

# Economics 101 – Section 5

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Lecture #24 – April 20, 2004

Game theory  
Repeated Games  
Summary on Market Structure  
Chapter 15 – Market Failures pp. 453-466

## Game Theory

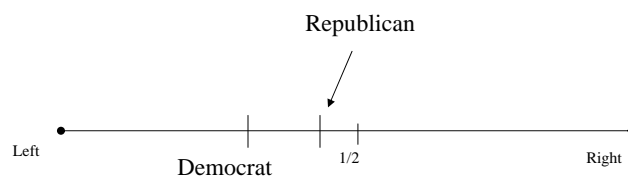
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- Example with Political Parties – What type of party policy to adopt?
- There are two broad types of views – right wing and left wing
- There are only 2 parties – Republican (right) and Democrat (left)
- Imagine a continuum of all voters in the US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



- 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



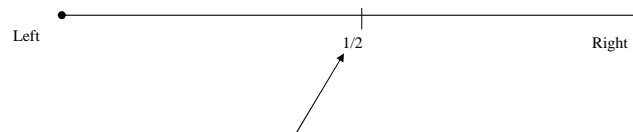
## Game Theory

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- 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

## Game Theory

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In this simple game both will locate their party agendas at this midpoint in terms of political views

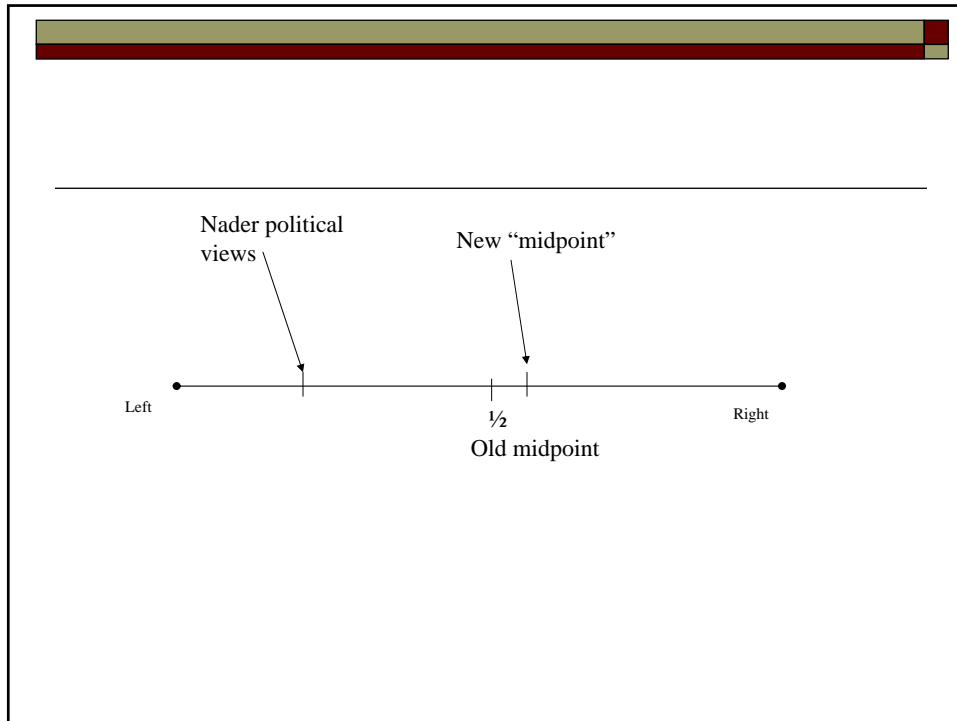
## Game Theory

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- What happens if there is a 3<sup>rd</sup> 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

## 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 11<sup>th</sup>

**Figure 7 An Advertising Game**

		American's Actions	
		Run Safety Ads	Don't Run Ads
United's Actions	Run Safety Ads	American earns low profit United earns low profit	American earns very low profit United earns high profit
	Don't Run Ads	American earns high profit United earns very low profit	American earns medium profit United earns medium profit

## Game Theory – Repeated Games

- In repeated games you can get a cooperative solution where both companies (or individuals) are better off than if they did not cooperate

