

Experimental Economics

Slides 3

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Based in part on course materials by Sandra Maximiano



Outline for today

- ▶ Market institutions (Chamberlin vs Smith)
- ▶ A double auction market
- ▶ Your experiment & Lab report 1
- ▶ Taxes and price controls

Main questions for today

- ▶ What is a pit market and a double auction market?
- ▶ What are the stylized experimental results in double market experiments?
- ▶ What is a (un)binding price control?
- ▶ What happens when a price control is imposed?

Market

- ▶ Structure
 - ▶ Nr. of buyers and sellers
 - ▶ Values and costs
- ▶ Market Institution:
 - ▶ Full specification of the rules of trade

Posted-offer market

[illegible]

Market institutions: Posted-offer

- ▶ Usually sellers post prices and buyers contact sellers if they wish to buy at a posted price.
- ▶ “Take-it-or-leave it”
- ▶ Price negotiation not allowed.
- ▶ Used in lab studies of retail markets
- ▶ Asymmetry on one side common when there are few agents on that side, e.g. many buyers and few firms with market power

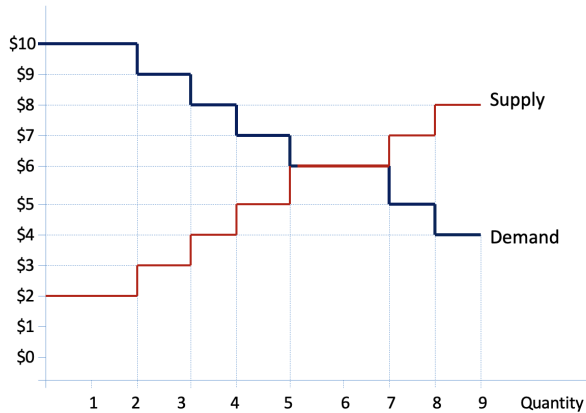
Market institutions: Pit Market

- ▶ Chamberlin (1948)
- ▶ Symmetric institution and less structured
- ▶ Buyers and sellers mixed together and negotiate in pairs or in small groups: “trading pit/arena”
- ▶ Transaction prices were sometimes announced: decentralized institution

Pit market in the Lab: Example

- ▶ Buyers and sellers who can negotiate trades with each other, either bilaterally or in larger groups.
- ▶ Buyer values=[10, 10, 9, 8, 7, 6, 6, 5, 4]
- ▶ Seller costs=[2, 2, 3, 4, 5, 6, 6, 7, 8]
- ▶ When a buyer and a seller agreed on a price, they came together to the recording desk.
- ▶ Buyer earnings= $v-p$ Seller earnings= $p-c$
- ▶ how to construct the demand and supply curve?

Pit market – prediction



Theoretical predictions

- ▶ $P^*=6$; $Q^*=[5,7]$
- ▶ Quantity could have been as high as 9. How?
- ▶ High value buyers meet high cost sellers
- ▶ Low value buyers meet low cost sellers

out-of-equilibrium trade (example)

Values/Costs	Price
10/8	9
10/7	8.5
9/6	7.5
8/6	7
7/5	6.5
6/4	5
6/3	4.5
5/2	3.5
4/2	3

What is an efficient market?

- ▶ Actual earnings of all participants = maximum possible earnings = total surplus
- ▶ Efficiency is achieved when $D=S$
- ▶ Chamberlin's results:
 - ▶ High price dispersion in the first rounds
 - ▶ Too many trades relative to the equilibrium prediction
 - ▶ WHY?
 - ▶ Even if trade occurred in an open arena the offers and bids were not all heard by everyone.
 - ▶ We can say that in the Pit market there was
 - ▶ imperfect information

Vernon Smith's reaction:

- ▶ Smith was actually one of Chamberlin's student
- ▶ Started thinking about an alternative institution that could promote efficiency
- ▶ DOUBLE AUCTION
- ▶ his work related to market experiments gave him the Noble Prize in 2002.

“Price Controls and the Behavior of Auction Markets: An Experimental Examination” (AER,1981)

R. MARK ISAAC



“Experimental economics research shows that small institutional adjustments can make a big difference”

CHARLES R. PLOTT



“no other branch of science can claim success in identifying principles that govern something as complex as a multiple market system with human participants”

Price controls

- ▶ Price ceiling: legal limit on how high the price of a product can be.
- ▶ Price floor: legal limit on how low the price of a product can be.
- ▶ Price ceilings and price floors are common in all markets

Price controls

Standard prediction:

If controls are not binding, i.e., price ceiling at or above the equilibrium or a price floor at or below the equilibrium should have no effects on the market

If controls are binding, i.e., price ceiling below the equilibrium or price floor above the equilibrium, then the market achieves an inefficient outcome.

Alternative hypothesis:

- ▶ If non-binding controls have an effect it is possible that controls act as a Focal point
- ▶ For e.g., sellers, by focusing on a nonbinding ceiling, may be able to tacitly collude to keep prices above the equilibrium

Isaac & Holt experiment

- ▶ Each session consisted of an auction market with 4 buyers and 4 sellers. Values and Costs induced like in Smith experiment
- ▶ Double auction

Isaac & Holt experiment

- ▶ 12 sessions: The institutions being examined are a series of price ceilings and price floors.
- ▶ Sessions with:
- ▶ No controls
- ▶ Controls at equilibrium
- ▶ Strictly non-binding controls
- ▶ Strictly binding controls

Isaac & Holt experiment

- ▶ Focused on the following 3 aspects of market behavior:
- ▶ Price Levels and Market Volume: average price of a contract during a period.
Volume = the number of contracts during a period.
- ▶ Market Responses to Institutional Modifications: price controls imposed, removed, or changed.
- ▶ Efficiency: actual sum of subjects' profits and commissions divided by the theoretical maximum of this sum.

Isaac & Holt experiment – Results

1. controls at the competitive equilibrium cause market prices to diverge from the competitive equilibrium.
2. the removal of nonbinding controls induces changes in market prices.
3. inefficiencies induced by binding controls are greater than those predicted by the standard application of consumer's surplus analysis.
4. adjustment of prices when binding controls are removed appears to involve an initial discontinuity or "jump" rather than a continuous adjustment.

Quiz

In a double auction market:

- (A) Only sellers can make offers.
- (B) Only buyers can make offers.
- (C) Both buyers and sellers can initiate trade offers.
- (D) Buyers and sellers negotiate privately in pairs.

Quiz

Suppose a buyer has a value of 10 and a seller has a cost of 6.
They agree to trade at a price of 8.

What are their earnings?

- (A) Buyer: 4; Seller: 2
- (B) Buyer: 2; Seller: 2
- (C) Buyer: 2; Seller: 4
- (D) Buyer: 8; Seller: 6

Quiz

Suppose the competitive equilibrium price is 6.

Which of the following is a **binding price ceiling**?

- (A) A price ceiling of 8
- (B) A price ceiling of 7
- (C) A price ceiling of 6
- (D) A price ceiling of 5

Quiz

Suppose the competitive equilibrium price is 6 and a price ceiling is imposed at 8.

According to standard economic theory, what should happen?

- (A) The price ceiling should have no effect because it is non-binding.
- (B) The market price should increase to 8.
- (C) The market price should fall below 6.
- (D) Trade should stop.

But could a non-binding price ceiling still affect the market?

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But could a non-binding price ceiling still affect the market?

Alternative hypothesis

Yes. The price ceiling may act as a **focal point**, allowing sellers to coordinate around a price above the competitive equilibrium.