Relationships in Mechanism Design

Highlight the following

- In auctions – collusion between the auctioneer and participant(s), as well as between participants, faciliated by relationships

- In relationships – relationships are ambiguous for welfare

- In relationships – relationships are an imperfect substitute for institutions

    As an aside – consider developing versus developed countries

    Relationships substitute for markets in the latter, but appear not to be a good substitute

- In relationships – those with the relationship are not necessarily the beneficiaries

- In auctions and relationships – the importance of establishing which individuals and/or groups have relationships

Two Bidder First Price Auction

Two bidders, draw private values of either 1 or 17 with equal probability

High value may bid either 1 or 13, low value always bids 1

First price auction, the "auctioneer" must give the (single) item to the highest bidder, and must flip a coin if there is a tie
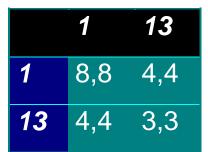
Everyone risk neutral

Payoffs to High Value Bidder

1,1 each has a 50% chance of winning 16

1,13

low bidder wins 50% of the time opponent has low value, i.e. 25%, and get 16

high bidder always wins 4

13,13 win 4 always against low opponent, 50% against high, i.e. 75%

	1	**13**
1	8,8	4,4
13	4,4	3,3

8,8 is unique dominant strategy equilibrium, inefficient since there is a 25% chance wrong bidder gets the object

(in more complex settings inefficient mechanisms are less contrived)

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"Corrupt Collusion"

after the sealed bids are submitted, if both bidders bid 1, the auctioneer may secretly approach one of the bidders and offer the following "deal"

if the bidder raises his bid to 13, the auctioneer will secretly compensate the bidder for his cost
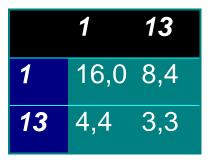
we assume the deal is always accepted (offer a penny more than 12)

we assume the deal has a social cost of $c > 0$ paid by auctioneer

not very interesting – the auctioneer strictly prefers not to offer the deal

Commitment

Suppose the auctioneer could commit to offering the deal to player 1 (say).

	1	*13*
1	16,0	8,4
13	4,4	3,3

Unique equilibrium is now 8,4 – expected revenue of seller goes up by 4, utility of player 1 doesn't change

As long as $c < 4$ the commitment would be optimal

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Time Consistency, Auctions and Reputation

Basic feature: the mechanism operator wishes to maximize revenue in a setting where the mechanism designer did not

❑ For example multi-unit auction setting where revenue maximization and welfare maximization are in conflict

❑ Consequently the operator may wish to "cheat" on the designer

❑ Corresponds to "reputation is who you are" in Mailath-Samuelson

Suppose mechanism maximizes revenue and welfare: still a potential time consistency problem

❑ Example – if mechanism is not robust, for example not dominant strategy – there is incentive to change what you are doing after you learn about other players

Reputation is Who You Are Not

Suppose mechanism implemented by legal contract – say a second price auction in an independent private value setting

Imagine an "inept type" of designer who is good at tricky legal stuff – so can effectively renege on commitment

After the sealed bids are submitted, the "inept" designer effectively throws out the contract – and just charges the high bidder the full price

Obviously you wouldn't like to have a reputation for being "inept"

Note that "inept" may mean "good at doing bad things"

Here reputation is a potentially an imperfect substitute for an institution – effective enforcement of contracts

For the example we use the more traditional "reputation is who you are"

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Finally: Reputation

Suppose the auctioneer is a "long-run" player with discount factor near 1 and that the bidders are "short-run" players who play only one period

Suppose both bidders can observe the past corrupt deals of the seller – basic LR vs SR theory of Fudenberg, Kreps, Maskin shows that there is an equilibrium for seller in which he earns the commitment value $5 - c$

An Asymmetric Relationship

Suppose that only player 2 (say) can observe the past history of corrupt deals.

The favorable equilibrium for the seller is to offer the corrupt deal to the player who *cannot* observe the history

That is, the reputation you want is to intimidate the bidder with whom you do have a relationship into bidding high

Relationships and Coalitions

Theory of relationships points the way to a theory of which coalitions are viable – must be able to collude, implies intertemporal information and interaction

Take force in light of fact about auctions: with allocative externalities auction core empty