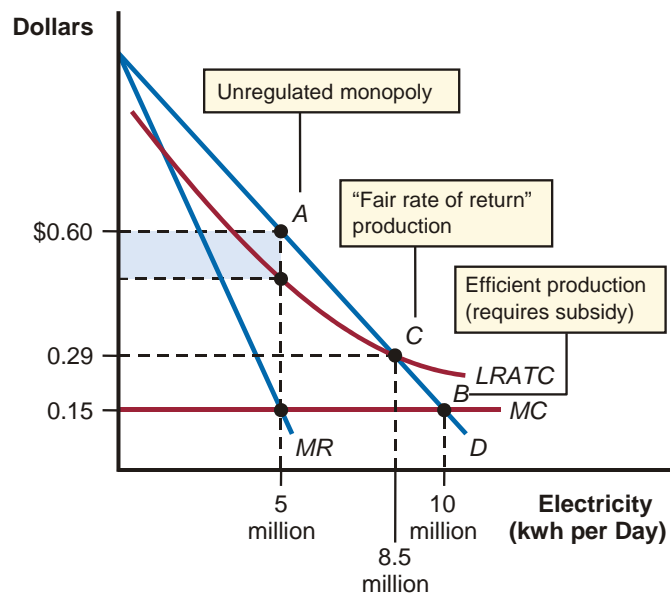
**Table 1 A Summary of Market Structures**

	Perfect Competition	Monopolistic Competition	Oligopoly	Monopoly
<b>ASSUMPTIONS ABOUT:</b>				
Number of Firms	Very many	Many	Few	One
Output of Different Firms	Identical	Differentiated	Identical or differentiated	–
View of Pricing	Price taker	Price setter	Price setter	Price setter
Barriers to Entry or Exit?	No	No	Yes	Yes
Strategic Interdependence?	No	No	Yes	–
<b>PREDICTIONS:</b>				
Price and Output Decisions	MC = MR	MC = MR	MC=MR while anticipating other firms actions	MC = MR
Short-Run Profit	Positive, zero, or negative	Positive, zero, or negative	Positive, zero, or negative	Positive, zero, or negative
Long-Run Profit	Zero	Zero	Positive or zero	Positive or zero
Advertising?	Never	Almost always	Yes, if differentiated product	Sometimes

## 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



## Externalities

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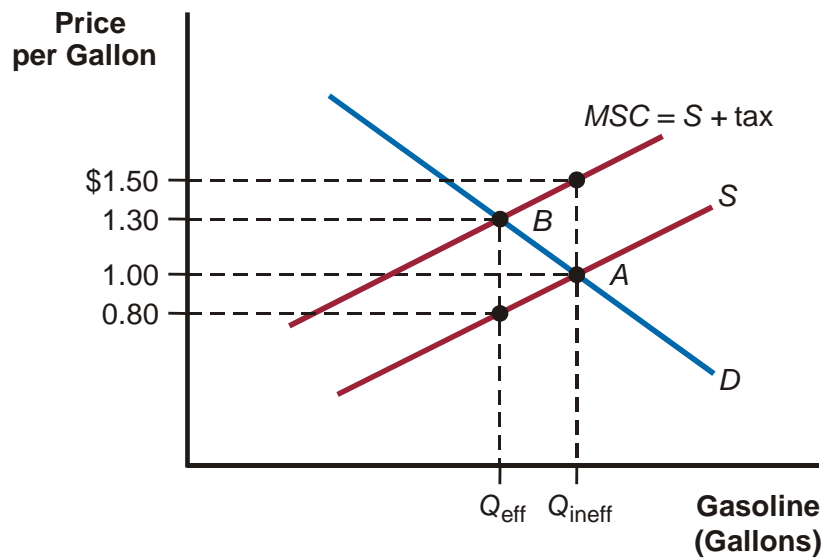
- Externalities
  - is a by-product of an action that affects someone who has not taken part explicitly in that action
  - Examples
    - Pollution
    - Innocent bystanders close to riots (tear gas)
    - Disruptive behavior in any class that affects those around you

## Externalities

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- 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

**Figure 5 A Negative Externality**



## Externalities

- A tax equal to the difference between the marginal social cost and marginal private cost can correct a negative externality and make a market efficient

# Externalities

- 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.

**Figure 6 A Positive Externality**

