasing in γ . Hence we might expect player 1's expected profits to increase in γ , but in fact, we observe the reverse. This is an outcome of the equilibrium dynamics when instrumental negotiations are feasible. As γ increases, player 1's payoffs from instrumental negotiations increase relative to those from sincere negotiations (and player 2's payoffs decrease under instrumental negotiations). Hence player 2's frequency of rejection of player 1's overtures (in favor of the status quo) rises. For player 1, the payoff under the status quo is worse than that from either sincere or instrumental negotiations, and so his overall expected profits fall in γ . We see that player 2's profits are a constant, independent of γ . This is again an outcome of the same dynamic: Player 2 benefits from sincere negotiations, but loses heavily under instrumental negotiations. In equilibrium,

his *expected* payoff from negotiations is α_2 , which is equal to his guaranteed payoff from the status quo. Hence, player 2 is indifferent between responding favorably to player 1’s overture and rejecting it in favor of the status quo.

4.3 Eliminating Instrumental Negotiations

We see that instrumental negotiations play a pivotal role in determining equilibrium outcomes and profits, when the payoffs to player 1 from instrumental behavior meet a minimum threshold. In the model, this threshold is captured by the sufficiency condition (1); in the binary case, the equivalent condition is $\gamma > \gamma_{LB}$. Two important and related questions are: Can (and should) instrumental negotiations be eliminated by appropriate policy?

An obvious way to eliminate firms’ incentives to negotiate instrumentally is to set $\gamma \leq \gamma_{LB}$. We analyze the equilibrium in this case.

Lemma 5 *When $\gamma \leq \gamma_{LB}$, the unique pure strategy equilibrium in the negotiations game of figure 1 is $\{t = 0, \text{“negotiate”}\}$; i.e., player 1 always makes sincere overtures (while setting $t = 0$), and player 2 always agrees to negotiate.*

Proof: When $\gamma \leq \gamma_{LB}$, player 1’s payoffs from sincere negotiations (with $t = 0$) are greater than his payoffs from instrumental negotiations for *any* t . Further, under sincere negotiations, setting $t > 0$ involves a cost $c(t)$ to player 1 but no benefit. Thus his *dominant* strategy is to set $t = 0$ and be sincere in his negotiations. Knowing this, player 2’s optimal response is to always respond favorably to player 1’s overtures. Hence, $\{t = 0, \text{“negotiate”}\}$ is an equilibrium in this case. The uniqueness follows because all other equilibrium candidates are eliminated by iterated dominance. ■

We know that the payoffs for the two players under sincere negotiations are $(M(1 - P), MP)$, and total industry profits are M . Figure 2 plots the expected profits for player 1, player 2 and the industry for the entire range $\gamma \in [0, 1]$. Both players are better off, and industry profits are maximized, under the “sincere negotiations” equilibrium, achieved at low values of γ ($\gamma \leq \gamma_{LB}$). *Both* players’ expected profits are decreasing in γ and so they both prefer tighter governance. However, as γ increases, moving towards a *laissez-faire* structure, player 1 negotiates instrumentally more often and player 2 rebuffs player 1’s overtures more often. Profits fall for both because there is no mechanism for player 1 to commit credibly to sincere negotiations. Finally, for the entire range of γ , player 1 is always strictly better off from negotiating (whether sincerely or instrumentally) than the status quo, as $E[\Pi_1] > \alpha_1$. Player

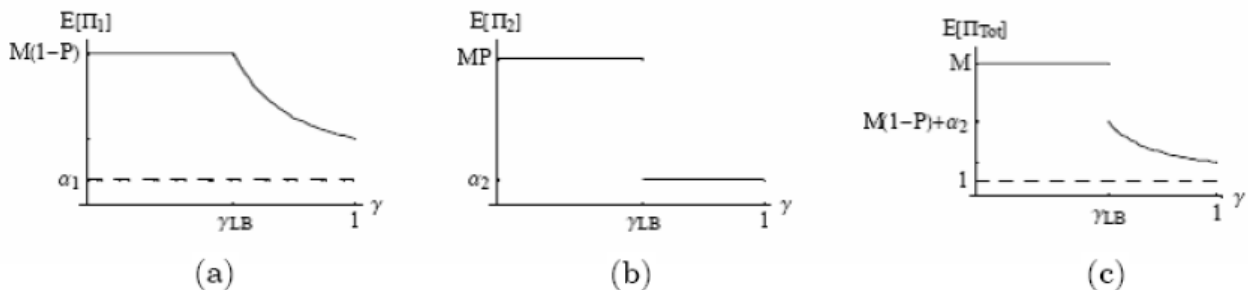


Figure 2: Expected Profits and a Function of γ for (a) Player 1, (b) Player 2 and (c) the Dyad

2's profits are binary-valued: the slightest possibility of instrumental negotiations results in a sharp reversion of his profits— from the sincere negotiations outcome ($M \cdot P$) to the status quo (α_2).

