

# The Practice of Legal Bargaining: Economic Theory

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# Abstract

# Outline

- 1 Motivation
  
- 2 Abstract Bargaining
  - Basic Concepts
  - Axiomatic Bargaining Solutions
  - Structural Bargaining Solutions
  - Focal-Point Bargaining Solutions
  
- 3 Legal Bargaining Analogy



# Current Approaches

Current approaches to teaching legal bargaining tend to focus on zero-sum models and aggressive negotiation heuristics.

## Zero-Sum Bargaining

Bargaining is framed as

- 1 trying to learn how much one's opponent will concede while
- 2 trying to conceal one's own willingness to make concessions.

# Current Approaches

## Aggressive Negotiation Heuristics

- 1 Select a meeting place that will make the opposing party physically and emotionally uncomfortable.
- 2 Insist on arbitrary preconditions to negotiation in order to obtain a psychological advantage.
- 3 Force the opposing party to make the first offer.
- 4 Start from an extreme initial offer.

# An Economic Approach to Bargaining

- 1 Concentrate on the **abstract theory** of bargaining
- 2 Focus on **mutually advantageous** bargaining situations
- 3 Emphasize the **indeterminacy** of many bargaining problems









# The Pie Division Model of Bargaining

$A$  and  $B$  are two individuals who have been given the following bargaining opportunity by a disinterested third party.

- 1 The third party will place \$1 on a table between  $A$  and  $B$ .
- 2  $A$  and  $B$  can keep the money if they can agree on a way to divide it between themselves.
- 3 A division of the pie occurs if  $A$  and  $B$  mutually agree on an amount  $0 \leq x \leq 1$  that will go to  $A$ , and an amount  $0 \leq y \leq 1 - x$  that will go to  $B$ .
- 4 In the event that  $A$  and  $B$  cannot agree on a division, the third party will take the \$1 off the table, and  $A$  and  $B$  will leave with nothing in their pockets.

# Indeterminacy of Solution

## Reasonable Solutions

Any Pareto efficient division of the pie ( $x + y = 1$ ) is a potentially reasonable outcome of the pie division game.

## Use of Indeterminacy

Different models of bargaining can be intuitively distinguished by how they approach the problem of bargaining indeterminacy.

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# Axiomatic Bargaining

## Axiomatic Solutions to the Pie Division Problem

- 1 Symmetric Nash Bargaining Solution
- 2 Asymmetric Nash Bargaining Solution

# Symmetric Nash Bargaining

## Axioms

- 1 Pareto efficiency
- 2 Symmetry
- 3 Independence of Irrelevant Alternatives (IIA)
- 4 Independence of Equivalent Payoff Representations (IEPR)

## Symmetric Nash Bargaining Solution

$$\max_x x(1 - x)$$

# Asymmetric Nash Bargaining

## Axioms

- 1 Pareto efficiency
- 2 **Symmetry**
- 3 Independence of Irrelevant Alternatives (IIA)
- 4 Independence of Equivalent Payoff Representations (IEPR)

## Asymmetric Nash Bargaining Solution

$$\max_x (x)^\alpha (1-x)^{1-\alpha}$$



# Relative Bargaining Power

## Possible Sources of Bargaining Power ( $\alpha$ )

- 1 Structural advantage
- 2 Disparity in beliefs or patience
- 3 Some forms of incomplete information
- 4 Human differences?
- 5 Context-specific factors
- 6 ~~Outside options~~

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# Structural Bargaining

## Structural Solutions to the Pie Division Problem

- 1 Dictator's Game
- 2 Ultimatum Game
- 3 Two-Stage Alternating Offers Game

# Solution Properties

## Dictator's Game

- 1 Dictator takes everything; victim gets to deal with it.

