

Look for the answers to these questions:

- How does asymmetric information affect market outcomes?
- How can market participants reduce the resulting problems?
- Why might democratic voting systems fail to represent the preferences of society?
- Why do people not always behave as rational maximizers?

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Introduction

- · Microeconomics continues to evolve.
- This chapter introduces three active areas of research:
 - -Asymmetric information
 - -Political economy
 - Behavioral economics

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Asymmetric Information

- · Information asymmetry:
 - A difference in two or more parties' access to relevant knowledge
- · Hidden actions
 - One person knows more than another about an action he or she is taking.
- Hidden characteristics
 - One person knows more than another about the attributes of a good he is selling.

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Hidden Actions and Moral Hazard

- · Moral hazard:
 - Tendency of a person who is imperfectly monitored to engage in dishonest or otherwise undesirable behavior
- · Moral hazard problems:
 - Workers sometimes shirk their responsibilities because their employer cannot continually monitor their effort and performance.

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Hidden Actions and Moral Hazard

- · Moral hazard problems:
 - Someone whose property is insured may not try as hard to protect it from theft / damage.
 - While the parents are out, the babysitter may spend more time watching videos than watching the children.

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The Principal-Agent Problem

- Agent:
 - A person who is performing a task on someone else's behalf (e.g., a worker)
- Principal:
 - The person for whom this action is being performed (e.g., an employer)

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The Principal-Agent Problem

- The principal agent problem
 - When the principal cannot perfectly monitor the agent's behavior, there is a risk ("hazard") that the agent may do something undesirable ("immoral").
 - Example: Worker may play video games or surf the web while on the clock.

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How Principals May Respond

- Better monitoring
 - Hidden cameras to increase the chance of detecting undesirable behavior
- Higher wages
 - Efficiency wages to increase the penalty for being caught shirking
- Delayed payment
 - Firms delay payment (e.g., year-end bonuses) to increase the penalty for being caught shirking

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Corporate Management Principal-Agent Problem

- The separation of ownership and control of corporations creates a principal-agent problem:
 - Principals: the shareholders, pay managers to maximize the firm's profits
 - Agents: the managers, may pursue their own objectives
- Solution: need to align managers' interests with the firm's goals

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Corporate Management Principal-Agent Problem

- · Solution:
 - Shareholders hire a board of directors to oversee management, create incentives for management to pursue the firm's goals instead of their own.
 - Corporate managers sometimes sent to jail for taking advantage of shareholders.

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Hidden Characteristics and Adverse Selection

- Adverse selection
 - Arises when the seller knows more than the buyer about the good being sold.
- Example 1: The market for used cars
 - The seller knows more than the buyer about the quality of the car being sold.
 - Owners of "lemons" are more likely to put their vehicles up for sale.
 - So buyers are more likely to avoid used cars.
 - Owners of good used cars are less likely to get a fair price, so may not bother trying to sell

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Hidden Characteristics and Adverse Selection

- Example 2: Insurance
 - Buyers of health insurance know more about their health than health insurance companies.
 - People with hidden health problems have more incentive to buy insurance policies.
 - So, prices of policies reflect the costs of a sicker-than-average person.
 - These prices discourage healthy people from buying insurance.

The information asymmetry prevents some mutually beneficial trades.

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Market Responses to Asymmetric Info.

- ▶ The Market Itself is a response to hidden characteristics of buyers/sellers (asym. info!)
 - ▶ Competition results in a market price
 - ▶ Buyers with values above this price would buy
 - ▶ Sellers with costs below this price would sell
 - ▶ "As if" there is full information
- Asymmetric information per se is **not** a problem
 - If we have a good mechanism to solve it
- Question: Do you think markets are the result of "natural selection" or "intelligent design"?

018/12/27

Frontier of Microeconomics

Joseph Tao vi Wang



Market Responses to Asymmetric Information

- · Signaling:
 - Action taken by an informed party to reveal private information to an uninformed party
 - Individual selling a good used car provides all receipts for work done on car.
 - Dealership provides warranties on used cars.
 - Firms spend huge sums on advertising to signal product quality to buyers.
 - Highly competent workers get college degree to signal their quality to employers.