Thus, our analysis makes it clear that the policy maker should set γ to as low a value as possible. However, a confounding factor is the feasibility of doing so. In complex environments such as our modern industrial societies, implementing a governance structure that eliminates instrumental negotiations through strict monitoring and enforcement is costly and difficult. If so, the minimum value of γ set by the policy maker should be γ_{LB} : This maximizes firms' and industry profits with the least governance. At γ_{LB} , there is a sharp fall in player 2's, and the industry's, profits: the slightest possibility of instrumental negotiations vitiates trust.

4.4 Summary of key results

The results from our theoretical analysis present us with several important insights concerning the use of instrumental negotiations in practice. We summarize below the key insights from the theory, that we test in a laboratory experiment.

Claim 1 [*Existence of instrumental negotiations*] *Introducing the possibility of instrumental negotiations will lead negotiators to engage in them. As a consequence, we will observe that:*

1. *People choose to act instrumentally,*
2. *People can effectively succeed in such negotiations.*

Claim 1 pertains to (i) the *occurrence* of instrumental negotiations and (ii) the *impact* of such negotiations on the *payoffs* of the parties involved. Although both prior theoretical and experimental research have assumed that negotiators have good intentions, our model predicts that given the option, negotiators do engage in instrumental negotiations. Further, we expect the use of instrumental negotiations to be widely prevalent in contexts where one player can gain more from being instrumental than from negotiating sincerely.

Claim 2 [Rejection rates] *The possibility of instrumental negotiations increases the rates of rejection of overtures.*

Claim 3 [Welfare] *The possibility of instrumental negotiations harms joint welfare as well as each party individually.*

Claims 2 and 3 also follow directly from the model. Claim 2 predicts that the knowledge that negotiators could possibly be instrumental leads their counterparts to be cautious, and hence rebuff overtures more frequently. Further, more rejections will lead to lower rates of agreement and consequently to Pareto-inferior outcomes, since many sincere overtures will be rejected as well. Following the results of the analytical model, Claim 3 predicts that the payoffs of each party to the negotiation, as well as the total welfare, will decrease when opportunities for (or rather, threats of) instrumental negotiations exist.

5. Laboratory Experiment

We extend our investigation of instrumental negotiations to a laboratory experiment. A substantial body of research has used experimental methods to study negotiations (See Camerer 2003; Bazerman *et al.* 2000 for a review) and in this paper we use a laboratory study to identify and describe the influence of instrumental negotiations on the negotiation process and on negotiated outcomes.

5.1 Methods

We conducted a computer mediated negotiation experiment. In a behavioral laboratory, we randomly assigned pairs of participants to different experimental conditions that manipulated opportunities to engage in instrumental negotiations.

5.1.1 Participants

We recruited 312 participants via paper and electronic announcements at an Eastern University to participate in an experiment. We promised participants a \$10 show-up fee, plus the opportunity to earn additional money based upon their outcome in the experiment. The additional money that participants earned ranged from \$0 to \$6.

5.1.2 Negotiation Context

In our study, we used a modified version of the Acquire-a-Company negotiation (Valley *et al.* 1998). The focus of the negotiation is on the purchase price. We randomly assigned participants to one of two roles: an Acquirer interested in purchasing a company or a Target interested in selling the company.

Both the Acquirer and the Target know that the company is worth more to the Acquirer than it is to the Target. In our version, both the Acquirer and the Target know that the company is currently worth \$10 million to the Target (under the Target’s management) and would be worth \$15 million to the Acquirer (if purchased by the Acquirer). Both parties also know that it will cost each negotiator \$1 million to enter into negotiations, a cost they incur only if both parties enter the negotiation. Independently, each negotiator decides either to enter negotiations (and pay \$1m for the opportunity to reach a deal) or not to enter negotiations (and keep their endowment). In our experiment, we calculated each negotiator’s surplus, and we paid participants a bonus (\$0 to \$6) in proportion to their surplus.

