

Inefficient Concessions and Mediation

Kristy Buzard and Ben Horne
kbuzard@syr.edu

October 25, 2019

Inefficient Concessions and Mediation

In conflict scenarios, concessions are sometimes inefficient

Inefficient Concessions and Mediation

In conflict scenarios, concessions are sometimes inefficient

- We show inefficient concessions may be preferable if efficient concessions have potential future cost

Inefficient Concessions and Mediation

In conflict scenarios, concessions are sometimes inefficient

- ▶ We show inefficient concessions may be preferable if efficient concessions have potential future cost
- ▶ Cost: concessions used against you by negotiating partner who violates agreement

Inefficient Concessions and Mediation

In conflict scenarios, concessions are sometimes inefficient

- ▶ We show inefficient concessions may be preferable if efficient concessions have potential future cost
- ▶ Cost: concessions used against you by negotiating partner who violates agreement
- ▶ Can you trust that partner will make peace?

Inefficient Concessions and Mediation

In conflict scenarios, concessions are sometimes inefficient

- ▶ We show inefficient concessions may be preferable if efficient concessions have potential future cost
- ▶ Cost: concessions used against you by negotiating partner who violates agreement
- ▶ Can you trust that partner will make peace?

Inefficient Concessions and Mediation

In conflict scenarios, concessions are sometimes inefficient

- ▶ We show inefficient concessions may be preferable if efficient concessions have potential future cost
- ▶ Cost: concessions used against you by negotiating partner who violates agreement
- ▶ Can you trust that partner will make peace?

New explanation for mediation

Inefficient Concessions and Mediation

In conflict scenarios, concessions are sometimes inefficient

- ▶ We show inefficient concessions may be preferable if efficient concessions have potential future cost
- ▶ Cost: concessions used against you by negotiating partner who violates agreement
- ▶ Can you trust that partner will make peace?

New explanation for mediation

- ▶ Can remove uncertainty about ability of negotiating partner to commit to peace

Inefficient Concessions and Mediation

In conflict scenarios, concessions are sometimes inefficient

- ▶ We show inefficient concessions may be preferable if efficient concessions have potential future cost
- ▶ Cost: concessions used against you by negotiating partner who violates agreement
- ▶ Can you trust that partner will make peace?

New explanation for mediation

- ▶ Can remove uncertainty about ability of negotiating partner to commit to peace
- ▶ Removes need for inefficient concessions

What we do

What we do

Start with simple, two-player repeated Prisoners' Dilemma

What we do

Start with simple, two-player repeated Prisoners' Dilemma

- ▶ Asymmetric information about partner's discount factor δ_i :
can partner commit to peace?

What we do

Start with simple, two-player repeated Prisoners' Dilemma

- ▶ Asymmetric information about partner's discount factor δ_i :
can partner commit to peace?

What we do

Start with simple, two-player repeated Prisoners' Dilemma

- ▶ Asymmetric information about partner's discount factor δ_i :
can partner commit to peace?

Add time zero: let partners give concessions with both signaling
and material value

What we do

Start with simple, two-player repeated Prisoners' Dilemma

- ▶ Asymmetric information about partner's discount factor δ_i :
can partner commit to peace?

Add time zero: let partners give concessions with both signaling and material value

- ▶ Let material value provide help/harm to the giver

What we do

Start with simple, two-player repeated Prisoners' Dilemma

- ▶ Asymmetric information about partner's discount factor δ_i :
can partner commit to peace?

Add time zero: let partners give concessions with both signaling and material value

- ▶ Let material value provide help/harm to the giver
- ▶ Let partners destroy some/all of the material value

What we do

Start with simple, two-player repeated Prisoners' Dilemma

- ▶ Asymmetric information about partner's discount factor δ_i :
can partner commit to peace?

Add time zero: let partners give concessions with both signaling and material value

- ▶ Let material value provide help/harm to the giver
- ▶ Let partners destroy some/all of the material value

What we do

Start with simple, two-player repeated Prisoners' Dilemma

- ▶ Asymmetric information about partner's discount factor δ_i :
can partner commit to peace?

