

## Goals of today's lecture

- Compare and contrast the “invisible hand” with the “tragedy of the commons”.
- Understand a bit about supply and demand and other market mechanisms.
- Welcome back to Selfishness Week!

## The Tragedy of the Commons

1. It's better for the *group as a whole* if everyone makes Choice A compared to everyone making Choice B.
  2. Each person *individually* prefers to make Choice B regardless of others' choices.
- In these situations, individual incentives lead people to make personal choices that are *bad* for the group as a whole.

## Not every situation is a Tragedy of the Commons!

- In many situations, individual incentives lead people to make personal choices that are *good* for the group as a whole.
- Sometimes we just get lucky.
- And sometimes this happens because of the “hidden order” that comes out of free-market economics, Adam Smith's “invisible hand” metaphor.

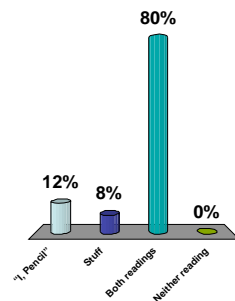
## Adam Smith, *The Wealth of Nations* (1776)

[Man is] at all times in need of the co-operation and assistance of great multitudes...The woolen coat, for example...is the produce of the joint labor of...[t]he shepherd, the sorter of the wool, the wool-comber or carder, the dyer, the scribbler, the spinner, the weaver, the fuller, the dresser, with many others...



These human interconnections (like an ecosystem!) are evident in...

1. “I, Pencil”
2. *Stuff*
3. Both readings
4. Neither reading



## Adam Smith, *The Wealth of Nations* (1776)

...[But man's] whole life is scarce sufficient to gain the friendship of a few persons... and it is in vain for him to expect [help from] benevolence only... ..It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own interest. We address ourselves, not to their humanity, but to their self-love,

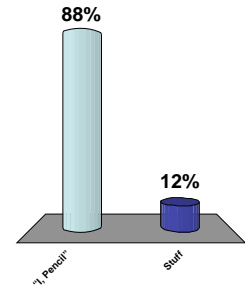
Adam Smith, *The Wealth of Nations* (1776)

...and never talk to them of our own necessity but of their advantages... [Man is] led by an invisible hand to promote an end which was no part of his intention. Nor is it always the worse for society that it was no part of it. By pursuing his own interest he frequently promotes that of society more effectually than when he really intends to promote it.



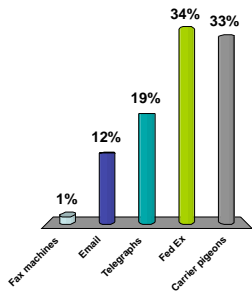
“Leave all creative energies uninhibited” is the message of...

1. “I, Pencil”
2. *Stuff*



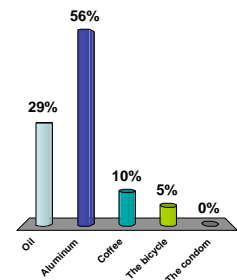
Read's point about the post office is best exemplified by...

1. Fax machines
2. Email
3. Telegraphs
4. Fed Ex
5. Carrier pigeons



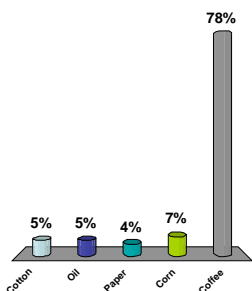
This is known as “congealed electricity” ...

1. Oil
2. Aluminum
3. Coffee
4. The bicycle
5. The condom



The world's 2<sup>nd</sup>-biggest export commodity is...

1. Cotton
2. Oil
3. Paper
4. Corn
5. Coffee



A free-market experiment

1. Write down the last four digits of a phone number (yours or someone else's).
2. If the first digit is even (02468), you are a seller. You own one fish and would like to sell it if the price is right.
3. If the first digit is odd (13579), you are a buyer. You would like to buy one fish if the price is right.

## A free-market experiment

Sellers, the 2<sup>nd</sup> digit is your selling value, which is the minimum amount you are willing to sell a fish for.

You want to try to sell one fish for as much as possible, *but not less than your selling value*.

Example: My phone number is 0431, so I'm a seller and my selling value is 4.

## A free-market experiment

Buyers, the sum of the 2<sup>nd</sup> and 3<sup>rd</sup> digits is your buying value, which is the maximum amount you are willing to buy a fish for.

You want to try to buy one fish for as little as possible, *but not more than your buying value*.