After reading background information, participants had the opportunity to negotiate via computer. On the computer screen, participants viewed a split screen that enabled them to both send and receive messages to their partner.

5.1.3 The Opportunity to Engage in Instrumental Negotiations

In some of our experimental conditions, we described the opportunity of Acquirers to engage in instrumental negotiations. In these conditions, both the Acquirer and the Target were aware of this opportunity and its potential consequences. Specifically, in these conditions we informed participants in both roles:

Both companies know that Company A can try and steal Company T’s innovative technology without actually buying the company.

To do that, Company A will need to invest \$3m prior to negotiations. In this case, if Company A wants to steal T’s technology, it will need to buy time while gaining information on T’s technology – by dragging out the negotiations without reaching an agreement and letting the allotted time expire. If successful, Company A will obtain \$6m (Company T’s worth minus the investment and the negotiation fee, i.e., $\$10m - \$3m - \$1m = \$6m$). Note: in this case, Company T still has a right to use its technology, and thus Company A obtains \$10m and not \$15m. Company T’s assets shrink by \$11m (it loses the company’s entire value which was \$10m, and, in addition, the \$1m negotiations fee). Thus, it is left with a debt of \$1m. Stealing Company T’s innovative technology is an option for Company A only if it has invested \$3m first (prior to negotiations). Company T does not know whether Company A has invested \$3m or not.

Importantly, we required instrumental Acquirers to incur a cost *before* they started to negotiate. Before entering the negotiation process, Acquirers who intended to negotiate instrumentally paid \$3m from their potential profits. This charge was in addition to the \$1m cost they incurred to enter the negotiation. This cost to engage in instrumental negotiations enables us to identify negotiator intentions (i.e., whether an Acquirer intends to engage in sincere or instrumental negotiations). In addition, this cost reflects the investment instrumental negotiators are likely to face (e.g., Microsoft investing in basic technology so that it might be in a position to adopt what it learns through the negotiation process or Fujimori’s investment in tunnels and training for his soldiers).

Instrumental Acquirers who successfully stalled the negotiation and ran out the clock earned a \$10m bonus. Targets in these negotiations lost their entire endowment. Other negotiation dyads (involving a sincere Acquirer) who ran out of time without reaching an agreement, merely lost their \$1m investment for entering negotiations.

5.1.4 Design

We randomly assigned participants to either the *Acquirer* or the *Target* role, and we anonymously paired each participant with someone from the other role. We then randomly assigned each dyad to one of four experimental conditions: *Control*, *Forced Sincere*, *Forced Instrumental*, or *Unconstrained*. Across the four conditions, we manipulated participants’ awareness and ability to engage in instrumental negotiations. In every condition, participants in both

the Acquirer and the Target role had the option to either enter negotiations (at a cost of \$1m) or not to enter negotiations (and keep their initial endowment).

The *Control* condition represents our base case. In this condition, we did not describe the possibility of engaging in instrumental negotiations to either the Acquirer or the Target. Participants in this condition conducted a standard distributive negotiation with a \$1m cost to enter negotiations. As in prior research, negotiators in the Control condition were not aware of and had no incentive to engage in instrumental negotiations.

Across the other three conditions, both Acquirers and Targets were informed about the possibility of instrumental negotiations. In the Unconstrained condition, we gave participants in the Acquirer role the choice either to engage in sincere negotiations (negotiate in good faith to reach an agreement) or engage in instrumental negotiations (negotiate in bad faith, using the negotiation process to stall for time).

In the *Forced Sincere* condition, both the Target and the Acquirer were aware that the Acquirer could engage in instrumental negotiations. Unbeknownst to the Target, however, we informed the Acquirer that “The board of directors has decided to negotiate buying Company T sincerely. Thus, you will not have the option to invest \$3M and try to steal the technology. Company T does not know whether you have invested \$3M to steal the technology or not.” As a result, the Acquirer was not actually able to choose to engage in instrumental negotiations. Instead, the Acquirer was forced to engage in sincere negotiations. That is, we provided information to both parties about the opportunity to engage in instrumental negotiations, but we forced Acquirers to engage in sincere negotiations.