Add time zero: let partners give concessions with both signaling and material value

- ▶ Let material value provide help/harm to the giver
- ▶ Let partners destroy some/all of the material value

Mediator removes uncertainty about partner's δ

Literature

Literature

Signaling: Spence (1973), but signal has potential future cost

Literature

Signaling: Spence (1973), but signal has potential future cost

- ▶ cost/benefit tradeoff b/c of δ_i , $C_i(g)$

Literature

Signaling: Spence (1973), but signal has potential future cost

- cost/benefit tradeoff b/c of δ_i , $C_i(g)$

Gift-Giving: Camerer (1988), Prendergast & Stole (2001)

Literature

Signaling: Spence (1973), but signal has potential future cost

- cost/benefit tradeoff b/c of δ_i , $C_i(g)$

Gift-Giving: Camerer (1988), Prendergast & Stole (2001)

- Source of inefficiency differs: gifts can be used against giver

Literature

Signaling: Spence (1973), but signal has potential future cost

- ▶ cost/benefit tradeoff b/c of δ_i , $C_i(g)$

Gift-Giving: Camerer (1988), Prendergast & Stole (2001)

- ▶ Source of inefficiency differs: gifts can be used against giver

Conflict: Slantchev (2011), Arena (2013)

Literature

Signaling: Spence (1973), but signal has potential future cost

- ▶ cost/benefit tradeoff b/c of δ_i , $C_i(g)$

Gift-Giving: Camerer (1988), Prendergast & Stole (2001)

- ▶ Source of inefficiency differs: gifts can be used against giver

Conflict: Slantchev (2011), Arena (2013)

- ▶ Concessions are costly signals instead of bargaining chip

Literature

Signaling: Spence (1973), but signal has potential future cost

- ▶ cost/benefit tradeoff b/c of δ_i , $C_i(g)$

Gift-Giving: Camerer (1988), Prendergast & Stole (2001)

- ▶ Source of inefficiency differs: gifts can be used against giver

Conflict: Slantchev (2011), Arena (2013)

- ▶ Concessions are costly signals instead of bargaining chip
- ▶ Commitment to peace, not resolve to fight

Literature

Signaling: Spence (1973), but signal has potential future cost

- ▶ cost/benefit tradeoff b/c of δ_i , $C_i(g)$

Gift-Giving: Camerer (1988), Prendergast & Stole (2001)

- ▶ Source of inefficiency differs: gifts can be used against giver

Conflict: Slantchev (2011), Arena (2013)

- ▶ Concessions are costly signals instead of bargaining chip
- ▶ Commitment to peace, not resolve to fight
- ▶ Costly signals are concessions instead of proof of resolve

Literature

Signaling: Spence (1973), but signal has potential future cost

- ▶ cost/benefit tradeoff b/c of δ_i , $C_i(g)$

Gift-Giving: Camerer (1988), Prendergast & Stole (2001)

- ▶ Source of inefficiency differs: gifts can be used against giver

Conflict: Slantchev (2011), Arena (2013)

- ▶ Concessions are costly signals instead of bargaining chip
- ▶ Commitment to peace, not resolve to fight
- ▶ Costly signals are concessions instead of proof of resolve

Literature

Signaling: Spence (1973), but signal has potential future cost

- ▶ cost/benefit tradeoff b/c of δ_i , $C_i(g)$

Gift-Giving: Camerer (1988), Prendergast & Stole (2001)

- ▶ Source of inefficiency differs: gifts can be used against giver

Conflict: Slantchev (2011), Arena (2013)

- ▶ Concessions are costly signals instead of bargaining chip
- ▶ Commitment to peace, not resolve to fight
- ▶ Costly signals are concessions instead of proof of resolve

Mediation: Fey and Ramsay (2008, 2011), Horner et al. (2010)

Literature

Signaling: Spence (1973), but signal has potential future cost

- ▶ cost/benefit tradeoff b/c of δ_i , $C_i(g)$

Gift-Giving: Camerer (1988), Prendergast & Stole (2001)

- ▶ Source of inefficiency differs: gifts can be used against giver

Conflict: Slantchev (2011), Arena (2013)

- ▶ Concessions are costly signals instead of bargaining chip
- ▶ Commitment to peace, not resolve to fight
- ▶ Costly signals are concessions instead of proof of resolve

