Bargaining and Conflict

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Introduction

- Countries fight wars, unions engage in strikes, litigants in trials, couples in arguments…
- Why is conflict so pervasive?
- *Hicks paradox* (1932)*:* Despite the existence of mutually beneficial agreements, costly conflicts are ubiquitous.
- Two main types of explanations:
  1. Irrational: mistakes, bounded rationality.
  2. Rational.

Introduction

- Without dismissing irrational explanations, in this workshop we will focus on rational ones.
- We will also leave aside cases in which conflict can be *ex-post efficient* (Hitler?)
- These are important in the IR literature: Leaders do not fully suffer the costs of conflict (Chiozza & Goemans, 2004).
- Still, most conflicts are *ex-post inefficient* and we will focus on those.

Outline

1. Disagreement as an all-out conflict
   - Lack of commitment
   - Incomplete information and optimism.
   - Which one?
2. Limited conflicts as a bargaining tool
   - Limited fighting as a screening device
   - Limited fighting as a signalling device
3. Conclusion and directions for further research

Rationalist explanations when conflicts are final

- In a seminal paper, Fearon (1995) outlines three rational explanations for conflict
  1. Lack of commitment.
  2. Incomplete information.
  3. Indivisibilities.

- Only the first two are truly distinct (Powell, 2006)
- Indivisibilities exist but they can be overcome by using lotteries, transfers or issue linkage. The other two factors preclude this.

Commitment problems

- Lack of commitment is common in “anarchic” environments.
  1. International relations (Powell, 2006)
  2. Factions engaged in civil conflict (Fearon, 2004)
  3. Political transitions (Acemoglu & Robinson, 2000)
  4. Changes in government party (de Figueiredo, 2002)
- Parties cannot commit not to use their strength when in a dominant position.
- Winning a conflict (a war, a coup, a revolution, policy insulation) enables them to **lock in** a better payoff.
- Conflict can thus take place even if agents hold complete information.

Commitment problems

- Simplest illustration: Two agents, two periods.
- The pie is worth *1* in flow.
- If conflict takes place, only θ remains. Hence, each period a potential agreement exists.
- Common discount rate δ.
- If parties fight, P1 wins with probability p_t. Its payoff is thus $\theta\, p_t$
- P1 is to become stronger in $t = 2$, i.e. $p_2 > p_1$
- If P1 cannot commit to not use its superior power there, conflict can erupt.

Commitment problems

- At t = 2, P1 will demand at least θp_2
- The largest payoff that P2 can get if he wants to avoid fighting is $1 + \delta (1 - \theta p_2)$
- If instead P2 fights at t = 1 he gets $\theta(1-p_1)$
- So conflict will take place whenever

$$(1 - \theta) / \theta = R < \delta p_2 - p_1$$

where R is called the *Loss ratio.*

- Or in words, conflict takes place when the shift of power is sufficiently bigger than its relative cost.

Incomplete information

- Parties may not fully know critical aspects of the negotiation environment.
- Power is difficult to observe and measure.
- Moreover, parties have an incentive to misrepresent their strength.
- (All-out) conflict is to be expected then.

Incomplete information

- Again, the most basic setting.
- Two parties bargain over the division of one dollar and are characterized by strength s_i
- If they disagree, they fight a costly conflict. A share $1-\theta$ of the dollar gets lost.
- P1 wins the conflict with probability $p(s_1,s_2)$, increasing (decreasing) in s_1 (s_2).
- "True" disagreement point:

$$\{\theta p(s_1, s_2), \theta(1-p(s_1, s_2))\}$$

Incomplete information

- Suppose that strengths are private information.
- Parties hold priors beliefs over their opponent´s strength.
- Incomplete information renders agreement impossible whenever

$$\theta E_1 p(s_1, s_2) + \theta(1 - E_2 p(s_1, s_2)) > 1,$$

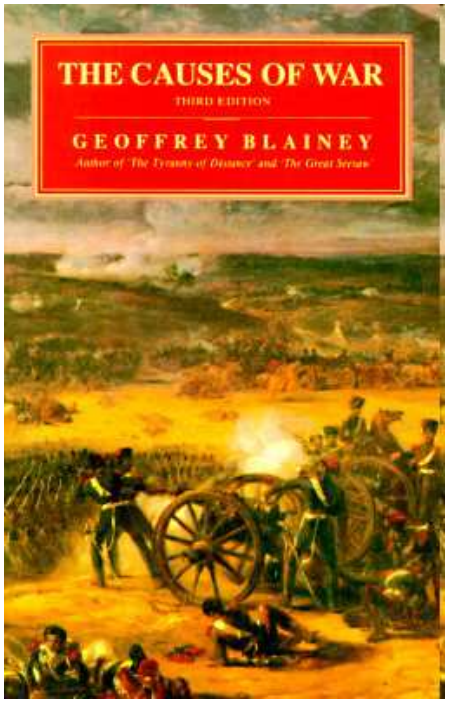
$$R^* = E_1 p(s_1, s_2) - E_2 p(s_1, s_2) > (1 - \theta) / \theta = R$$

- Or in words, conflict takes place when the difference in parties' estimates of P1's power is sufficiently bigger than its relative cost.