The *Forced Instrumental* condition was analogous to the *Forced Sincere* condition. In this case, the Acquirer was forced to engage in instrumental negotiations. Specifically, Acquirers in this condition were informed, “The board of directors is asking you to try to steal Company T’s technology without reaching an agreement. Thus, an investment of \$3M was already made, and is subtracted from your profits. Company T does not know whether you have invested \$3M to steal the technology or not.”

Our design enables us to disentangle issues of self-selection and information. For example, our Forced Sincere condition enables us to describe how the mere potential to engage in instrumental negotiations influences the negotiation process and outcomes.

5.1.5 Procedure

We conducted 40 sessions of the experiment with an average session size of 7.8 participants per session. If an odd number of participants arrived to the lab, we paid and dismissed the last person to arrive. We started each session by seating participants in individual cubicles, and we randomly and anonymously paired participants for the negotiation. Participants read instructions, answered comprehension check questions, and conducted a negotiation via networked computers.

Across all conditions, we gave participants a strict time limit for their negotiation. Both the Acquirer and the Target knew the following three things about the time limit: (1) that the negotiations would last between 2 and 3 minutes, (2) that any amount of time between these values was equally likely, and (3) that the Acquirer would know exactly how long the negotiations could last. We informed the Acquirer of the exact length of time assigned for their negotiation. During the negotiation, both the Target and the Acquirer had a timer on their screen that counted up from zero. The Acquirer’s screen also showed the total length of time allotted for the negotiation.

5.1.6 Comprehension Check Questions

After reading the instructions and before making any decisions, participants answered a series of comprehension check questions. For example, participants were asked, “If you enter negotiations, and reach a price of \$12.5m how much net profit will you earn?” and “If you enter negotiations, and do not reach a deal, how much profit will you earn/lose?”

Participants in the control condition answered 6 comprehension check questions, and participants in the other conditions answered the same 6 questions as well as two additional comprehension check questions regarding the opportunity to engage in instrumental negotiations.

If participants entered an incorrect answer to any of the comprehension check questions, they were returned to the instruction screen. If participants failed to answer all of the comprehension check questions correctly within 20 minutes of starting the experiment, we removed both that participant and his or her partner from the experiment. That is, no participant was able to complete the study without answering all comprehension-check questions correctly.

Table 1: Experimental Results

| | Control | Forced Sincere | Forced Instrumental | Unconstrained Choice | |
|-------------------|----------|----------------|---------------------|----------------------|--------------------|
| | | | | Sincere (55%) | Instrumental (45%) |
| Reach Agreement | 19 (59%) | 13 (46%) | 2 (7%) | 15 (47%) | 3 (12%) |
| Ran Out Clock | 11 (34%) | 9 (32%) | 15 (50%) | 9 (28%) | 14 (54%) |
| Overture Rebuffed | 2 (6%) | 6 (22%) | 13 (43%) | 8 (25%) | 9 (35%) |
| Total | 32 | 28 | 30 | 32 | 26 |

5.2 Experimental Results

5.2.1 Comprehension Check Results, Demographics, and Random Assignment

Of the 312 participants who started the experiment, 8 (2.56%) failed to answer the comprehension check questions correctly, so we removed 16 participants from the study (the 8 who failed the comprehension check questions and their partners). We report results for the remaining 296 participants, who were paired to create 148 negotiation dyads. As we report in Table 1, these dyads were randomly assigned to one of the four conditions: Control (n=32 dyads), Forced Sincere (n=28 dyads), Forced Instrumental (n=30 dyads), and Unconstrained (n=58 dyads). Of the 296 participants who completed the study, 155 (52.36%) were female, and on average, participants were 20.5 years old.

5.2.2 Choosing to Engage in Instrumental Negotiations

In the unconstrained condition, participants were able to choose to engage in instrumental negotiations. As we report in Table 1, 45% of Acquirers in the Unconstrained condition chose to engage in instrumental negotiations. This finding supports our thesis. When given the opportunity to engage in instrumental negotiations, many negotiators do engage in instrumental negotiations. In fact, we find that participants engage in instrumental negotiations more often than the 20% predicted by the theoretical model (see Appendix A), exact Binomial test, $p < 0.001$.

