Externalities and the Coase Theorem

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Externalities

- Neoclassical economic theory says that given a free market, the interactions of buyers and sellers will lead to the efficient production and consumption of everything.

- BUT, that assumes that all the costs are reflected in the price (that is, they are "internal" to the price).

- If some costs are "external" to the price, that can result in inefficiencies.

The Coase Theorem

- <u>Key concepts:</u>
  - Externalities
  - Transaction costs
- <u>Theorem:</u> If transaction costs are zero— that is, if all mutually beneficial bargains get made—then any setting of legal rights leads to an efficient outcome.
- <u>Observation:</u> Which rule you pick might make one party or the other better off, but the result will be efficient either way.

Coase Theorem (various statements):

- "If transaction costs are zero—if, in other words, any agreement that is in the mutual benefit of the parties concerned gets made—then any initial definition of property rights leads to an efficient outcome."
  — David D Friedman
- "If there are zero transaction costs, the efficient outcome will occur regardless of the choice of legal rule."
  — A. Mitchell Polinsky
- "When bargaining costs are zero, the initial assignment of legal entitlements does not affect the efficiency of the resulting allocation of resources." — Herbert Hovenkamp
- "the delimitation of rights is an essential prelude to market transactions; but the ultimate result (which maximizes the value of production) is independent of the legal decision."

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- "the delimitation of rights is an essential prelude to market transactions; but the ultimate result (which maximizes the value of production) is independent of the legal decision." — Ronald H. Coase

Let's try the theory out with strict liability for ultrahazardous activities …

An example using a nuclear plant, meltdown risk, and strict liability.

Nuclear plant is worth $100M/yr to utility to operate.

A meltdown would cause $500B worth of damage
and has a 1-in-10,000 chance of happening in a year.
So, the cost of risk to the city is the probability times the loss: $50M/yr.

Assuming this captures all costs and benefits, what is the efficient result?
The nuclear plant operates.

Nuke worth $100M/yr to utility. City risk is $50M/yr.
*What if tort law requires the nuclear plant to pay
for all accidents (strict liability)?*

Economically efficient!

Nuke worth $100M/yr to utility. City risk is $50M/yr.
*What if tort law requires the nuclear plant to pay
for all accidents (strict liability)?*
The nuclear plant operates.
It's worth it for the utility to buy insurance
for $50M/yr (or self insure at same rate).

Nuke worth $100M/yr to utility. City risk is $50M/yr.
What if tort law <u>does not</u> require the nuclear plant to pay for accidents (no liability)?

Economically efficient!

Nuke worth $100M/yr to utility. City risk is $50M/yr.
What if tort law <u>does not</u> require the nuclear plant to pay for accidents (no liability)?
The nuclear plant operates.
The people in the city will buy insurance at
$50M/yr (or self insure at same rate).

The tort rule changes who gets more money (the utility or the people in the city), but either way the efficient result is reached: The plant operates.

Nuke worth $25M/yr to utility. City risk is $50M/yr.

What is the efficient result?
The nuclear plant <u>does not</u> operate.

Nuke worth $25M/yr to utility. City risk is $50M/yr.
*What if tort law requires the nuclear plant to pay
for all accidents (strict liability)?*

Economically efficient!

Nuke worth $25M/yr to utility. City risk is $50M/yr.
*What if tort law requires the nuclear plant to pay
for all accidents (strict liability)?*
The nuclear plant does not operate.
It's not worth it for the utility to buy insurance for $50M
(or self insure at same rate) to get $25M.

Nuke worth $25M/yr to utility. City risk is $50M/yr.
What if tort law does not require the nuclear plant to pay for accidents (no liability)?

Economically efficient!

Nuke worth $25M/yr to utility. City risk is $50M/yr.
What if tort law does not require the nuclear plant to pay for accidents (no liability)?
The nuclear plant does not operate.
The people in the city will pay the utility between $25M and $50M to stop operating the plant.
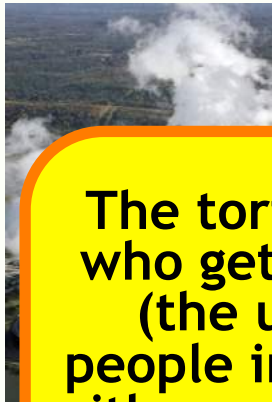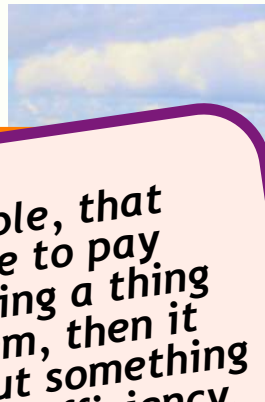
The tort rule changes who gets more money (the utility or the people in the city), but either way the efficient result is reached: The plant doesn't operate.

If this seems terrible, that people would have to pay someone to stop doing a thing that threatens them, then it means you care about something other than economic efficiency.

Insight: Thinking of one party as the "victim" gets in the way of understanding what is most economically efficient.

The peop... ...0M to stop operating the plant.

The Coase Theorem and Externalities

- Coase turns the idea of externalities on their head.
- If transaction costs are zero, then all problems with externalities are solved through bargaining.
- BUT in the real world, transaction costs are significant.
- One lesson of Coase is to consider paying more attention to transaction costs than simply thinking in terms of "externalities."