

- Problem Set 3 (reviewed Oct 28 - Nov 2):
 - Chapter 10, pages 290-291: problems 1 and 2
 - Chapter 11, pages 320-322: problems 3, 4, 8, and 9
- No class Wednesday, Nov 2 (but discussion sections will meet)
- Answers to Practice Exam 2A will be reviewed in discussion section Nov 4-9
- A second practice exam is also available on course web page
<http://econ.ucsd.edu/~jhamilto/Econ2.html>

Chapter 12: Economics of Information

- A. Probabilities
- B. Expected value
- C. Risk aversion
- D. Value of information

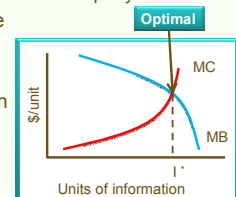
Free rider problem:

Once information is known, it may be possible to use or disseminate without paying for it

Would lead us to expect that too little information is supplied by the private market

The Optimal Amount of Information

- More information is better than less
 - Gathering information has a cost
- Marginal benefit starts high, then falls rapidly
 - Low-Hanging Fruit Principle
- Marginal cost starts low, then increases
- Optimal amount of information is I^* where $MC = MB$



LO 12 - 2

12-4

Rational Search Guidelines

- Additional search time is more likely to be worthwhile for expensive items than cheap ones
 - Apartment search in Paris, Texas involves less time than Paris, France
 - Texas has lower rents and narrower price range
- Prices paid will be higher when the cost of a search is higher
 - Two buyers, only one with a car
 - Buyer with the car will look at more pianos before buying

LO 12 - 2

12-5

Gamble Inherent in Search

- Additional search has costs that are certain
 - Benefits are uncertain
- Additional search has elements of a gamble
- A gamble has a number of possible outcomes
 - Each outcome has a probability that it will occur
 - A **risk-neutral** person would accept any gamble that is fair or better-than-fair

LO 12 - 2

12-6

San Francisco Apartment Search

- You need a one-month sublet in San Francisco
 - One type of apartment rents for \$400 and it is 80% of the available market
 - The other type rents for \$360 and makes up 20% of the market
- You must visit the apartment to get the rental rate
 - Cost per visit is \$6
- You are risk-neutral

LO 12 - 2 12-7

San Francisco Apartment Search


- The first apartment you visit is the \$400 version
- Look at the next apartment if the gamble is at least fair
 - Two outcomes to the gamble
 - You find a lower-priced apartment and your net benefit is \$34 with 20% probability
 - You find another \$400 apartment and your net benefit is -\$6 with 80% probability
 - Expected value of the gamble is $(34)(0.20) + (-6)(0.80) = \2
 - Keep searching
 - A risk-averse person might take the \$400 apartment

LO 12 - 2 12-8


Chapter 12: Economics of Information

- Probabilities
- Expected value
- Risk aversion
- Value of information
- Asymmetric information

Suppose that 90% of the cars that are manufactured work as they're supposed to



But 10% of the cars are "lemons" (constant and expensive repair bills)



Suppose you can't determine whether a used car is a "lemon" just by looking at it. Let's say the value of a good used car to you is \$10,000. But the value of a lemon to you is only \$6,000. Question: how much are you willing to pay to buy a used car?

Calculations of buyer

If:

- 90% of the used cars for sale are good (worth \$10,000)
- 10% are lemons (worth \$6,000)
- you are risk neutral

then:

you'd be willing to pay $(0.9 \times \$10,000) + (0.1 \times \$6,000) = \$9,600$ for a used car

Calculations of seller

- Seller (unlike the buyer) knows whether she has a lemon
- Buyer offers \$9,600
- If car is good, it's worth \$10,000, seller wouldn't want to part with it for \$9,600
- If car is lemon, great idea to sell it

Resulting equilibrium:
only lemons are sold on the used car market

Key feature that produced this phenomenon:
asymmetric information

Seller knows quality of car, buyer does not

Markets can fail to
function efficiently
under asymmetric
information



George Akerlof

Chapter 12: Economics of Information

- A. Probabilities
- B. Expected value
- C. Risk aversion
- D. Value of information
- E. Asymmetric information
- F. Resolving asymmetric information with costly-to-fake signaling

- Problem: potential seller of a used car needs some way to convince buyer that the car is not a lemon
- In game theory, we saw that the key to resolving credibility problem was some kind of commitment mechanism
- Under asymmetric information, the market's solution to the problem can be costly-to-fake signaling

- Suppose the seller of a used car issues a warranty
- If the car needs repair within the first year, seller will pay for it
- If it's a good car, seller probably won't need to pay for anything
- If it's a lemon, seller will have to pay a lot of money
- Only the seller of a good car can afford to offer a warranty

- Whether or not the car is covered by a warranty can be used as a signal to the buyer of whether the car is a lemon
- If the car were a lemon, the signal would be too costly for the seller to make
- Therefore, the signal is credible in equilibrium
- It's not that the buyer necessarily wanted a warranty, just wanted to know it wasn't a lemon

Costly signaling can resolve asymmetric information problem if it is harder for a seller of the inferior product to send the signal than it is for the seller of the superior product

Examples of costly signaling

(1) TV advertising:

- If product is no good, advertising will ultimately be ineffective
- Advertising may be taken as signal to consumer that product is worth trying

Examples of costly signaling

(2) Saddam's palaces

- Whoever built this has a lot of power
- I better not mess with him



Examples of costly signaling

(3) Education

- Employers want bright, hard-working, reliable employees



Examples of costly signaling

(4) Animal kingdom

- ostentatious displays
signal vigor, nutrition