Optimism as a cause of conflict

- "Rational" optimism offers an explanation to the Hicks paradox.
- It is widely regarded as a source of interstate wars (Blainey, 1973)
- Where does it come from?

1. Parties hold different information
2. Parties process information differently
3. Parties neglect information



Parties hold different information

- Standard explanation by economists.
- Parties have superior information on military capabilities, resources, exclusive evidence on the case, etc.
- That generates different estimates on *p*.
- Optimism emerges then from the difference between observable and non-observable characteristics.

Parties process information differently

- Parties may hold exactly the same information but they may process it differently.
- This is what Schelling (1960) called “imperfect processes of decision”.

1. Actors are non unitary: Decision making within organizations favours positive biases.
2. Information processing is costly.

Parties neglect information

- Parties choose to ignore information because of "motivational biases" (Jervis, 1976).
- Blainey (1973) argued that nationalism and racial prejudices contribute to this (eg Russian-Japanese war)
- Goemans (2000) argued that weak autocrats sometimes engage in war just to ensure their survival (eg Austria-Hungary in 1914).
- Johnson (2004) argues that overconfidence is an adaptative trait in human evolution; furthermore it is selected in militar careers.

When is optimism more likely?

- Optimism should be more likely in autocratic regimes because overconfident leaders cannot be counteracted (Johnson, 2004).
- Optimism should be more likely when the balance of observable capabilities is even (Blainey, 1973).
- But then why do we observe small parties fighting against very mighty opponents?
- This is called the *Uneven contenders paradox* (Clausewitz, 1832).

Commitment or Optimism?

- Both explanations highlight the importance of the costs of conflict (eg, US vs USSR).
- But what of the two is more plausible?
- Incomplete information is likely to be very important at the early stages of a confrontation
- But it does not explain protracted conflicts.
- Fearon (2004) argues that contenders in civil wars know each other quite well after some time fighting.

Commitment or Optimism?

- Lack of commitment can explain preventive wars or conflicts over objects that can influence future bargaining power.
- It can explain preemptive strikes, due for instance to parties' unequal rates of economic development (US vs China?).
- It does not fit labour negotiations or litigations where power is more or less stable
- Nor accomodate the fact that not all conflicts are final.

Limited conflicts

"*Most conflict situations are essentially bargaining situations,*"
(Thomas Schelling, 1960).

- Conflict and negotiation are not mutually exclusive

1. 80-90% of contract negotiations entail no strikes.
2. 65% of interstate wars end with a negotiated settlement.
3. Only a few disputes end in an all-out conflict.

Limited conflicts

- Disagreement, and thus conflict, is not necessarily a game-ending move
- Parties continue negotiating after (and during) fighting.
- They also engage in **limited confrontations** that allow bargaining to resume.
  1. Skirmishes and battles.
  2. Family arguments.
  3. Local price wars.
  4. Holdouts.

Limited conflicts

- This distinction was made by Carl von Clausewitz in his book *On war* (1832)
  1. Absolute wars: aimed at destroying the enemy.
  2. Real wars: "*the continuation of politics by other means.*"
- In the presence of incomplete information, "real" conflicts can convey information.

Limited conflicts

- In *The Sociology of Conflict* (1904), Georg Simmel noted that the most reliable way of measuring strength in conflict is conflict itself.
- Conflict provides “the stinging ice of reality” (Blainey, 1973).
- And, quite paradoxically, be a solution to the problem of optimism.

Learning by fighting

- In bargaining models, information is “soft”, i.e manipulable.
- That leads to multiple equilibria.
- In contrast, the information transmitted in the battlefield is “hard”.
- Although it is also noisy.
- Conflict can thus be used as a bargaining instrument.
- This ultimately implies that its ocurrence can be decoupled from the presence of optimism.

Learning by fighting

- For simplicity we will consider just two levels of strength.
- P1 can win the final conflict with probability p_H or p_L where $p_H > p_{L.}$
- P2 is uninformed and believes at $t = 1$ that $p = p_H$ with probability μ_o
- If agreement is not reached after two periods, the all-out conflict ensues.

Learning by fighting

- A modified version of Fudenberg & Tirole (1983) where the uninformed party (P2) makes all the offers.
- Offers can screen the opponent: A rejection means that P1 has a high value from fighting.
- Rejections also entail inefficiency because players discount the future.
- Two outcomes depending on whether R is above or below R^*/μ_o
  1. Pooling: agreement is immediate.
  2. Separation: the weak P1 settles and the strong P1 triggers conflict → The *risk-return trade off*.

