Review

- **Economics**
  - An approach to understanding behavior
  - That assumes individuals have objectives and tend to take the actions that best achieve them
- **Economic analysis of law**
  - What are the consequences of a legal rules, allowing for how rational individuals respond?
  - Explaining observed rules. Posner conjecture
  - Choosing rules. Design for efficiency. Or …?
- **Economic efficiency: Size of the pie**
  - Marshall’s definition: Sum of $ value to all affected
    - Not ‘how many dollars do they get’ but
    - How many dollars would they pay to get or prevent
  - Problems with that definition
    - Accepts individual evaluations of value
    - Only counts value to people as revealed in actions. Trees, or Mother Earth, don’t count.
    - Treats a dollar as of the same value to everyone
  - Defense of the definition
    - My action is the best available measure of value to me
    - Only people are available to control the system
    - Individual variations average out (Marshall) or …
    - Tweaking the legal system a poor way of redistributing (Ng)

**How to Get An Efficient Outcome**

- **First approximation: Private property and trade**
  - Everything belongs to someone
  - Owners are free to transfer on any terms mutually acceptable
    - So if my stuff is worth more to you, you make me an offer
    - Which I accept
    - So everything moves to its highest valued use
  - New things belong to their creators
    - If the value to someone of something is greater than
    - The value of what it takes to make it
    - Someone buys inputs, sells output, pockets the difference
- **Second approximation**
  - Design the legal system to deal with
  - Failures of the first approximation

**The Efficiency Theorem**

- In a perfect competitive market
  - \[ P = MC = MV \] [Price = Marginal Cost = Average cost]
  - So any unit worth producing, and only those, gets produced.
  - And it is produced in the least costly way, because
    - Firm wants to minimize cost to maximize profit, and ...
    - All its costs are prices which are someone else’s marginal cost.
- The real world might deviate in lots of ways
  - Monopoly (antitrust chapter)
  - Uncertainty plus information costs (uncertainty chapter)
  - Involuntary transactions
    - Externalities
    - Crime
    - Tort
  - Transaction costs
    - Suppose we start with everyone having an injunctive right against Co2 pollution
    - Unanimous contract before I can breath
  - These are less separate than they might seem, as we will see.

**Externalities: First Pass**

- What they are:
  - Positive or negative cost on someone else which for one reason or another
  - You don’t have to get his permission to impose. Or ...
  - Can’t make him pay for (benefit, aka “positive externality”)
  - That something is an externality is partly
    - A statement about physical reality
      - There is no way to require permission or charge at any reasonable cost
      - Can’t require permission of everyone on earth before I breath
    - Partly a statement and about the legal system.
      - If we didn’t have private property in land, planting crops would be an externality
      - Since someone else would harvest them, benefit by my work
      - Patent law converts invention from externality to property
      - Radio broadcast is an externality—but
        - Not with enough spies to make you pay for what you listen to
        - Or an adequate scrambling system—you pay to unscramble
  - Why the result is inefficient
    - Cost of production doesn’t include external cost, so you produce in the wrong way.
      - A stack scrubber might reduce pollution by more than it cost, but the savings goes to someone else
    - Using low sulfur coal reduces pollution—but it costs more
    - Price of final good doesn’t include the whole cost, so ...
      - Price you sell at is a misleading signal of actual cost
      - And people use an inefficiently large amount of what you produce (negative externality)
Regulatory Solution

- Government tells the firm how to produce
  - Put on a scrubber of the following sort
  - Use low sulfur coal
  - Reduce pollution whenever the cost of reducing it is less than the benefit
- If done perfectly, the firm optimally controls pollution
  - And includes in its cost the cost of that control
  - But not the cost of the whatever pollution remains
- And they may not try to do it right
  - We know what the firm is doing—trying to maximize its profit
  - What is it in the interest of the regulators to do?
  - Do good? Why? We don’t have a good theory to tell us. Perhaps …
    - Regulate in favor of the existing firms—and get a job with them after leaving the regulatory agency?
    - Regulate in favor of firms that make contributions to the politicians who appointed the regulators, against firms that contributed to the other side?
  - Or not be able to
    - Figuring out the optimal control methods requires information on cost of control and damage done by externality
    - Which firms might have, or generate, but why should they?
    - Ask the firm? “Sorry. No way of controlling the pollution that doesn’t cost too much.”

A Better Solution?