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Market Responses to Asymmetric Information

- Screening:
 - Action taken by an uninformed party to induce informed party to reveal private information
 - Health insurance company requires physical exam before selling policy.
 - Buyer of a used car requires inspection by a mechanic.
 - Auto insurance company charges lower premiums to drivers willing to accept a larger deductible -most likely the safer drivers.

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Asymmetric Information and Public Policy

- Asymmetric information
 - May prevent market from allocating resources efficiently
- Public policy may not be able to improve on the market outcome:
 - Private markets can sometimes deal with the problem using signaling or screening.
 - The government rarely has more information than private parties.
 - The government itself is an imperfect institution.

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Active Learning 1

Asymmetric information

For each situation below, identify whether the problem is moral hazard or adverse selection.

Explain how the problem has been reduced.

- A. iDaiwan Audio sells home theater sound systems over the Internet and offers to refund the purchase price and pay shipping both ways if the buyer is not satisfied.
- B. Landlords require tenants to pay security deposits.

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Active Learning 1

Answers, part A

iDaiwan Audio sells home theater sound systems over the Internet and offers to refund the purchase price and shipping both ways if the buyer is not satisfied.

- Adverse selection:
 - Buyers may fear that systems purchased on the Internet will not sound good, since the sellers know that buyers cannot hear them first.
 - So, firms with good systems are less likely to be successful selling them on the Internet.
 - iDaiwan Audio reduces the problem by signaling high quality with its generous return policy.

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Active Learning 1

Answers, part B

Landlords require tenants to pay security deposits.

- · Moral hazard:
 - The landlord (principal) does not know how well the tenant (agent) treats the apartment.
 - Tenants may not be careful if they can get away without paying for damage they cause.
 - The security deposit increases the likelihood the tenant will take care of the property in order to receive his deposit back when he moves out.

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None -

Political Economy

- Political economy
 - Applies the methods of economics to study how government works.
- The Condorcet voting paradox:
 - The failure of majority rule to produce transitive preferences for society.
 - Transitivity: If A is preferred to B, and if B is preferred to C, then A should be preferred to C.

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Example of the Condorcet Paradox

A, **B**, and **C** are three candidates running for an open seat on the city council.

There are 3 types of voters, each with its own rankings of the candidates:

	Voter Type			
	Type 1	Type 2	Type 3	
% of all voters	35%	45%	20%	
1st choice	Α	В	С	
2nd choice	В	С	Α	
3rd choice	С	Α	В	
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Example of the Condorcet Paradox

Suppose pair-wise voting:

- First, **B** runs against **C**: **B** wins.
- Then, A runs against B: A wins.
- The overall winner: A

Alternative order:

- First, A runs against C: C wins.
- Then, C runs against B: B wins.

The overall winner: E

В	Type 1	Type 2	Type 3	
% of all voters	35%	45%	20%	
1st choice	Α	В	С	
2nd choice	В	С	Α	
3rd choice	С	Α	В	
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Voter Type

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The Condorcet Paradox

- Lessons from the Condorcet Paradox
 - Democratic preferences are not always transitive.
 - The order on which things are voted can affect the result.
 - Majority voting does not always reveal what society really wants.

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Arrow's Four Desirable Properties of a Voting System

1. Unanimity:

If everyone prefers A to B, then A should beat B.

2. Transitivity:

-If A beats B, and B beats C, then A should beat C.

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Arrow's Four Desirable Properties of a Voting System

3. Independence of irrelevant alternatives:

 The ranking between any two outcomes should not depend on whether a third option is available.

4. No dictators:

 There is no person who always gets his way, regardless of everyone else's preferences.

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Arrow's Impossibility Theorem

Arrow

 Proved that no voting system can satisfy all four properties.

• Arrow's impossibility theorem:

- A mathematical result showing that, under certain assumed conditions
- There is no scheme for aggregating individual preferences into a valid set of social preferences

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The Median Voter Theorem

Suppose society is deciding the level of the government budget:

- Each voter has her own preferences about the size of the budget.
- If you line up all voters in order of their budget preferences, the median voter is the one right in the middle.

