

# COMMITMENT PROBLEMS

# THE SOCIAL DILEMMA

You would take a good action if I would credibly promise to do something in the future

You can't trust me to follow through on my promise

You take a different action as a result of the lack of trust that makes both of us worse off

If just one player could commit, there would be a Pareto improvement

- ▶ Different from pure externalities case, where everyone must be able to commit

# WHY IS THERE COSTLY CONFLICT?

2 parties are having a dispute

- ▶ War
- ▶ Law Suit
- ▶ Strikes

Costly conflict occurs if bargaining fails to reach a resolution

Because conflict is costly, a bargain exists that makes both sides better off

# THE PUZZLE

Value of the prize:  $B$

Cost of conflict:  $c$

Share of the prize party 1 wins:  $p$

If fight:

$$U_1 = pB - c \quad U_2 = (1 - p)B - c$$

Bargaining can yield the payoffs

$$U_1 = pB \quad U_2 = (1 - p)B$$

# EXPLAINING COSTLY CONFLICT

Overconfidence

Indivisibility

Commitment Problems

# NEGOTIATION AND CONFLICT

Divided Society with two groups:

- ▶ Large ( $L$ )
- ▶ Small ( $S$ )

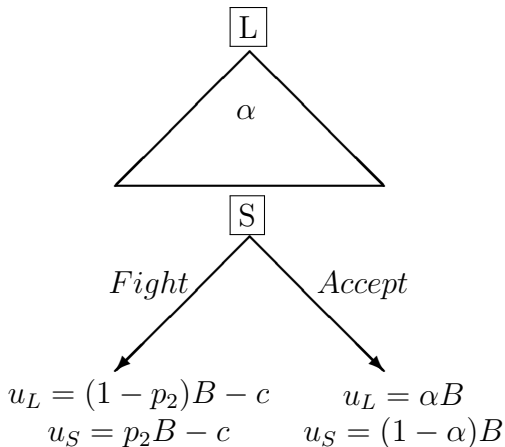
Large divides resources,  $B$

- ▶ Keep share  $\alpha$  and give  $1 - \alpha$  to Small

Small group can accept  $1 - \alpha$  or start conflict

- ▶ Small group wins share  $p_2$  in the event of conflict

# THE EXTENSIVE FORM GAME



## SMALL'S BEST-RESPONSE

Accept if:

$$\alpha < 1 - p_2 + \frac{c}{B}$$

Fight if:

$$\alpha > 1 - p_2 + \frac{c}{B}$$

Indifferent if:

$$\alpha = 1 - p_2 + \frac{c}{B}$$



# LARGE'S BEST RESPONSE

Suppose Small accepts when indifferent (recall the ultimatum game)

Large wants to maximize her share

- ▶ Choose largest  $\alpha \leq 1 - p_2 + \frac{c}{B}$

Subgame Perfect Nash equilibrium:

- ▶  $\alpha^* = 1 - p_2 + \frac{c}{B}$
- ▶ Fight if  $\alpha > 1 - p_2 + \frac{c}{B}$ ; Accept if  $\alpha \leq 1 - p_2 + \frac{c}{B}$

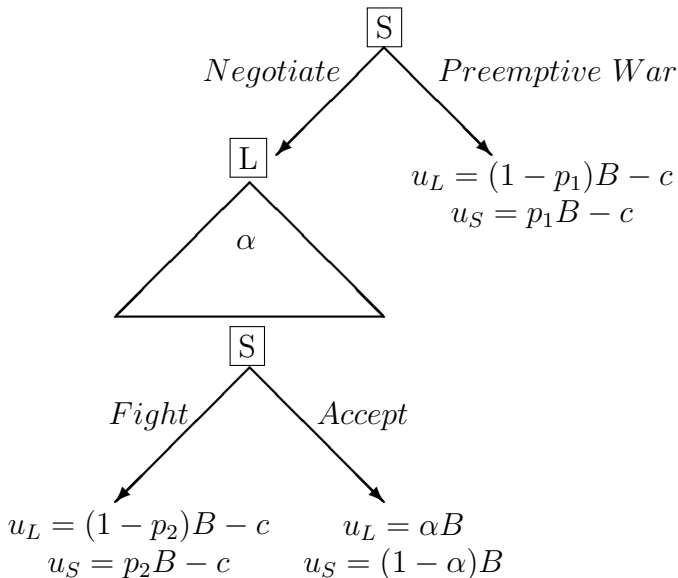
# PREEMPTIVE CONFLICT

Same model but with an initial stage in which Small can start preemptive conflict