- Pigouvian taxes
  - Government measures the externality, charges for it
    - It is now in the firm’s interest to take optimal precautions, and …
    - Include both costs in the price, since it pays both for precautions and pollution
    - In effect, the external cost is shifted back to the actor, so becomes an internal cost
    - This still requires the government to measure damage done, and …
    - To want to do it right
  - But it doesn’t need to know how the externality can be controlled or at what cost.
- Mechanisms
  - Effluent fee. For every ton of SO\textsubscript{2} it emits, the firm must pay $100
  - Transferable quota
    - Each firm is entitled to produce 70\% of the SO\textsubscript{2} it used to produce
    - If it produces less it can sell its extra pollution rights to another firm
    - If it produces more, it must buy extra pollution rights from another firm
    - The price functions as an effluent fee—in both directions. Say it’s $100.
      - If you are over your limit, each extra ton requires you to spend $100 buying permits
      - If you are under, each extra ton reduces by $100 what you can sell your permits for
    - So either way, each extra ton costs you $100, just as with an effluent fee
  - What is the difference between the two mechanisms?
    - To set the effluent fee you need an estimate of how much damage each ton does
    - To set a quota, an estimate of what is the optimal amount of SO\textsubscript{2} to produce.
    - Also the quota, in effect, gives the fee to the industry, the tax gives it to the government

Tort damages as Pigouvian Tax

- Under tort law, I commit a tort against you
  - I.e. impose costs on you (but more complicated, as we will see)
  - You sue me and, if you win, I am required to “make you whole”
    - Which means pay you enough to compensate for the cost
    - So the external cost has been transferred back to me
    - Just as under Pigouvian taxes
- Important differences from tax version
  - With tort, the victim gets compensated.
    - Is that a good thing? Feels fair, but …
    - It reduces his incentive to avoid being a victim
  - With tort, prosecution is by the victim and his agents, not the regulatory agency
    - So one way of looking at the damage payment is as a bounty to a private prosecutor
- So two apparently different things in the law
  - Pollution control via effluent fees and tort law
  - Turn out to be versions of the same solution to the same economic problem

Externalities that don’t Count

- Suppose my action imposes
  - A cost on one other person, and
  - An equal benefit on another
  - I take the action if my benefit is greater than my cost
  - Which is the efficient choice, since the other effects cancel
  - Seems unlikely, but …
- Pecuniary Externality
  - I become the 101\textsuperscript{st} physician; each sees ten patients a day
  - The price of a visit drops from $50 to $49
  - Costing the other physicians $1000/day—externality?
  - But it saves their patients the same amount
  - So if I ignore both effects I get the right answer
- Which is why competition is not a tort
Policy Uses of Externality Arguments

- Externality arguments are often used
  - To argue for taxing or banning something (negative externality)
  - To argue for government producing or subsidizing something (positive externality)
    - Subsidizing research or education
    - Trying to hold down population growth
- The practical problem with such arguments is
  - Things have many effects, positive and negative
  - If you are against something, you look for negative externalities, ignore positive ones
  - If you are for something, the other way around
- Consider the population issue
  - What might be negative externalities from my having a child?
  - What might be positive externalities from …. ?
  - How about education?

Rent Seeking

- The government of India sets an official exchange rate
  - $1=10 rupees. But it doesn’t—the market rate is 20
  - If you export goods, must turn dollars in at the official rate
  - To import goods, you need an exchange permit
    - A very valuable piece of paper.
      - Exchange permit to exchange 10,000 rupees for $1000 is worth
      - About 10,000 rupees, since you are getting dollars worth 20,000 rupees
  - Firms compete to get exchange permits
    - By advertising how important they are to the welfare of India
    - By bribing politicians or bureaucrats or newspaper editors
      - If I am offering 5000 rupees for a piece of paper worth 10,000
        - Someone else will make a higher bid
  - So if the government gives out a billion rupees worth of permits
    - Firms that want them compete the price up until
      - They are spending about a billion rupees to get them
      - Making India as a whole about a billion rupees poorer
  - Anne Kruger coined the term “rent seeking” for this
    - Her estimate was that the governments of Turkey and India
      - Each burned up about 5-10% of GNP this way

Economics of Theft

- You steal $100—looks like a pure transfer. But it isn’t.
- If I can steal $100 at a cost in labor of $5
  - Then stealing is more profitable than working, so
  - More people become thieves, until
  - They drive down the return until it equals the wage in alternative activities
  - At least for the marginal thief
    - The thief least talented at stealing relative to his other talents gives up a $6/hour job at McDonalds to steal $6.01/hour
      - Ignoring, for the moment, special costs such as jail time
  - The inframarginal thief who is
    - Either particularly good at stealing or
    - Particularly bad at alternative activities
    - Can still steal $100 at a cost to him of less than $100
  - But there is an additional cost—precautions by the victim
    - What he spends on locks and bars
    - And the cost of not going out late at night
    - So the net cost of theft might be more or less than amount stolen, and
  - Prohibiting theft might make everyone better off. Rent Seeking