· Median voter theorem:

 A mathematical result showing that majority rule will always pick the outcome most preferred by the median voter

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Example of the Median Voter Theorem 30% The median voter 25% prefers a budget of \$50 billion. 20% of voters 15% The choice closest to 10% \$50 will win any two-5% way race. Suppose the choices \$20 \$30 \$40 \$50 \$60 \$70 \$80 are \$40 and \$70. Preferred govt budget (billions) \$40 will win, even though more voters prefer \$70! rning®. May not be scanned, copied or duplicated, or posted to a publicly accessible website, in whole or in part, except for se distributed with a certain product or service or otherwise on a password-protected website or school-approved learning



The Median Voter Theorem

• Implications:

- In a two-party or two-candidate race,
 each party will move its position toward
 that of the median voter.
- -Minority views are not given much weight.

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Politicians are People Too

- Politicians: motivated by self-interest, just like firms and consumers.
 - Some politicians motivated by re-election, willing to sacrifice the national interest toward that goal.
 - -Others motivated by greed.
- · The lesson:
 - Economic policy is not made by benevolent leaders, and sometimes fails to resemble the ideals derived in economics textbooks.

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Active Learning 2

Application of the Median Voter Theorem

- Would you expect the DPP presidential nominee to be more pro-independence during the primaries or the general election, or to be consistent throughout both?
- Would you expect the KMT nominee to be more anti-independence during the primaries or the general election, or to be consistent throughout both?

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Active Learning 2

Answers

- The median voter in DPP primaries is more pro-independence than the median voter in the general election.
 - So, the DPP candidate's best strategy is to act more pro-independence during the primaries and more centrist during the general election.
- Similarly, the KMT candidate will want to appeal more to the median KMT voter during the primaries, and then appear less antiindependence during the general election.

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Economics and Psychology

- aka "Behavioral economics":
 - Subfield of economics that integrates the insights of psychology
 - People aren't always as rational as traditional economic models assume.
 - Herbert Simon viewed humans as satisficers, people who make choices that are merely "good enough" rather than optimal.
 - Other economists have suggested that people are only "near rational" or exhibit "bounded rationality."

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People Aren't Always Rational

- Studies find people make systematic mistakes:
 - People are overconfident.
 - People give too much weight to a small number of vivid observations.
 - People are reluctant to change their minds.

Even though people are not always rational, the assumption that they are is usually a good approximation for economic modeling.

(The question is can we get an "even better" approximation with new theory...)

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People Care About Fairness

- · People's choices
 - -Sometimes influenced more by their sense of fairness than self-interest.
- Example: The ultimatum game
 - Two players who do not know each other have a chance to share a prize of \$100.
 - Player A decides what portion of the prize to give to player B.
 - B must accept the split or both get nothing.

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-對一最後通牒談判 (Ultimatum Game)

- ▶ Form groups of 3. Two group are paired
 ▶ 三人一組、各組兩兩配對。配對的兩組有十張彩券
- ▶ Each pair has 10 tokens: one group is the Proposer, the other the Respondent.
 - ▶ 一組為面試官,負責提議如何分配十張彩券
- ▶ Proposers decide amount to give Respondents
 - ▶ 可能的提議有10-0, 9-1, 8-2, 7-3, 6-4, 5-5,...
- Respondents can either accept the split, or reject so that both get nothing
 - ▶ 另一組為應徵者只能回覆接受與否: 如果接受,則按照該 提議分配/如果不接受,則兩人都得到零張彩券

018/12/27

arnings and Discrimination

Joseph Tao-vi Wang

People Care About Fairness

- Predicted outcome (rational players)
 - A would propose a 99-1 split and B would accept, because \$1 is better than nothing.
- Actual outcomes (experiments)
 - B usually rejects lopsided splits like 99-1 as wildly unfair.
 - Expecting this, A usually proposes giving \$30 or \$40 to B.
 - B views this as unfair, but not so much as to abandon his self-interest, so B accepts.