## Ultimatum & Alternating Offers Games

- 1 Nash equilibrium: indeterminate
- 2 Subgame perfect equilibrium: unique solution

# Concerns with Subgame Perfect Equilibrium

- 1 Backward induction not obviously realistic (Selten, Rubinstein)
- 2 Predictions highly sensitive to preferences/information

## Sensitivity Concern

If bargainers have non-pecuniary preferences (e.g. taste for fairness) then threat credibility and the subgame perfect prediction become much less determinate.

# Concerns with Subgame Perfect Equilibrium

## Evidence of a Non-Pecuniary Taste for Fairness

Experimental subjects demonstrate an apparent **taste for fairness**, even when given a structural advantage in the bargaining process.

### Examples

- 1 Forsythe et al. (1994)
  - ~36% of dictators keep entire pie
  - ~30% of dictators leave at least  $\frac{1}{5}$  pie
  - ~20% of dictators divide the pie evenly
  - rest of dictators leave more than  $\frac{1}{2}$  pie
- 2 Kahneman et al. (1986)
  - ~76% of dictators choose (a) splitting \$20 evenly, over (b) keeping \$18 and leaving \$2

# Concerns with Subgame Perfect Equilibrium

## Resultant Difficulty of Assessing Threat Credibility

In the role of responder, experimental subjects demonstrate an apparent willingness to engage in mutually disadvantageous rejections, possibly to **punish** the inequitable proposer.

### Examples

- 1 Kahneman et al. (1986)
  - Average responder prefers rejection (both \$0) over  $\leq 1/5$  of pie
  - Willingness-to-pay to punish a third-party proposer for making an inequitable offer in an ultimatum game
- 2 Sanfey et al. (2003)
  - Fewer rejections responder knows the offer is being made by a computer rather than a human partner

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# Focal-Point Bargaining

## Focal-Point Solutions to the Pie Division Problem

- 1 Tacit coordination on focal divisions of the pie
- 2 Focal divisions provide language for negotiation





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# Settlement Bargaining Problem

$P$  and  $D$  are two individuals engaged in a legal dispute. The legal dispute can resolve in two mutually exclusive ways.

## 1 Trial

- $D$  ordered to pay  $P$  an amount  $v \geq 0$  in damages
- The cost of trial is  $k_p > 0$  to  $P$
- The cost of trial is  $k_d > 0$  to  $D$

## 2 Settlement

- A settlement occurs if  $D$  and  $P$  agree to a compensatory transfer  $s \geq 0$
- No trial costs incurred if parties settle

# Analogy to Pie Division Problem

The settlement bargaining problem is theoretically analogous to the pie division problem with a non-zero disagreement outcome.

## Size of Pie

The pie in the settlement bargaining problem is  $k_p + k_d$ .

## Disagreement Outcome

The disagreement outcome is  $v - k_p$  for  $P$  and  $-v - k_d$  for  $D$ .

## Agreement Outcome

The agreement outcome is  $s$  for  $P$  and  $-s$  for  $D$ .



# Unanswered Questions

In a settlement bargaining context, what is the concept of a “fair” bargaining outcome? **What does a “fair settlement” do?**

- 1 Equalize  $P$  and  $D$ 's relative wealth?
- 2 Equalize  $P$  and  $D$ 's relative earnings? (relative to what?)
- 3 Compensate  $P$  to extent of injury?
- 4 Compensate  $P$  to extent of net value of trial verdict?



# Future Efforts

## Experimental Opportunity

Can an experiment be designed to provide insight into the concept of fairness in a settlement bargaining context?

# Appendix

# Outline

## 4 Motivation

# Restatement (Second) of Contracts

## §17: "Requirement of a Bargain"

"[T]he formation of a contract **requires a bargain** in which there is a manifestation of mutual assent to the exchange and a consideration."

## §90: "Promise Reasonably Inducing Action Or Forbearance"

"(1) A promise which the promisor should reasonably expect to induce action or forbearance on the part of the promisee or a third person and which does induce such action or forbearance is binding if injustice can be avoided only by enforcement of the promise. The remedy granted for breach may be limited as justice requires."