5.2.3 Executing Instrumental Negotiations

In addition, we find that Acquirers were able to successfully engage in instrumental negotiations. We first examined negotiations involving Acquirers in the Forced Instrumental condition (in which all Acquirers were instrumental) and in the Unconstrained condition (in which some of the Acquirers chose to engage in instrumental negotiations). In these negoti-

ations, Acquirers were motivated to stall for time, and the negotiators ran out of time 50% and 54% of the time, respectively. (These proportions were not significantly different from each other; two-sided Fisher exact test, $p=0.8$.)

Of course, even sincere negotiators run out of time. To test the thesis that instrumental Acquirers were able to stall the negotiation process, we compare the proportion of cases in which negotiators ran out of time when the negotiation involved an instrumental Acquirer to the proportion of cases in which negotiators ran out of time when the negotiation involved a sincere Acquirer. For this comparison, we focus on the conditions in which Targets were aware of the possibility of instrumental negotiations (the Forced and the Unconstrained conditions).

Negotiations involved sincere Acquirers in the Forced Sincere condition (in which all Acquirers were sincere) and in the Unconstrained condition (in which some of the Acquirers chose to engage in sincere negotiations). In these cases, negotiators ran out of time 30% and 28% of the time, respectively. (These proportions were not significantly different from each other; two-sided Fisher exact test, $p>0.99$.)

We combined the negotiations that involved an instrumental Acquirer (in the Forced Instrumental and the Unconstrained conditions) and those that involved a sincere Acquirer (in the Forced Sincere and the Unconstrained conditions). We find that negotiations that involved an instrumental Acquirer were significantly more likely to run out of time than were negotiations that involved a sincere Acquirer; one-sided Fisher exact test, $p<0.01$.

5.2.4 Impasse Rates and Target Rejections

The introduction of instrumental negotiations increases impasse rates. Not only do instrumental Acquirers successfully stall the negotiations to reach an impasse, but Targets, anticipating the possibility of an instrumental counterpart, may decide not to enter negotiations or to break-off negotiations after they have started (e.g., if they become suspicious that their counterpart has instrumental intentions).

Most Targets decided to enter the negotiation process. In fact, the proportion of Targets who entered negotiations in the Control condition (97%) was similar to the proportion of Targets who entered negotiations when Targets were aware that their counterpart might engage in instrumental negotiations: Forced Sincere (92%), Forced Instrumental (97%), and Unconstrained conditions (97%).

Table 2: Acquirers’, Targets’ and overall profits obtained from negotiations in all conditions (in millions of Dollars).

| | Control | Forced Sincere | Forced Instrumental | Unconstrained Choice | | |
|--------------|---------|----------------|---------------------|----------------------|--------------|--------|
| | | | | Sincere | Instrumental | Total |
| Acquirers | 0.545 | 0.339 | 1.433 | 0.171 | 1.661 | 0.840 |
| Targets | 0.548 | 0.125 | -5.766 | 0.296 | -6.085 | -2.564 |
| Total Profit | 1.093 | 0.464 | -4.333 | 0.469 | -4.423 | -1.724 |

Many Targets, however, became suspicious of their counterpart and terminated negotiations after they started. Overall, Targets who faced an instrumental Acquirer were significantly more likely to terminate negotiations (39.29%) than were Targets who faced a sincere Acquirer (17.39%); Fisher’s one-sided exact test, $p=0.0031$. Targets who faced an instrumental Acquirer in the Forced Instrumental and Unconstrained conditions terminated negotiations 43% and 35% of the time; these proportions were not significantly different (Fisher’s two-sided exact test, $p=0.5886$) from each other. Targets who faced a sincere Acquirer in the Forced Sincere and Unconstrained conditions terminated negotiations 21% and 25% of the time; these proportions were not significantly different (Fisher’s two-sided exact test, $p=0.7702$) from each other.

Our model predicts that Targets will reject invitations to negotiate with a potentially instrumental Acquirer 60% of the time (see Appendix A). This rate is significantly higher than the rate we actually observe, and also significantly higher than the rate at which Targets terminate a negotiation after they have started (30%); in a test of proportions $p<0.001$. As a result, instrumental negotiations were more harmful to Targets and more profitable for Acquirers in our experiment than we had predicted.

5.2.5 Instrumental Negotiations and Social Welfare

Overall, instrumental negotiations harmed social welfare. This was true for two reasons. First, the possibility of facing an instrumental counterpart increased the likelihood that Targets terminated negotiations. Second, instrumental Acquirers “successfully” stalled the negotiation and harmed Targets’ welfare. Taken together, these effects lowered joint gains from the negotiation. As we report in Table 2, aggregate profits in the Unconstrained condition (-\$1.724m) were significantly lower than they were in the Control condition (\$1.093m); One-Way ANOVA, $F=18.6$, $p<0.001$.