Mediation: Fey and Ramsay (2008, 2011), Horner et al. (2010)

- ▶ Information is about ability to commit, not resolve

Timeline

Timeline

- 1. Nature independently determines types of Country 1 and Country 2: $\delta_i \in \{\delta_h, \delta_l\}$

Timeline

- 1. Nature independently determines types of Country 1 and Country 2: $\delta_i \in \{\delta_h, \delta_l\}$
- 0. Countries simultaneously give costly concessions: $g_i \in \mathbb{R}_+$

Timeline

- 1. Nature independently determines types of Country 1 and Country 2: $\delta_i \in \{\delta_h, \delta_l\}$
- 0. Countries simultaneously give costly concessions: $g_i \in \mathbb{R}_+$
- 1- ∞ . Countries engage in a simultaneous Prisoners' Dilemma interaction

Stage Game

Stage Game

	Trust	Fight
Trust	T, T	-D, T+W
Fight	T+W, -D	W-D, W-D

where

- ▶ $T \geq 0$: Benefit from the other country playing Trust
- ▶ $W \geq 0$: Additional benefit from playing Fight
- ▶ $D \geq 0$: Damages due to the other country playing Fight

Stage Game

	Trust	Fight
Trust	T, T	-D, T+W
Fight	T+W, -D	W-D, W-D

where

- ▶ $T \geq 0$: Benefit from the other country playing Trust
- ▶ $W \geq 0$: Additional benefit from playing Fight
- ▶ $D \geq 0$: Damages due to the other country playing Fight

Assume $T > W - D$

- Payoffs: sum the discounted stage game payoffs plus any concessions given or received

- Payoffs: sum the discounted stage game payoffs plus any concessions given or received
 - e.g. player's i 's payoff if both parties give no concession and play "Fight" in every period:

$$\sum_{t=1}^{\infty} \delta_i^{t-1} (W - D) = \frac{W - D}{1 - \delta_i}$$

- ▶ Payoffs: sum the discounted stage game payoffs plus any concessions given or received
 - ▶ e.g. player's i 's payoff if both parties give no concession and play "Fight" in every period:

$$\sum_{t=1}^{\infty} \delta_i^{t-1} (W - D) = \frac{W - D}{1 - \delta_i}$$

- ▶ Parameters are common knowledge with the exception of δ_i , which is country i 's private information

- ▶ Payoffs: sum the discounted stage game payoffs plus any concessions given or received
 - ▶ e.g. player's i 's payoff if both parties give no concession and play "Fight" in every period:

$$\sum_{t=1}^{\infty} \delta_i^{t-1} (W - D) = \frac{W - D}{1 - \delta_i}$$

- ▶ Parameters are common knowledge with the exception of δ_i , which is country i 's private information
- ▶ Social welfare measured as sum of high types' expected utilities

No Money Burning, No Impact on Giver

Benchmark Model

No Money Burning, No Impact on Giver

Benchmark Model

Assume two types: δ_h and δ_l

- ▶ $\delta_h > \delta^* > \delta_l$ where $\delta^* = \frac{W}{T+D}$ is the cutoff for sustaining (Trust, Trust) eqm

No Money Burning, No Impact on Giver

Benchmark Model

Assume two types: δ_h and δ_l

- ▶ $\delta_h > \delta^* > \delta_l$ where $\delta^* = \frac{W}{T+D}$ is the cutoff for sustaining (Trust, Trust) eqm
- ▶ p : probability of high type

No Money Burning, No Impact on Giver

Benchmark Model

Assume two types: δ_h and δ_l

- ▶ $\delta_h > \delta^* > \delta_l$ where $\delta^* = \frac{W}{T+D}$ is the cutoff for sustaining (Trust, Trust) eqm
- ▶ p : probability of high type
- ▶ Cost of giving concessions g : $g = c_l(g) \geq c_h(g) = g$

No Money Burning, No Impact on Giver

Benchmark Model

Assume two types: δ_h and δ_l

- ▶ $\delta_h > \delta^* > \delta_l$ where $\delta^* = \frac{W}{T+D}$ is the cutoff for sustaining (Trust, Trust) eqm
- ▶ p : probability of high type
- ▶ Cost of giving concessions g : $g = c_l(g) \geq c_h(g) = g$