Conflict as a screening device

- Let's add the option of fighting a **battle**
- The battle does not stop bargaining: the game proceeds to the second period.
- The discount factor can be interpreted as the cost of the battle.
- Its outcome is related to the outcome of the all-out conflict.
- For simplicity we assume P1 wins it with probability p_H or p_L too.

Conflict as a screening device

- Two information sets emerge after the battle: Victory and Defeat (of P1).
- The battle induces Bayesian updating. After Victory,

$$\mu_+ = p_H \mu_o / p_H \mu_o + p_L (1-\mu_o) > \mu_o ,$$

so the uninformed agent (P2) becomes more pessimistic.

- At t=2, three scenarios can emerge:
  1. Pooling under both outcomes.
  2. Separation under Victory.
  3. Separation under both outcomes.

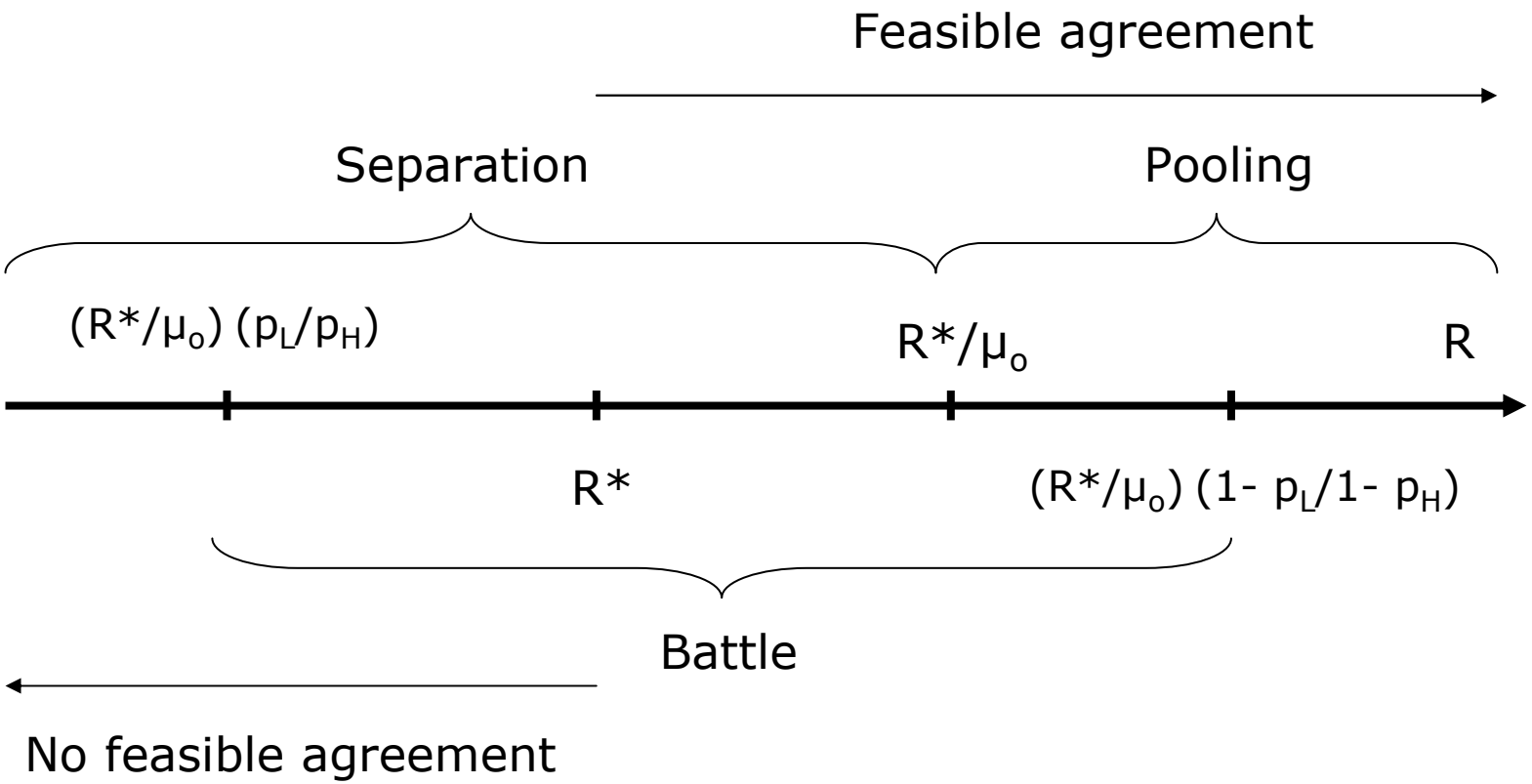
Conflict as a screening device

- **Result:** If $(R^*/\mu_o)\,(p_L/p_H) < R < R^*/\mu_o$ and players are patient enough, the profile in which P2 triggers the battle and separation occurs under V dominates a separating profile of offers.
- The battle is efficiency enhancing, all out conflict occurs only with probability $\mu_o(1-p_H)$
- A defeat induces the uninformed party to settle.
- Moreover, this profile becomes more attractive the higher μ_o!

