

Schelling on bargaining

- One of the central observations in SC is that even nasty things like war, or threat of war, can be studied.
- A way is to regard conflicts as bargaining problems.
- This excludes two polar cases of i) pure conflict, or zero-sum games, and ii) common interest, or pure co-ordination games.
- To make progress one has to take seriously the assumption about the rationality of the participants/players.
- This constrains what the players can do and also what the modeller can do.
- Thus we get clear predictions.
- Schelling emphasises that this is not enough but then one has to check whether the results pertain to the situation that is analysed.

- The important thing to consider is the threats the parties have.
- The situation resolves fruitfully if the parties do not need to fulfill the threats.
- But the threats have to be credible.
- How to make the threats credible?
- Commitment, by definition, makes them credible.
- How to commit to an action?

- Ability to commit is pretty much the same thing as ability to acquire bargaining power.
- Commitment is pretty much the same thing as making one's choice set small.
- Thus, bargaining power is pretty much the same thing as the ability to bind oneself.
- How does one bind oneself, or how does one make the other party think than one has bound oneself?

1. Use a third party.

Assume that there is a car for sale.

The buyer is willing to pay at most 10000 and the seller would be willing to sell it at 6000 at the lowest.

Assume that the seller makes the following deal with a third party:
If I (the seller) sell the car at less than 10000 then I shall reward the third party with 5000.

2. In some cultures one can perform a ritual that amounts to commitment.

Swearing publicly that the seller won't accept anything less than 10000 or that the buyer won't offer anything more than 6000.

The party that manages to do this first publicly, and to communicate this to the opposing party 'wins'.

It is crucial that one can communicate one's intentions to the other party.

If one party manages to make his/her claim then it is in his/her interest to shut down the media of communication.

Of course, if both simultaneously manage to make their demands/offers public no trade is possible.

3. One can make one's position inflexible.

Assume that a workers' union and an employers' union negotiate on wage increases.

If the leaders of the workers' union manage to publicly announce that 2 euros is the minimum they are going to accept and that they are going to resign if this does not succeed, then 2 euros is truly the minimum that is acceptable to the workers' union.

4. Using an agent.

An agent can be given an incentive structure that advances the principal's objectives.

If the seller hires an agent that gets a bonus if and only if s/he sells the car at 10000,
then it is credible that the agent strikes a deal only at price 10000.

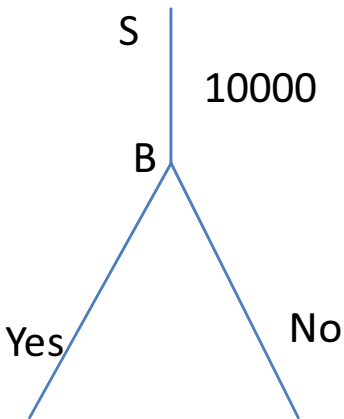
5. Building a reputation.

If one party is involved in repeated negotiations then it can credibly refuse compromises if compromises are seen as weaknesses in bargaining strength.

Even foregoing a profitable deal may pay in the future if the future bargaining partners are willing to give in.

- All of the above are basically attempts to limit one's choices.
- A good example is an attacking army that must fight a strong enemy.
- In case the enemy turns out too strong the army can flee via a bridge.
- Burning the bridge limits the army's options to fighting fiercely.

- The seller would like to get to the following situation where s/he can make a take-it-or-leave-it offer and similarly for the buyer.



Example

Threat without commitment.

T(hreatener) threatens a potential V(ictim) with a loss of $l > 0$.

Carrying out the threat yields gain b to T, and b may be positive or negative.

Assume $v > b$.

Game proceeds in discrete time and the players discount future with discount factor δ .

Example

(continued). In each period t V chooses payment p_t .

Then T chooses whether to carry out the threat.

If it is carried out the game ends and pay-offs are realised.

If not the game proceeds to the next period.

Assume that there are finitely many periods Ξ .

If $b > 0$ there is a unique subgame perfect equilibrium.

In the SPE no payments are made and T carries out the threat immediately.

Example

(continued). This can be seen by backward induction.

In the last period T carries out the threat.

Thus V is not willing to pay anything.

In the previous period T knows that nothing is going to be gained by waiting.

V can see this and does not pay anything and so on.

Example

(continued). If $b < 0$ then there is a unique SPE where no payments are made and the threat is not carried out.

If there time span is infinite things change.

However, it is still an equilibrium not to make any payments and to carry out the threat immediately.

There are also efficient subgame perfect equilibria in which V makes each period payment $p \in [(1 - \delta)b, (1 - \delta)v]$.

Consider the lowest $p = (1 - \delta)b$.

If T gets this each period his/her life time pay-off is given by

$$p + \delta p + \delta^2 p + \dots = \frac{p}{1 - \delta} = b$$

Example

(continued). In this equilibrium s/he gets the same as by carrying out the threat.

This equilibrium is supported by out-of-equilibrium behaviour where paying less than p results in T believing that V will not pay anything, and V believing that T will carry out the threat immediately.

When $p = (1 - \delta)v$ V does not get any of the surplus.

Any division of the surplus can be achieved by appropriate choice of p .

Example

(continued). If $b < 0$ then the only way T can get anything from V is that T threatens to carry out the threat after some action by V.

Assume that this action has been taken by V.

Then T should end the game and suffer b .

But not doing anything clearly improves his/her situation.

Thus, in any SPE no payments are made and the threat is not carried out.