Benchmark Model

Assume two types: δ_h and δ_l

- ▶ $\delta_h > \delta^* > \delta_l$ where $\delta^* = \frac{W}{T+D}$ is the cutoff for sustaining (Trust, Trust) eqm
- ▶ p : probability of high type
- ▶ Cost of giving concessions g : $g = c_l(g) \geq c_h(g) = g$

Some equilibria of interest

Benchmark Model

Assume two types: δ_h and δ_l

- ▶ $\delta_h > \delta^* > \delta_l$ where $\delta^* = \frac{W}{T+D}$ is the cutoff for sustaining (Trust, Trust) eqm
- ▶ p : probability of high type
- ▶ Cost of giving concessions g : $g = c_l(g) \geq c_h(g) = g$

Some equilibria of interest

- ▶ Pool on 'Fight'

No Money Burning, No Impact on Giver

Benchmark Model

Assume two types: δ_h and δ_l

- ▶ $\delta_h > \delta^* > \delta_l$ where $\delta^* = \frac{W}{T+D}$ is the cutoff for sustaining (Trust, Trust) eqm
- ▶ p : probability of high type
- ▶ Cost of giving concessions g : $g = c_l(g) \geq c_h(g) = g$

Some equilibria of interest

- ▶ Pool on 'Fight'
- ▶ Separating through concessions

Benchmark Model

Assume two types: δ_h and δ_l

- ▶ $\delta_h > \delta^* > \delta_l$ where $\delta^* = \frac{W}{T+D}$ is the cutoff for sustaining (Trust, Trust) eqm
- ▶ p : probability of high type
- ▶ Cost of giving concessions g : $g = c_l(g) \geq c_h(g) = g$

Some equilibria of interest

- ▶ Pool on 'Fight'
- ▶ Separating through concessions
- ▶ Separating without concessions

No Money Burning, No Impact on Giver

Pooling Equilibrium

No Money Burning, No Impact on Giver

Pooling Equilibrium

Lemma 4

From period 1 on, playing fight in all periods is the only sequentially rational strategy for low types regardless of their beliefs of the other country's type and strategy.

No Money Burning, No Impact on Giver

Pooling Equilibrium

Lemma 4

From period 1 on, playing fight in all periods is the only sequentially rational strategy for low types regardless of their beliefs of the other country's type and strategy.

- This equilibrium can always be chosen by both types

No Money Burning, No Impact on Giver

Separating through concessions

No Money Burning, No Impact on Giver

Separating through concessions

Theorem 2

In the best concessions separating equilibrium, high types give the smallest concession necessary to separate. Low types do not give a concession.

No Money Burning, No Impact on Giver

Separating through concessions

Theorem 2

In the best concessions separating equilibrium, high types give the smallest concession necessary to separate. Low types do not give a concession.

If p is low enough, high types are better off in the ‘fight’ pooling equilibrium

No Money Burning, No Impact on Giver

Separating through concessions

Theorem 2

In the best concessions separating equilibrium, high types give the smallest concession necessary to separate. Low types do not give a concession.

If p is low enough, high types are better off in the ‘fight’ pooling equilibrium

$$U_h(CSE) = pg - g + \frac{1}{(1-\delta_h)} [pT + (1-p)(W-D)]$$

No Money Burning, No Impact on Giver

Separating through concessions

Theorem 2

In the best concessions separating equilibrium, high types give the smallest concession necessary to separate. Low types do not give a concession.

If p is low enough, high types are better off in the ‘fight’ pooling equilibrium

$$U_h(CSE) = pg - g + \frac{1}{(1-\delta_h)} [pT + (1-p)(W-D)]$$

$$U_h(POOL) = \frac{1}{(1-\delta_h)} (W-D)$$

No Money Burning, No Impact on Giver

Smallest Separating Concession

The smallest concession, $p(T + D)$, comes from the low type's incentive constraint