The difference between …

- Rent seeking and pecuniary externalities
  - Pecuniary externality, A takes an action that transfers from B to C
  - Rent seeking, A takes an action that transfers from B to A
  - So has an incentive to take the action even if not worth taking after allowing for effect on B
  - Indeed, seen one way, the standard externality inefficiency.
  - Suppose we have a pecuniary externality—but A and C know each other…
- Rent seeking and litigation
  - Given a legal procedure to transfer costs, it sets off rent seeking
    - I spend money suing you in order to get you to pay me
    - You spend money defending in order not to have to pay me
    - Both of our legal expenses are a net cost
  - So justified only if there is some indirect benefit, such as …
  - Deterrence.
  - Hence “let the cost lie where it falls” makes sense in many cases.
Review what we Just Did

- Why the market is efficient in the simple case
  - Price system transmits human costs in dollar form
    - Costs being labor used, or ...
    - Alternative uses (really the same)
  - Everything is produced if and only if worth producing, and in the least costly way
  - Everything goes to the person who values it most
  - Costs being labor used, or ...
  - Alternative uses (really the same)

- Externalities mess it up twice
  - External cost is not included in the calculation of how to produce, so "least private cost" production
  - And price of output no longer accurately measures cost

- Can solve the first with regulation
  - Provided the regulator is sufficiently benevolent
  - And sufficiently well informed
  - But that still leaves the second problem

- Pigouvian tax solves both
  - But still leaves the cost to be determined by a regulatory agency or Court
  - Helps make sense of tort law.

- Pecuniary externalities don’t count, rent seeking does.
  - Because with rent seeking the transfer provides an incentive
  - To take actions not worth taking
  - A standard externality problem
  - Litigation as rent seeking—an argument for leaving costs where they fall.

Coase’s critique of Pigou

- Nothing works
  - Because an externality isn’t “A imposes cost on B”
    - But “A and B take actions which result in a cost”
  - Consider airport noise
    - Might control it with quieter planes—or people not living next to the airport
  - Everything works
    - Because if externalities produce an inefficient result
    - It’s in the interest of the parties to bargain it away
  - It’s all transaction costs
    - Too costly to get everyone living under the flight path to pay the airlines to make their planes quieter
    - So that doesn’t happen even if it is efficient
    - So the real problem is the transaction costs that block the efficient outcome

Nothing Works

- Candy factory and doctor—a real English case
  - Candy factory has machinery that vibrates the walls a bit. No problem until …
  - Doctor living next door builds a consulting room adjacent to the factory
  - And can’t properly listen to patients’ innards because of the vibration
  - So suits the factory to make it turn off the machinery

- Pigouvian answer—factory must shut down or pay damages
  - But rearranging the doctor’s house might be less expensive, and …
  - Building the consulting room on the other side to start with surely would be.
  - Why bother if he can shut down the factory or be paid damages?

- The argument is most persuasive where our intuitions are weak
  - Recording studio next to a house with small children
  - Seismic station next to a steel mill
  - Building houses under the flight path.
    - I can see your house from my window, so you can’t repaint in a color I don’t like.

- Coase gives lots of real examples, but …
  - Applies to any situation where we don’t know in advance who is the least cost avoider, or …
  - Where both parties ought to take some precautions.
    - You should keep noise of your factory down, but …
    - I shouldn’t locate noise sensitive activities near it.
    - Tort law: Obligation to minimize injury.

- So even with Pigouvian approach, the court must know enough about avoidance control to know who to make liable.