Conflict as a screening device

- **Result:** If $R^*/\mu_o < R < (R^*/\mu_o)(1-p_L/1-p_H)$ and players are sufficiently patient then the profile in which P2 triggers the battle and separation occurs under V dominates a pooling offer.
- The battle may also harm efficiency!
- The uninformed party may use the battle to obtain new information and extract more from the opponent.
- This is less likely as μ_o increases.

Conflict as a screening device



Conflict as a credible signal

"Vito: I swore that I would never break the peace.
Michael: But wont they take that as a sign of weakness?
Vito: It is a sign of weakness."

The Godfather (1972)

- When the informed party makes the offers, they convey information.
- Offers may signal that the opponent is weak.
- This set-up is appealling but also very complex: Off-equilibrium beliefs are critical.
- Sanchez-Pages (2009) includes a battle that signals the true balance of strengths.

Conflict as a credible signal

- **Result:** If $R > R^*(1-\mu_+/1-\mu_o)$ and players are sufficiently patient there exists an equilibrium in which both types fight the battle.
- Again, depending upon the parameters, the battle may reduce inefficiencies.
- But it may also be that the informed party triggers the battle just to obtain an advantage and despite agreement is feasible.
- Optimism is not enough to explain conflict!

Conflict as a credible signal

- Let us revisit the *Uneven contenders paradox.*
- We observe weak parties fighting much stronger ones because that is a form of tacit bargaining.
- Guerrilla warfare or political demonstrations are a way of obtaining better deals by altering the beliefs of the opponent.
- Conflict is a way to signal privately known and unverifiable information not just a way to defeat a rival in an absolute sense.

Conclusions

- Two main rational explanations of conflict in negotiations.
  1. Lack of commitment and power shifts.
  2. Incomplete information.
- Limited conflicts are a bargaining tool.
- Contrary to Schelling (1960), they can make an all-out conflict **less** likely.
- But also create additional inefficiencies.
- Peace can prevail only when the returns of conflict as a bargaining tool do not exceed those of diplomacy.

Further research

- Theoretical challenges:

1. Models that incorporate both commitment and informational problems.
2. The design of peace-keeping and conflict-preventing institutions.

- Empirical challenges:

1. Beliefs are very difficult to proxy.
2. Selection bias.
3. Duration analysis vs “battlefield” data.

Theoretical and empirical models must go hand in hand

References

- Acemoglu, D and Robinson, JA (2000). “Why Did the West Extend the Franchise? Democracy, Inequality and Growth in Historical Perspective,” *Quarterly Journal of Economics* 115(4).
- Blainey, G (1973). *The Causes of War*.
- Chiozza, G and Goemans, HE (2004). “International Conflict and the Tenure of Leaders: Is War Still *Ex Post* Inefficient?” *American Political Science Review*, 48(3).
- Clausewitz, Cv (1932). *On war*.
- de Figueiredo, R (2002). “Electoral Competition, Political Uncertainty, and Policy Insulation,” *American Political Science Review* 96(2).
- Fearon, JD (1995). “Rationalist Explanations for War,” *International Organization*, 49(3).
- Fearon, JD (2004). “Why Do Some Civil Wars Last So Much Longer than Others?” *Journal of Peace Research*, 41(3).
- Fudenberg, D and Tirole, J (1983). "Sequential Bargaining with Incomplete Information about Preferences," *Review of Economic Studies*, 50(2).
- Goemans, HE (2000). *War and punishment*.
- Hicks, J (1932). *The theory of wages*.
- Jervis, R (1976). *Perception and Misperception in International Politics.*
- Johnson, D (2004). *Overconfidence and War: The Havoc and Glory of Positive Illusions*.
- Powell, R. (2006). “War as a commitment problem,” *International Organization*, 60.
- Sanchez-Pages, S (2009). "Conflict as a Part of the Bargaining Process,“ *Economic Journal*, 119(539).
- Schelling, TC (1960). *The Strategy of Conflict*.
- Simmel, G (1904). "The sociology of conflict I," *American Journal of Sociology*, 9(4).
- Wittman, D (1979). “How a War Ends: A Rational Model Approach,” *Journal of Conflict Resolution* 23(4).

Thank you!