No Money Burning, No Impact on Giver

Smallest Separating Concession

The smallest concession, $p(T + D)$, comes from the low type's incentive constraint

$$pg + X_{FF}^l \geq -g + pg + pX_{FT}^l + (1 - p)X_{FF}^l$$

No Money Burning, No Impact on Giver

Smallest Separating Concession

The smallest concession, $p(T + D)$, comes from the low type's incentive constraint

$$pg + X_{FF}^l \geq -g + pg + pX_{FT}^l + (1-p)X_{FF}^l$$

$$pg + \frac{W - D}{1 - \delta_l} \geq -g + pg + p \left[T + W + \frac{\delta(W - D)}{1 - \delta_l} \right] + (1-p) \frac{W - D}{1 - \delta_l}$$

No Money Burning, No Impact on Giver

Smallest Separating Concession

The smallest concession, $p(T + D)$, comes from the low type's incentive constraint

$$pg + X_{FF}^l \geq -g + pg + pX_{FT}^l + (1-p)X_{FF}^l$$

$$pg + \frac{W - D}{1 - \delta_l} \geq -g + pg + p \left[T + W + \frac{\delta(W - D)}{1 - \delta_l} \right] + (1-p) \frac{W - D}{1 - \delta_l}$$

$$g \geq p \left[T + W + \frac{\delta(W - D)}{1 - \delta_l} \right] - p \frac{(W - D)}{1 - \delta_l}$$

No Money Burning, No Impact on Giver

Smallest Separating Concession

The smallest concession, $p(T + D)$, comes from the low type's incentive constraint

$$pg + X_{FF}^l \geq -g + pg + pX_{FT}^l + (1-p)X_{FF}^l$$

$$pg + \frac{W - D}{1 - \delta_l} \geq -g + pg + p \left[T + W + \frac{\delta(W - D)}{1 - \delta_l} \right] + (1-p) \frac{W - D}{1 - \delta_l}$$

$$g \geq p \left[T + W + \frac{\delta(W - D)}{1 - \delta_l} \right] - p \frac{(W - D)}{1 - \delta_l}$$

$$g \geq pT + pW - pW - pD + p \frac{(W - D)}{1 - \delta_l} - p \frac{(W - D)}{1 - \delta_l}$$

Add Impact of Concessions on Giver (Still no money burning)

Timeline

Add Impact of Concessions on Giver (Still no money burning)

Timeline

- 1. Nature independently determines types of Country 1 and Country 2: $\delta_i \in \{\delta_h, \delta_l\}$

Add Impact of Concessions on Giver (Still no money burning)

Timeline

- 1. Nature independently determines types of Country 1 and Country 2: $\delta_i \in \{\delta_h, \delta_l\}$
- 0. Concessions

Add Impact of Concessions on Giver (Still no money burning)

Timeline

- 1. Nature independently determines types of Country 1 and Country 2: $\delta_i \in \{\delta_h, \delta_l\}$
- 0. Concessions
 - 0a. Countries decide what proportion of a received concession to invest in civil society (vs. military capabilities):
 $\alpha_i \in [0, 1]$ Modified Payoffs

Add Impact of Concessions on Giver (Still no money burning)

Timeline

- 1. Nature independently determines types of Country 1 and Country 2: $\delta_i \in \{\delta_h, \delta_l\}$
- 0. Concessions
 - 0a. Countries decide what proportion of a received concession to invest in civil society (vs. military capabilities):
 $\alpha_i \in [0, 1]$ Modified Payoffs
 - 0b. Countries simultaneously give costly concessions and decide on the efficiency of the concessions: $(g_i, e_i) \in \mathbb{R}_+ \times [0, 1]$

Add Impact of Concessions on Giver (Still no money burning)

Timeline

- 1. Nature independently determines types of Country 1 and Country 2: $\delta_i \in \{\delta_h, \delta_l\}$
- 0. Concessions
 - 0a. Countries decide what proportion of a received concession to invest in civil society (vs. military capabilities):
 $\alpha_i \in [0, 1]$ Modified Payoffs
 - 0b. Countries simultaneously give costly concessions and decide on the efficiency of the concessions: $(g_i, e_i) \in \mathbb{R}_+ \times [0, 1]$
- 1- ∞ . Countries engage in a simultaneous Prisoners' Dilemma interaction

Add Impact of Concessions on Giver (Still no money burning)

Peace not possible in some scenarios

Add Impact of Concessions on Giver (Still no money burning)

Peace not possible in some scenarios

Theorem 3

When concessions impact the giver's future welfare, peace becomes unachievable for some parameters under which it is achievable when concessions do not impact the giver's future welfare.