Everything Works

- If the court finds the candy factory liable
  - The candy factory pays the doctor to move his consulting room
  - Or, better, paid him in advance to agree not to sue—in legal language, to sell them an easement to vibrate
  - So he builds his consulting room on the other side of his house
  - Unless sound proofing their machinery is cheaper
    - In which case they don’t pay him, because it costs more than arranging not to vibrate
  - If the court finds the candy factory isn’t liable
    - But sound proofing their machinery is cheaper than moving his consulting room
    - The doctor pays the candy factory to soundproof

- Think of it as a lot of rights, each moving to its highest valued use
  - Our old argument for the efficiency of the market, except
  - We are trading rights, not things
It’s all Transaction Costs

• The rancher and the farmer
  – If the rancher is liable for damage done by his straying cattle
    • He will fence them in if doing that is cheaper than having the farmer fence them out
    • Otherwise he will pay the farmer to fence them out
  – If the rancher is not liable, the outcome is the same.
    • If fencing them in is cheaper, the farmer pays the rancher to do so
    • Otherwise, the farmer fences them out
• It looks as if any initial definition of rights will produce an efficient outcome
  – Different definitions change the wealth of the parties, since they determine who has to
    pay whom off to get an outcome
  – In Coase’s example that doesn’t change the outcome, since rancher and farmer
    produce for the market, so values aren’t really values to them, don’t depend on their
    wealth
  – But suppose there is one life extension pill which doubles life expectancy, two people
    • If I have the pill there is nothing you can offer me for which I will sell it
    • Similarly if you have it
    • Because having the pill makes one much richer, richer means dollars worth less, means pill
      worth more dollars
  – So different definitions might produce different efficient outcomes

Coase+Pigou=Double Counting

• Pollution from my factory does $1,000,000/year of
damage to my neighbors
  – I owe a $1,000,000 fine each year
  – Preventing the pollution would cost me $1,500,000/year
    • So the efficient outcome is for me to keep polluting
    • What happens?
  – Victims offer $600,000 for abatement, get it
  – Inefficient--spending $1,500,000 to save $1,000,000
  • Does the problem vanish with zero transaction
    costs? Coase says it should. But …
  • if the government gets to bargain too.

Conclusion

• Pigouvian solution is a special case
  – Where we know the least cost avoider
  – And can measure damage externally
• Coase Theorem is a special case
  – Where transaction costs are sufficiently low
  – In which case we don’t have to measure damage externally
  – It’s all market.
• Coaseian analysis gives us the general case
  – With some definition of rights
  – And some transaction costs making some moves costly or
    blocking them
  – What inefficiency will result?
  – Among possible definitions, which leads to the least bad result?
  – Note that options include property and liability rules. And others.

Something Wrong Here

• So without tort law I still drive, and drive safely?
  – If everyone has the right to enjoin (they have the rights) I buy permission
  – If none of them have any rights against me, they bribe me to drive safely.
  – Do you believe that story?
• Something wrong here
  – Public good problem where the cost is dispersed
  – Monitoring problem where the behavior is not easily observed
  – Lots of related problems
• So the conclusion is
  – If transaction costs are low for the relevant transactions, efficient outcome
  – If not, it is the transaction cost that is the problem.
• Stigler called this the “Coase Theorem”
  – If transaction costs are zero
  – Any initial definition of rights leads to an efficient outcome
Possible Legal Approaches

- Court/regulator decides who is the lowest cost avoider
  - Tells him what to do (regulatory solution)
  - Makes him liable (Pigouvian solution)
  - Requires the court to know damage and who is the lowest cost avoider
- Court makes general rules designed to assign liability to the party who will usually be the lower cost avoider
  - Coming to the nuisance as an example
    - I build a pig farm. Ten years later you want to build a housing development next to it
      - Can you enjoin my farm as a nuisance?
        - Or do I win because I was there first, you came to the nuisance?
        - That’s the old legal rule
    - Is it the right answer—because the second mover is the lower cost avoider?
      - Cheaper for you to build your housing development somewhere else, than
        - For me to move my pig farm
    - Perhaps not if later use is predictable
      - Maybe I built my pig farm there because I saw which way the city was growing
      - And wanted to be paid off to shut down the pig farm in ten years
  - Last clear chance as a similar rule
  - Strict liability for keeping a tiger in your back yard—abnormally hazardous activity.

Some Issues

- Bright line rules vs standards.
  - Bright line minimizes uncertainty, litigation costs, but …
  - May give the wrong answer sometimes.
- Defining property rights
  - Legal rules determine what bundle of rights go with ownership of land (or other things)
  - First step: Is right A most valuable to the person who has right B? Put them in the same bundle and no transaction is needed.
    - The right to cultivate the land belongs in the same bundle as
    - The right to walk on it
    - And, probably, the right to keep other people from walking on it—at least when the crop is there
  - If right A might be most valuable to the holder of B or of C, which is how likely, and how hard is it to move from one to the other?
    - The right to dig holes in my land next to your adjacent house, for instance
    - Might be more valuable to you—as the house starts sliding
  - If we guess wrong, are we better off solving the problem by
    - Transaction—property rights or
    - Court estimate—liability rights.