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People Care About Fairness

- · The results of the ultimatum game
 - Apply in other situations.
- Example:
 - A firm may pay above-equilibrium wages during profitable years to be fair,
 - Or to avoid appearing unfair and risking retaliation from workers.

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People Are Inconsistent Over Time

- People tend to prefer instant gratification
 - Even when delaying would increase the gratification
 - Result: People fail to follow through on plans to do things that are dreary, take effort, or cause discomfort.
 - E.g., people often save less than they plan
 - To help follow through, people look for ways to commit themselves to their plans.
 - E.g., worker has money taken out of paycheck before he ever sees it

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Conclusion

Markets are usually a good way to organize economic activity.

Governments can sometimes improve market outcomes.

- · Research illustrates some caveats:
 - Consumers aren't always rational
 - Market outcomes may not be best when information is asymmetric
 - Government solutions are not always ideal

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Summary

- In many transactions, information is asymmetric.
 - When there are hidden actions, principals may be concerned that agents suffer from the problem of moral hazard.
 - When there are hidden characteristics, buyers may be concerned about the problem of adverse selection among the sellers.
 - Private markets sometimes deal with asymmetric information with signaling and screening.

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Summary

- · Governments are imperfect institutions.
 - The Condorcet paradox shows that majority rule fails to produce transitive preferences for society.
 - Arrow's impossibility theorem shows that no voting system will be perfect.
 - In many situations, majority voting will produce the outcome desired by the median voter, regardless of the preferences of everyone else.
 - Policymakers may be motivated by self-interest rather than the national interest.

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Summary

- The study of psychology and economics reveals that human decision making is more complex than is assumed in conventional economic theory.
 - People are not always rational, they care about the fairness of economic outcomes (even to their own detriment), and they can be inconsistent over time

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Chapter 22: Frontier of Microeconomics

- ▶ Asymmetric Information
 - ▶ Experiment 11 is a "lemon" market!
- ▶ Political Economy
 - ▶ Political candidates act like "location" firms!
- ▶ Economics and Psychology (Behavioral Econ.)
 - ▶ What theory says vs. What people actually do
- My own research agenda is on these topics!
- ▶ Please talk to me after class if you interested...
- ▶ Homework: Mankiw, Ch.22, 2, 3, 5-7, 9

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Frontier of Microeconomics

Joseph Tao-yi Wang

Chapter 22: Frontier of Microeconomics

▶ Behavioral Game Theory and Eyetracking

<u>AER</u>: Eyetrack people when they cheap talk (lying) <u>JEEA</u>: Learning to play normal form games, <u>Psych Science</u>: Answering Trivia questions, and <u>GEB</u>: Playing spatial beauty contest games

 ▶ Asymmetric Information and Experiments
 <u>AEJmicro</u>: Least Unique Positive Integer (LUPI) game
 <u>EL</u>: Lowest Unique Bid Auction (LUBA) games
 ▶ Imitation learning

▶ Confucianism affects Time/Risk Preferences

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Frontier of Microeconomics

loseph Tao-yi Wang

Chapter 22: Frontier of Microeconomics

▶ Political Economy Experiments

PER: Pivotal-voting games

- ▶ Design legal prediction markets
- ▶ Choice behind veil of ignorance, and:
- ▶ Strategic Information Transmission

GEB: Overcommunication

REE: Level-k model (for cheap talk games)

GEB: Decipher conflicting messages of 2 senders?!

 $\underline{\mathsf{APSR}}$: Legislative committee design: Open vs.

closed rule

Frontier of Microeconomics

Joseph Tao-vi Wang

Recommendation for Further Studies

- 1. Take good courses such as:
- ▶ 古慧雯/黃貞穎's Intermediate Microeconomics
- ▶ 陳旭昇+駱明慶's Statistics and Econometrics
- ▶ My Experimental Economics or
- ▶ (Graduate) Micro Theory I
- 2. Start to do research/write thesis (學士論文)
- 3. BESAP: Visit UC-Berkeley's Econ Dept.
 - ▶ Challenge: Pay their tuition!
- ▶ Challenge Questions (Past Finals)

▶ 2007 - Part 5 2012 - Essay B6-7

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