The decrease in social welfare derives primarily from instrumental Acquirers who stalled the negotiation. Although Acquirer profits were not harmed by instrumental negotiations, Target profits were. Target profits were significantly lower in the Unconstrained condition (-\$2.564m) and the Forced Instrumental condition (-\$5.767m) than they were in the Control condition (\$0.548m); One-Way ANOVA: $F= 12.159$, $p\text{-value} = 0.001$, One-Way ANOVA: $F= 41.543$, $p\text{-value} < 0.001$, respectively.

6. Discussion

Prior negotiation research has ignored the possibility of instrumental negotiations. Results from our theoretical model and our experiment demonstrate that this is a serious omission. Even the mere possibility of instrumental negotiations impacts the negotiation process, the nature of negotiated outcomes, and social welfare.

Consistent with our model, we find that negotiators, when given the opportunity to engage in instrumental negotiations, choose to do so and are often effective. As a result, the potential for engaging in instrumental negotiations harms negotiators in two ways. First, some negotiators are exploited by instrumental counterparts. Second, many sincere invitations to negotiate are rejected by counterparts fearful of an instrumental counterpart. Both of these effects harm social welfare.

Consistent with our model, in our experiment we found that the potential for instrumental negotiations decreased both the profits for Targets and social welfare. Our model also predicted a decline in profit for Acquirers. In fact, we found that Acquirers earned greater profits, because they were very successful (more successful than our model predicted) at engaging in instrumental negotiations. This finding may reflect Targets' overconfidence. Prior studies have found that negotiators tend to be overconfident and overly optimistic about the likelihood of attaining favorable outcomes (e.g. Bazerman and Neale 1982; Lim 1997; Bazerman *et al.* 1999). In our experiment, Targets may have chosen to enter (instrumental) negotiations more often than our model predicted, because they were overconfident in their ability to successfully detect instrumental Acquirers.

Our experimental results suggest that instrumental negotiations involve a different process than do sincere negotiations. In our experiment, Acquirers who engaged in instrumental negotiations behaved differently than did sincere Acquirers. Targets gleaned important information from the negotiation process, and terminated negotiations more often when they

faced an instrumental counterpart than when they faced a sincere counterpart. (Still, Targets did not terminate negotiations often enough, and instrumental Acquirers were, in fact, more successful than our model predicts.)

Prescriptively, our findings challenge prior negotiation research, which has ignored the potential harm of instrumental negotiations. Prior work that has exhorted managers to seek and engage in negotiations has failed to warn negotiators of the potential risks they might face by engaging in negotiations with an instrumental counterpart. Although the negotiation process can create the joint gains that prior work has promoted, the decision to enter and continue a negotiation represents a risky decision that should be made strategically. These decisions, to enter and to continue negotiations, deserve greater research attention. These decisions require negotiators to ascertain the intentions of their counterpart as they prepare for and participate in negotiations. Emotional intelligence may facilitate this judgment, and extant work examining the role of emotional intelligence in negotiations (e.g., Mueller and Curhan 2006) should be extended to these decisions. Similarly, prior research has begun to consider the importance of reputations in negotiations (e.g., Tinsely, O'Connor, and Sullivan 2002). Our work suggests that reputations and negotiator relationships may be even more important than prior work suggests.

Our results also highlight the finding that some negotiators may be able to claim surplus merely by *engaging* their counterpart in an instrumental negotiation, independent of the negotiated outcome. That is, as negotiation scholars, we need to consider negotiations not only as a vehicle for reaching an agreement, but also as a vehicle for attaining ulterior (non-agreement) goals.

Taken together, our findings also highlight the important role of policy in governing negotiations. For example, laws that curtail the possibility of engaging in instrumental negotiations (e.g., labor laws that prohibit management from engaging in insincere negotiations; patent laws that prohibit negotiators from stealing secrets learned during negotiations) may increase social efficiency more than prior work has assumed. Policies designed to curtail the gains from instrumental negotiations may help potential targets of instrumental negotiations and ultimately prompt more negotiators to participate in sincere and constructive negotiations.

