On the Psychology of Contracts

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Economics on the Move

Economic Theory

Behavioral Economics

Experiments

Psychology

Test

Natural Sciences

“Economists (unfortunately)... cannot perform the controlled experiments of chemists or...”
Samuelson and Nordhaus
Principles of Economics 14th ed.

“Experimental economics is an ‘exciting new development’.”
Samuelson and Nordhaus
Principles of Economics 12th ed.
Research on Contractual Reference Points

- Series of papers that experimentally investigate the behavioral mechanisms underlying the theory of “Contracts as Reference Points” by Hart and Moore (2008, QJE):
  - Fehr-Hart-Zehnder (2011, AER): Trade-Off between Rigidity and Flexibility
  - Fehr-Hart-Zehnder (2009, JEEA): Role of Competition for Reference Points
  - Fehr-Hart-Zehnder (2012, WP): Informal Agreements and Renegotiation

- Hart and Moore’s basic idea:
  - Contracts not only define rights and obligations, but they also have psychological effects
  - In particular, a competitively negotiated ex-ante contract may lead to feelings of entitlement with regard to ex-post bargaining outcomes
Contractual Reference Points (Hart-Moore 2008, QJE)

Ex-ante

Incompl. Contract

Date 0

Realization of the state

Date ½

Bargaining

Date 1-

Trade

Flex. Contract (Price Range)

Competition

Rigid Contract (Fixed Price)

Ex-post

P

Fairness

Ex-post performance

Reference Point
Implications of Contractual Reference Points

- Trade-off between flexibility and rigidity
  - A flexible contract allows to adjust the terms of the contract to the realized state but causes misaligned entitlements and shading
  - A rigid contract aligns entitlements and avoids shading but does not permit adjustment of the terms to the state

- Important organizational implications:
  - New insights on firm boundaries:
    - Employment vs. independ. contracting (Hart and Moore 2008)
    - Payoff volatility as a determinant of integration (Hart 2009)
  - Justifies the use of indexation in contracts (Hart 2009)
  - New understanding of authority and delegation (Hart & Holmström 2010)
  - Reinterpretation of asset ownership’s effect on investments (Hart 2011)
Why Experiments?

- The organizational implications of the model are only of interest if the trade-off between rigidity and flexibility is empirically relevant

  - Laboratory Experiment (Fehr-Hart-Zehnder 2011, AER):
    - Implement a simple version of the Hart-Moore setup in the laboratory

  **Research Questions:**
  - Is there evidence for the trade-off between contractual flexibility and rigidity?
  - Does reducing the degree of flexibility change the trade-off as predicted?
Experiment

1) Buyers choose: flexible or rigid contract

2) Contract is auctioned off to sellers
   - Rigid contract: Final price
   - Flexible contract: Lower bound for price

3) Nature chooses seller’s cost level (high or low)
   - Rigid contract: Trade only feasible if cost is low
   - Flexible contract: Trade always possible (flex. price)

4) Buyer picks final price
   - Rigid contract: No choice
   - Flexible contract: Any price in the price range covering the seller’s cost

5) Sellers determine the quality of the traded good
   - Seller has two options: normal quality or low quality
   - Lowering the quality from normal to low is slightly costly (sabotage)
Parameters

- Seller’s production costs conditional on state of nature
  
  Good State (80%):
  - $c(q^n,g) = 20$
  - $c(q^l,g) = 25$

  Bad State (20%):
  - $c(q^n,b) = 80$
  - $c(q^l,b) = 85$

- Buyer’s valuation of the product
  
  - $v(q^n) = 140$
  - $v(q^l) = 100$

- No trade payoffs (can be earned ex-ante or ex-post)
  
  - Buyer: $x_B = 10$
  - Seller: $x_S = 10$
The Trade-Off (Fehr-Hart-Zehnder 2011, AER)

- Rigid Contract, Good State
- Flexible Contract, Good State
- Flexible Contract, Bad State

Legend:
- Average Price (left axis)
- Lower Bound of Price Range
- Competitive Price Level
- Rel. Freq. of Shading (right axis)
Experimental Comparative Statics

- In the baseline treatment we compare completely rigid contracts with maximally flexible contracts.

- Studying these extreme cases gives us the best chance to illustrate the existence of the trade-off.

- However, the Hart-Moore theory predicts that buyers would prefer less flexibility, because this reduces shading.

- Thus, in this treatment we implement a contract with the minimal flexibility required to guarantee trade:

  We lower the upper bound of the price range to 95.

- Everything else remains exactly as in the baseline treatment.
Why are these results interesting?

- Isn’t this just a complicated way of replicating the well known results of the ultimatum game?

  - The results for flexible contracts are indeed not very surprising: If the buyer shares the gains from trade in an unfair way, there is punishment.

  - However, the results for rigid contracts are much more interesting: Apparently, the buyers can successfully delegate the responsibility for an unfair outcome to a competitive market mechanism.

  - This finding is not only in contrast to standard economic theory, but it also contradicts all existing models of social preferences in the literature.

  - The only theory which is line with this finding is the concept of contractual reference points by Hart and Moore (2008).
Reduced Flexibility (Fehr-Hart-Zehnder 2011, AER)
What is the Role of Competition?

- Our first paper shows: Buyers can delegate responsibility to the market
- So, what happens if prices are no longer determined through a competitive mechanism?
- In Fehr-Hart-Zehnder (2009, JEEA) we replace the competitive mechanism with a random device that exogenously generates the same distribution of prices
No Competition (Fehr-Hart-Zehnder 2009, JEEA)
Criticism of the first paper

- Fehr-Hart-Zehnder 2011, AER:
  - Empirical evidence for the trade-off between rigidity and flexibility in the presence of ex ante competition

- But the experiment ignores important real-life aspects:
  - Informal Agreements
    - In reality people can always communicate
    - Wouldn’t it be possible to use communication to align reference points?
    - If so, a flexible contract with managed reference points would dominate a rigid contract

- Fehr-Hart-Zehnder 2012, WP
  State-contingent price announcements in flexible contracts:
  “If costs are low, I plan to pay a price of X. If costs are high, I plan to pay a price of Y.”
Informal Agreements (Fehr-Hart-Zehnder 2012)
Conclusion (Fehr-Hart-Zehnder 2009, 2011, 2012)

- We provide evidence for the empirical relevance of the trade-off between rigidity and flexibility predicted by Hart-Moore (2008)

- We can manipulate the trade-off in predictable ways:
  - Reducing flexibility mitigates the shading problem
  - Eliminating competition makes rigid contracts unattractive

- Contractual reference points are also relevant in the presence of informal communication opportunities
  - Informal agreements reduce the disadvantage of flexibility, but do not eliminate it
  - Second treatment (not shown here): Contracts also remain reference points in the presence of an ex-post opportunity to renegotiate the contract
Thanks!