Small wins a share  $p_1 > p_2$  in the event of preemptive conflict

Idea is that Large is consolidating power

# PREEMPTIVE EXTENSIVE FORM GAME



# PREEMPTIVE ATTACK

Without preemptive war, Small's payoff is  $p_2B - c$

With preemptive war, Small gets  $p_1B - c$

Preemptive war is a best-response

# A PARETO IMPROVEMENT

Suppose Large could commit to proposing  $\alpha = 1 - p_1$

Small would accept

$$p_1 B > p_2 B - c$$

Large's Payoff

- ▶ Equilibrium:  $(1 - p_1)B - c$
- ▶ Suggested offer:  $(1 - p_1)B$

Small's Payoff

- ▶ Equilibrium:  $p_1 B - c$
- ▶ Suggested offer:  $p_1 B$

# COMMITMENT PROBLEM

Large cannot commit to  $\alpha = 1 - p_1$

Once Small foregoes preemptive war, Large will renege and propose  $\alpha = 1 - p_2 + \frac{c}{B} > 1 - p_1$

Small's payoff is then  $p_2B - c$

Thus, Small launches a preemptive war

# EXAMPLES

Elites inside firm or organization blocking technological change

Immigration reform

Labor/Management dispute

Negotiating with terrorists

# CIVIL WARS AND THE END OF THE COLD WAR

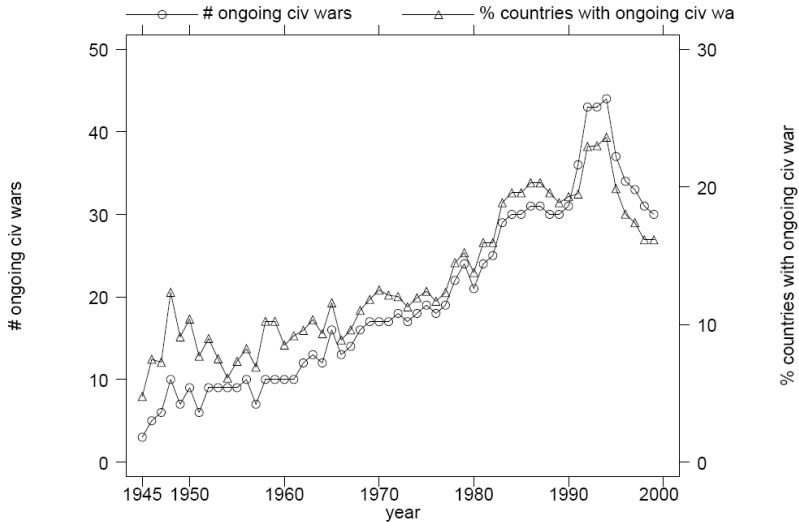
Fall of the Soviet Union eliminates third-party guarantor of negotiated settlements in civil wars

This creates commitment problems, as ethnic minorities are no longer protected

Leads to increase in civil wars



# CIVIL WARS, 1945–2000



# CROATIA

In 1991, Serb nationalists take power in Yugoslavia

In June, Croatia (minority state) declares independence

- ▶ Leads to 1991–1995 war between Croats and Serbs

“Nested minority” Serbs in Krajina

- ▶ Attempt to break away from Croatia
- ▶ End up fleeing to Kosovo

# NESTED MINORITIES IN YUGOSLAVIA



# THE HOLD-UP PROBLEM

Need up-front investment by an upstream producer

After investment has taken place, bargaining power shifts to the downstream producer

Leads to under-investment by the upstream firm

If downstream could commit to a higher price, both could be better off

# A MODEL

Upstream producer decides whether or not to produce, at cost  $c$

Downstream producer offers a price  $p$  for product

- ▶ Values product at  $\alpha$  per unit

Upstream producer can accept the offered price or use the product by itself

- ▶ Values the product at  $\beta < \alpha$  per unit

# SUBGAME PERFECT NASH EQUILIBRIUM

Upstream will accept any price,  $p \geq \beta$

Downstream will offer  $p = \beta$

Upstream will produce if  $\beta \geq c$

# UTILITARIAN OPTIMUM

Social payoff after production is  $\alpha - c$

Social payoff after no production is 0

Social optimum is to produce if  $\alpha > c$

Upstream firm underinvests

# EXAMPLES

## Start-ups

- ▶ frequently aim to get sold to a large company e.g., Facebook
- ▶ why do people create a start-up instead of working for Facebook?
- ▶ why don't they ask Facebook how to gear their product to Facebook's needs to maximize Facebook's value of the product?

## GM and Fisher Body

- ▶ In 1920s, GM was buying parts from Fisher Body
- ▶ GM asked FB to build a plant adjacent to GM to minimize transportation cost. FB refused. Why?
- ▶ GM bought FB. Why?



# RESPONSES TO COMMITMENT PROBLEMS

For Hold-up specifically:

- ▶ decrease asset specificity
- ▶ multiple suppliers/buyers
- ▶ vertical Integration

# POLICY RESPONSES TO COMMITMENT PROBLEMS

## Complete Contracts

- ▶ some information is unobservable by courts
- ▶ weak legal institutions
- ▶ who is the enforcer of international agreements?

## Democratization

## Instilling trust via repeated interactions

# TAKE AWAYS

Commitment problems arise in dynamic settings due to shifting circumstances and incomplete contracting

Gives rise to inefficient behavior due to anticipation of future circumstances

If one player could commit to a future action, both players could be better off

One solution is to create institutions

Another solution is to add improve the contracting environment