Game Theory

- Example with Political Parties – What type of party policy to adopt?
- There are two broad types of views – right wing and left wing
- There are only 2 parties – Republican (right) and Democrat (left)
- Imagine a continuum of all voters in the US ranging from extreme left to moderate left to neutral to moderate right to extreme left

Game Theory

- When this game is played each party decides where to locate on the continuum
- To win the election they need ½ or more of the votes
- Where should they locate along party lines?
- First assume the republicans adopt a very right wing agenda – what type of agenda should the democrats adopt to win the election?

<table>
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<tr>
<th>Left</th>
<th>Midpoint</th>
<th>Right</th>
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<tr>
<td>- Tax cuts</td>
<td>- Reduce taxes</td>
<td>- Defence</td>
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<td>- More union control</td>
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Game Theory

- By choosing to the right of the mid point but to the left of the republican agenda the democrats would get more than half of the votes and win
- What happens if the democrats have a fairly socialist party agenda and locate to the left of the midpoint?
Game Theory

- Each party will keep adjusting their agenda until they are able to capture half of the vote
  - when this happens both will locate at about the midpoint
  - In the US with a 2 party system – neither party is extreme
  - In many European countries with more than 2 parties you see the emergence of much more radical right and left wing political parties

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In many European countries with more than 2 parties you see the emergence of much more radical right and left wing political parties

What happens if there is a 3rd party – Enter Nader

- If people vote for Nader then this will remove the most left wing of voters from the game between Bush and Kerry
- This will create a new midpoint of remaining voters which will be to the right of the old midpoint
- If republican and democratic parties were at the midpoint to start then the republican candidate would win unless the democrats adjust their party policy

Simpsons excerpt

- Homer: America, take a good look at your beloved candidates. They're nothing but hideous space reptiles. [unmasks them]
  [audience gasps in terror]
- Kodos: It's true, we are aliens. But what are you going to do about it? It's a two-party system; you have to vote for one of us. [murmurs]
- Man1: He's right, this is a two-party system.
- Man2: Well, I believe I'll vote for a third-party candidate.
- Kang: Go ahead, throw your vote away.
  [Kang and Kodos laugh out loud]
  [Ross Perot smashes his "Perot 96" hat]

Game Theory – Repeated Games

- All the games we have considered so far are one shot games
  - Prisoners dilemma
  - Profit problem
  - Person X vs Person Y
- Suppose the game is repeated over and over again

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Game Theory – Repeated Games

- If the prisoners dilemma were played repeatedly for two friends who are constantly up on minor charges (such as break and enter) then they may decide not to confess

- Example of airlines after September 11th

Table 1 A Summary of Market Structures

<table>
<thead>
<tr>
<th>Perfect Competition</th>
<th>Monopolistic Competition</th>
<th>Oligopoly</th>
<th>Monopoly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Firms</td>
<td>Very many</td>
<td>Many</td>
<td>Five</td>
</tr>
<tr>
<td>Output of Different Firms</td>
<td>Identical</td>
<td>Differentiated</td>
<td>Identical</td>
</tr>
<tr>
<td>View of Pricing</td>
<td>Price taker</td>
<td>Price setter</td>
<td>Price setter</td>
</tr>
<tr>
<td>Barriers to Entry or Exit?</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Strategic Interdependence</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Predictions</td>
<td>Price and Output Decisions</td>
<td>MC = MR</td>
<td>MC = MR</td>
</tr>
<tr>
<td>Short-Run Profit</td>
<td>Positive, zero, or negative</td>
<td>Positive, zero, or negative</td>
<td>Positive, zero, or negative</td>
</tr>
<tr>
<td>Long-Run Profit</td>
<td>Zero</td>
<td>Zero</td>
<td>Positive or zero</td>
</tr>
<tr>
<td>Advertising?</td>
<td>Never</td>
<td>Always</td>
<td>Yes if differentiated product</td>
</tr>
</tbody>
</table>

Market failures and public goods

- A market failure occurs whenever a market which exists free of any government or other intervention is inefficient
- In the absence of government regulation, natural monopolies may make “unfair” profits by charging prices that are too high

Figure 4 Regulating a Natural Monopoly

Figure 7 An Advertising Game

Table 4 A Summary of Market Structures
Externalities

- Externalities
  - is a by-product of an action that affects someone who has not taken part explicitly in that action
  - Examples
    - Pollution
    - Innocent bystanders close to riots (tear gas)
    - Disruptive behavior in any class that affects those around you

Examples

- Negative externalities (such as pollution)
  - A market with a negative externality associated with production or consumption will be inefficient
    - There will be too much consumption of the good
    - In market equilibrium the actual marginal cost exceeds the marginal benefit

Positive externalities

- A market with a positive externality from production or consumption of a certain good will also be inefficient
  - Too little will be produced
  - In the market equilibrium the marginal benefits to all parties exceeds the marginal cost
  - A subsidy equal to the difference between marginal social benefit and marginal private benefit can correct a positive externality and make a market efficient.