Add Impact of Concessions on Giver (Still no money burning)

Peace not possible in some scenarios

Theorem 3

When concessions impact the giver's future welfare, peace becomes unachievable for some parameters under which it is achievable when concessions do not impact the giver's future welfare.

- Effect comes in part through change in minimum separating concession

Add Impact of Concessions on Giver (Still no money burning)

Peace not possible in some scenarios

Theorem 3

When concessions impact the giver's future welfare, peace becomes unachievable for some parameters under which it is achievable when concessions do not impact the giver's future welfare.

- ▶ Effect comes in part through change in minimum separating concession
- ▶ High-type utility may increase or decrease from the benchmark case

Add Money Burning

Timeline

Add Money Burning

Timeline

- 1. Nature independently determines types of Country 1 and Country 2: $\delta_i \in \{\delta_h, \delta_l\}$

Add Money Burning

Timeline

- 1. Nature independently determines types of Country 1 and Country 2: $\delta_i \in \{\delta_h, \delta_l\}$
- 0. Concessions

Timeline

- 1. Nature independently determines types of Country 1 and Country 2: $\delta_i \in \{\delta_h, \delta_l\}$
- 0. Concessions
 - 0a. Countries decide what proportion of a received concession to invest in civil society (vs. military capabilities):
 $\alpha_i \in [0, 1]$

Timeline

- 1. Nature independently determines types of Country 1 and Country 2: $\delta_i \in \{\delta_h, \delta_l\}$
- 0. Concessions
 - 0a. Countries decide what proportion of a received concession to invest in civil society (vs. military capabilities):
 $\alpha_i \in [0, 1]$
 - 0b. Countries simultaneously give costly concessions and decide on the efficiency of the concessions: $(g_i, e_i) \in \mathbb{R}_+ \times [0, 1]$

Timeline

- 1. Nature independently determines types of Country 1 and Country 2: $\delta_i \in \{\delta_h, \delta_l\}$
- 0. Concessions
 - 0a. Countries decide what proportion of a received concession to invest in civil society (vs. military capabilities):
 $\alpha_i \in [0, 1]$
 - 0b. Countries simultaneously give costly concessions and decide on the efficiency of the concessions: $(g_i, e_i) \in \mathbb{R}_+ \times [0, 1]$
- 1- ∞ . Countries engage in a simultaneous Prisoners' Dilemma interaction

Add Money Burning

Burning money is (obviously) unattractive...

Add Money Burning

Burning money is (obviously) unattractive...

Now benefit of concession is *eg*

Burning money is (obviously) unattractive...

Now benefit of concession is eg

Lemma 2

If a concessions separating equilibrium exists under no money burning, it is optimal to give efficient gifts ($e = 1$) in a concessions separating equilibrium with money burning.

Burning money is (obviously) unattractive...

Now benefit of concession is eg

Lemma 2

If a concessions separating equilibrium exists under no money burning, it is optimal to give efficient gifts ($e = 1$) in a concessions separating equilibrium with money burning.

- The benefit of the gift appears on both sides of the incentive constraint for both individuals, so cancels out

Burning money is (obviously) unattractive...

Now benefit of concession is *eg*

Lemma 2

If a concessions separating equilibrium exists under no money burning, it is optimal to give efficient gifts ($e = 1$) in a concessions separating equilibrium with money burning.

- ▶ The benefit of the gift appears on both sides of the incentive constraint for both individuals, so cancels out
- ▶ Costs of giving a concession don't change

Burning money is (obviously) unattractive...

Now benefit of concession is *eg*

Lemma 2

If a concessions separating equilibrium exists under no money burning, it is optimal to give efficient gifts ($e = 1$) in a concessions separating equilibrium with money burning.

- ▶ The benefit of the gift appears on both sides of the incentive constraint for both individuals, so cancels out
- ▶ Costs of giving a concession don't change
- ▶ The benefit appears in the high type's expected utility

Add Money Burning

...but in some cases countries will burn money

...but in some cases countries will burn money

Theorem 4

When concessions affect the future welfare of the giver *and* their value can be destroyed, there are parameters under which the optimal equilibrium is a separating equilibrium in which concessions are inefficient.

