Added Value in Trade

Price formation through negotiations in two agent trade
Two Player Transactions

- Buyer-Seller Exchange (Bilateral Monopoly)
  - Electricity generator and coal mine
  - Actors and sequels
  - Firm-specific human capital

- Cost Sharing Arrangements
  - Research joint ventures
  - Back office functions
  - Cleaning services
Price Formation

Buyer-Seller Exchange
Show Tickets

- Adam has four tickets to the musical “Rent.” Two of the tickets have no value for him while the others have value, in monetary terms, of $50 each (i.e., his willingness-to-pay).

- Eve does not have any tickets. She is willing-to-pay $25 each for two tickets while she would pay only $10 for a third and fourth ticket.

- There are no other sources of tickets.
When should exchange occur?

- There are gains from trade here. By giving up two tickets, Adam loses nothing but gains up to $50.

- However, by giving up the third and fourth ticket, Adam loses $100 and can gain at most $20.

- Therefore, there are gains to trade for two but not four tickets.
Upper and lower price bounds

- What price do these tickets exchange for?
- Suppose Adam can make a take-it-or-leave-it offer to Eve. How much will he demand per ticket?
- Suppose Eve can make a take-it-or-leave-it offer to Adam. What price will she pay?
Added Value

- If you can make a take-it-or-leave-it offer to the other party, you can claim your entire added value.
- In general, however, neither party has this ability.
- If there are no other buyers or sellers, the price they agree upon depends on their negotiating skill. If they were an equal match, this might be a price of $12.50.
**BATNAs** ("Best Alternative to Negotiated Agreement")

- What is the relationship between added value and BATNAs?
  - A BATNA or outside option is a party’s best alternative value in the absence of an agreement.
    - Adam’s BATNA is $0 for the two tickets (or $100 overall)
    - Eve’s BATNA is $0 in value.
  - You should receive at least your BATNA in negotiations

- The BATNA approach and added value are the same when there are two players.
Negotiating skill

What determines negotiating skill in reality?
- Relative patience
- Ability to hold-out
- Understanding the other person’s options
- Fairness?
Patience

- Ben wants to sell an ice cream to Jerry.
- The ice cream will melt after one round of negotiations so there is only time for Ben to make a single offer to Jerry.
- Jerry’s WTP for the ice cream is $1.
- What price will result?
More Patience

- Suppose now that the ice cream takes two periods to melt – half each period.
- There is now enough time for Jerry to make a counter offer if no agreement is reached in the first round.
- At what price will Ben offer to sell the ice cream?
Union Negotiations

- Hotel at a summer resort
- Season lasts 101 days
- Hotel makes profit of $1000 per day
- Union strikes until agreement reached
## Ability to Hold Out

<table>
<thead>
<tr>
<th>Days to Go</th>
<th>Offer</th>
<th>Union’s Share</th>
<th>Management’s Share</th>
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<td>Total</td>
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Variants

- Workers can earn $300 in alternative employment
- Management can hire ‘scabs’ and still realise $500 in profit
- Workers intensify picketing. Reduce alternative earnings to $200 but reduce management profit by $200 per day
## Variant 1: Alternative Work

<table>
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<th>Days to Go</th>
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<th>Total</th>
<th>Per Day</th>
<th>Total</th>
<th>Per Day</th>
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</table>
Understanding Outside Options

- Workers can earn $300 in alternative employment
  - Wage = \(\frac{1000 + 300}{2} = 650\)

- Management can hire ‘scabs’ and still realise $500 in profit
  - Wage = \(\frac{1000 - 500 + 300}{2} = 400\)

- Workers intensify picketing. Reduce alternative earnings to $200 but reduce management profit by $200 per day
  - Wage = \(\frac{1000 - 300 + 200}{2} = 450\)
Ultimatum Experiments

The Game is follows: pairs of subject play a non-repeated two player game.

- Player 1 is given a sum of money and ask to divide it between themself and player 2.
- Then player 2 has the option of accepting 1’s offer or rejecting it.
- If accepted, each gets 1’s proposed division.
- If rejected each gets nothing. (E.g., player 1 proposes to divide $10 but keeping $7 and giving 2 $3. If 2 accepts they each get this, but if 2 rejects they each get $0).

Note that the game has a unique equilibrium with 1 offering 2 one cent, and 2 accepting this.
# Results: Fairness?

<table>
<thead>
<tr>
<th>Category</th>
<th>Actual</th>
<th>Predicted</th>
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</thead>
<tbody>
<tr>
<td>Avg % of Total Demanded by 1</td>
<td>67.1</td>
<td>99+</td>
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<tr>
<td>% of Proposed 50-50 splits</td>
<td>25.5</td>
<td>0</td>
</tr>
<tr>
<td>% rejected by 2</td>
<td>21.5</td>
<td>0</td>
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<tr>
<td>Avg % Demanded by 1 in Rejected Proposals</td>
<td>85.3</td>
<td>100</td>
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<tr>
<td>Avg % Demanded by 1 in Accepted Proposals</td>
<td>61.0</td>
<td>99+</td>
</tr>
<tr>
<td>% of 1’s demands &gt;90%</td>
<td>11.8</td>
<td>100</td>
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‘Price’ Formation

Cost Sharing Arrangements
Worked Example

Lawnmower Games
Lawnmower Games

What is total value created from a joint relationship?
- What would happen if separated?
  - Ned would go it alone while Homer would go without. Lose Homer’s value of $100.

What is each player’s added value?
- Each is essential to value created from joint relationship.
  - So both Homer and Ned have an added value of $100.
Equal Bargaining Power

- Total value = $150
- Ned’s BATNA or outside option = $50
- Homer’s BATNA or outside option = $0
- Each gets outside option plus half of what’s left.
  - What’s left? $150 - $50 - $0 = $100
  - Split this and add to outside option ... so H gets $50 and N gets $100
Classifying Cost Sharing Value

Where is the source of value in joint relationship?

- Low Asset Costs: Avoid duplication of costs
- Medium Asset Costs: Realise scale economies
- High Asset Costs: Make venture feasible
Talmudic Logic

- How to allocate a bankrupt estate?
  - Today’s law: equal proportion
- But is there another way?
  - Talmudic law and added value
An Example

- Estate has debts of 300 zuz
  - A is owed 100 zuz
  - B is owed 200 zuz
- There is less than 300 zuz in the estate
## Talmudic Division

<table>
<thead>
<tr>
<th>Estate</th>
<th>Creditor A</th>
<th>Creditor B</th>
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<tbody>
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<tr>
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</tr>
<tr>
<td>250</td>
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