Example: My phone number is 5790, so I'm a buyer and my buying value is 7+9=16.

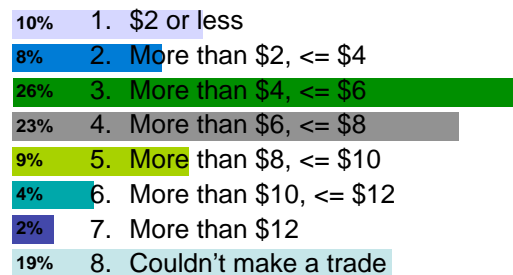
## A free-market experiment

Sellers, you want to try to sell one fish for as much as possible, *but not less than your selling value*.

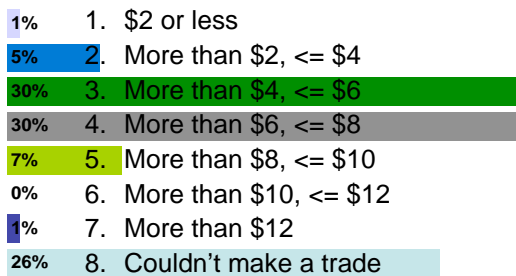
Buyers, you want to try to buy one fish for as little as possible, *but not more than your buying value*.

You may not be able to buy or sell. If you can trade, note the transaction price.

## What was your transaction price?



## What was your transaction price?

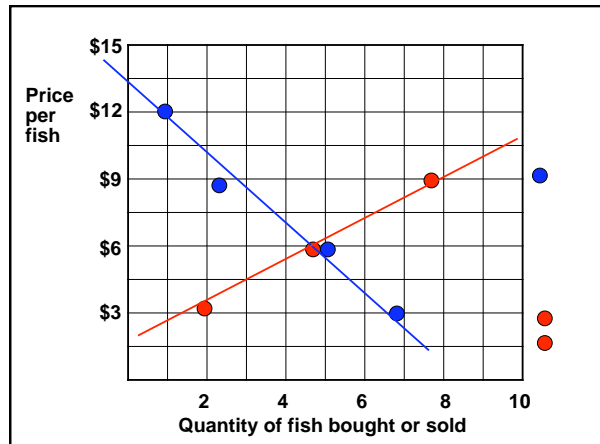


## Observed phenomena (I hope!)

- The *law of one price*: Prices for the same good tend to converge to one price.
- This is an example of "hidden order": instead of chaos, there is structure.
- Another example: during rush hour, lanes of traffic on the 520 bridge travel at about the same speed ("law of one speed").

## What determines prices?

- Diamond/water paradox: Water has more value than diamonds, so why is a glass of diamonds worth more than one of water?
- Are prices set by supply (production cost)? By demand (willingness to pay)?
- Alfred Marshall (1890): “We might as reasonably dispute whether it is the upper or the under blade of a pair of scissors that cuts a piece of paper...”



## More observed phenomena

- The law of demand: The amount that buyers want to buy varies *inversely* with the market price.
- At lower prices, buyers want to buy more. At higher prices, buyers want to buy less.
- Similar incentives work on the supply side.

## Market forces are so strong...

- ...you should think about using them to protect the environment!
- “Market mechanisms” can be used to correct externalities, align individual incentives with social goals.
- Example: ITQs in fisheries establish “private property rights” over the commons
- Example: Cap-and-trade or carbon taxes.

## Fish tax example

- We’re going to use a fish tax to limit overfishing (“tragedy of the commons”).
- Should the tax be on the buyers or the sellers?
- Sellers: If you sell a fish, you now have to pay the government a \$3 tax.

## What was your transaction price?

|     |                            |
|-----|----------------------------|
| 1%  | 1. \$2 or less             |
| 4%  | 2. More than \$2, <= \$4   |
| 11% | 3. More than \$4, <= \$6   |
| 28% | 4. More than \$6, <= \$8   |
| 27% | 5. More than \$8, <= \$10  |
| 3%  | 6. More than \$10, <= \$12 |
| 0%  | 7. More than \$12          |
| 27% | 8. Couldn't make a trade   |

## Observed phenomena (I hope!)

- *Reduced catch*: The tax reduced the number of fish bought and sold.
- *Market price increase*: The sellers paid the tax, but they effectively passed part of it on to the buyers. This is an example of the *tax equivalence* result.
- *Government revenue* that can be used to reduce existing taxes or promote sustainable fisheries.