...but in some cases countries will burn money

Theorem 4

When concessions affect the future welfare of the giver *and* their value can be destroyed, there are parameters under which the optimal equilibrium is a separating equilibrium in which concessions are inefficient.

$$U_h = peg - c_h(g) + \frac{1}{1-\delta_h} [pT(1+eg) + (1-p)(W - D(1+eg))]$$

...but in some cases countries will burn money

Theorem 4

When concessions affect the future welfare of the giver *and* their value can be destroyed, there are parameters under which the optimal equilibrium is a separating equilibrium in which concessions are inefficient.

$$U_h = peg - c_h(g) + \frac{1}{1-\delta_h} [pT(1+eg) + (1-p)(W - D(1+eg))]$$

- If p is low, concessions likely to be used against you

...but in some cases countries will burn money

Theorem 4

When concessions affect the future welfare of the giver *and* their value can be destroyed, there are parameters under which the optimal equilibrium is a separating equilibrium in which concessions are inefficient.

$$U_h = peg - c_h(g) + \frac{1}{1-\delta_h} [pT(1+eg) + (1-p)(W - D(1+eg))]$$

- ▶ If p is low, concessions likely to be used against you
- ▶ If δ_l is low, concession has to be large to deter low type from mimicking high type

Mediator as mechanism designer

Mediator as mechanism designer

‘Manipulative’ mediator: parties report their types, must deliver the stipulated concessions

Mediator as mechanism designer

‘Manipulative’ mediator: parties report their types, must deliver the stipulated concessions

- ▶ Mechanism: if two high types, give concession and play ‘Trust’; Otherwise, no concession and ‘Fight’

Mediator as mechanism designer

‘Manipulative’ mediator: parties report their types, must deliver the stipulated concessions

- ▶ Mechanism: if two high types, give concession and play ‘Trust’; Otherwise, no concession and ‘Fight’
- ▶ Concession is necessary to get truthful revelation, but only to high type

Mediator as mechanism designer

‘Manipulative’ mediator: parties report their types, must deliver the stipulated concessions

- ▶ Mechanism: if two high types, give concession and play ‘Trust’; Otherwise, no concession and ‘Fight’
- ▶ Concession is necessary to get truthful revelation, but only to high type
- ▶ Need cost of concession for low type to be not too large relative to cost for high type

Mediator as mechanism designer

‘Manipulative’ mediator: parties report their types, must deliver the stipulated concessions

- ▶ Mechanism: if two high types, give concession and play ‘Trust’; Otherwise, no concession and ‘Fight’
- ▶ Concession is necessary to get truthful revelation, but only to high type
- ▶ Need cost of concession for low type to be not too large relative to cost for high type

Mediator as mechanism designer

‘Manipulative’ mediator: parties report their types, must deliver the stipulated concessions

- ▶ Mechanism: if two high types, give concession and play ‘Trust’; Otherwise, no concession and ‘Fight’
- ▶ Concession is necessary to get truthful revelation, but only to high type
- ▶ Need cost of concession for low type to be not too large relative to cost for high type

Theorem 5

A mediator restores peace where concessions’ future welfare impact destroys it and eliminates inefficient concessions elsewhere.

Modified Stage Game Payoffs

	Trust	Fight
Trust	$T(s_2 + \alpha_2 g_1),$ $T(s_1 + \alpha_1 g_2)$	$-D(m_2 + (1 - \alpha_2)g_1),$ $T(s_1 + \alpha_1 g_2)$ $+ W(m_2 + (1 - \alpha_2)g_1)$
Fight	$T(s_2 + \alpha_2 g_1)$ $+ W(m_1 + (1 - \alpha_1)g_2),$ $-D(m_1 + (1 - \alpha_1)g_2)$	$W(m_1 + (1 - \alpha_1)g_2)$ $-D(m_2 + (1 - \alpha_2)g_1),$ $W(m_2 + (1 - \alpha_2)g_1)$ $-D(m_1 + (1 - \alpha_1)g_2)$

Back to Burning money unattractive.