7. Conclusion

The extant literature in bargaining and negotiations has assumed that parties to a negotiation sincerely want to reach an agreement. In this paper, we challenge this assumption.

We introduce a theoretical model and we conduct an experiment to examine the influence of instrumental negotiations. We find that instrumental negotiations can occur in equilibrium and that participants, when given the opportunity, not only choose to engage in instrumental negotiations but also do so successfully. One implication of our findings is that the mere threat of instrumental negotiations leads individuals to reject sincere overtures. As a result, social welfare is significantly harmed by the possibility of instrumental negotiations.

Public policy can help mitigate the harmful effects of instrumental negotiations. For example, stringent patent protection and well enforced non-disclosure agreements may increase social welfare by encouraging individuals to accept rather than reject overtures to negotiate.

Of course, for some, the prospect of engaging in instrumental negotiations represents an opportunity. In general, we conceptualize instrumental negotiators as deceptive and harmful. There are situations, however, in which instrumental negotiators may benefit others in addition to themselves. This may well have been the case for Fujimori in Peru. His successful use of instrumental negotiations may well have saved lives.

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Appendix A: Model Prediction of the Acquirer’s Probability of Engaging in Instrumental Negotiations and the Target’s Rejection Rate

Using Theorem 1 from the model, we can calculate the Target’s theoretical rejection rate of overtures to negotiate, $(1 - r)$. In Table 3 and Figure 3, we depict the negotiation game and payoffs we used in our experiment for Acquirers and Targets. In our setting, the company is initially worth \$10 million. The Target owns 100% of the stake and the Acquirer owns 0%. In our model, these values correspond to $\alpha_1 = 0$ and $\alpha_2 = 10$. If the Acquirer buys the company, the company is worth \$15 million. If players reach an agreement and evenly split the surplus, the final price will be \$12.5 million and the corresponding gross profits, $M(1-P) - \alpha_1$ and $MP - \alpha_2$, each equal \$2.5 million. If the Acquirer negotiates instrumentally and is successful, the Acquirer garners the entire value of the company, \$10 million, which corresponds to γt_H in the model. The additional cost of preparing to engage in instrumental negotiations, denoted by $c(t_H)$ in our model, equals \$3 million. As a result, the Acquirer’s probability of engaging in instrumental negotiations $q = \frac{MP - \alpha_2}{MP - \alpha_2 + \gamma t_H} = \left(\frac{2.5}{2.5 + 10}\right) = 0.2$, and the rejection rate $(1 - r) = \left(1 - \frac{c(t_H)}{\alpha_1 + \gamma t_H - M(1-P)}\right) = \left(1 - \frac{3}{7.5}\right) = 0.6$.

Table 3: Experiment Payoff Table. X represents the negotiated price if negotiators are sincere and reach an agreement.

| | No negotiations | Sincere negotiations | | Instrumental negotiations | |
|-------------------|-----------------|----------------------|---------|---------------------------|---------|
| | | Agreement | Impasse | Successful stalling | Impasse |
| Acquirer’s payoff | 0 | $14 - X$ | -1 | 6 | -4 |
| Target’s payoff | 0 | $X - 11$ | -1 | -11 | -1 |

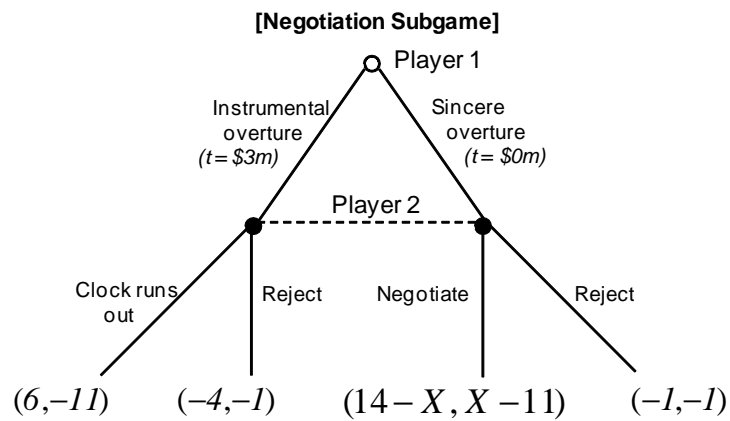


Figure 3: Experimental Negotiation Subgame with Payoffs. X represents the negotiated price if negotiators are sincere and reach an agreement.