Dis 2: Coase Theorem; Bargaining [†]

1 Review: Coase Theorem

Theorem 1 (Coase Theorem)**.** If property rights are well-defined and tradable, then in the absence of transaction costs, voluntary negotiations will lead to efficiency.

- Notice the conditions for achieving efficiency:

  Property rights must be
  & Property rights must be
  & Transaction costs must be

- The three conditions stated above are **sufficient conditions**, but not **necessary**[*]:
  - If voluntary negotiations do not lead to efficient outcomes, then at least one of these three conditions should fail.
  - If one or more of the conditions do not obtain, then voluntary negotiations may not lead to efficient outcomes (but this **does not imply that voluntary negotiations never** lead to efficient outcomes).
- What does Coase theorem predict?
  - **In terms of the final allocation:** Coase theorem predicts that, regardless of how property right is assigned in the first place, as long as the right is well-defined + transferable + transaction costs are low, then the final allocation is always efficient.
  - **In terms of actual payoff to parties involved:** Coase theorem doesn't tell us anything about how each involved person's payoffs are under different property right assignment.

    (Recall: Example of farmer and rancher from lecture 4 and 5)

[†] Adapted from Jonathan Becker's Fall 2018 handout

[*] In mathematical logic, if $A \to B$, but not $B \to A$, then A is the sufficient but not necessary conditions for B. Additionally, $A \to B$ is logically equivalent to its contrapositive ($\neg B \to \neg A$). Notice that $A \to B$ does not imply $B \to A$.

2 Review: Bargaining

2.1 Terminology

Coase theorem gives us conditions allowing for efficiency to be achieved through voluntary bargaining. When bargaining takes place, here are some important terminologies to help us figure out the outcome of bargaining:

- **Threat point**

- **Gains from cooperation**:

2.2 One Obstacle to Bargaining: Transaction Costs

Definition 1 (Transaction Costs)**.** Any cost that makes it difficult or expensive for two or more parties to achieve a mutually beneficial trade

- Examples of transaction costs:
  - **Search costs**: difficulty or cost of finding a trading partner
  - **Enforcement costs**: difficulty or expense of enforcing an agreement after the fact
  - **Bargaining costs**: difficulty in reaching an agreement with the trading partner
    - Asymmetric information / Adverse selection (you know something that I don't)
    - Private information (either person not knowing the other's threat point)
    - Uncertainty about property rights or threat points
    - Large number of buyers / sellers (causing holdout or freeriding)
    - Hostility
- How to deal with transaction costs? Two approaches:
  - **Normative Coase Approach**:

  - **Normative Hobbes Approach**:

3 Problems

1. Adam is a heavy smoker. He obtains utility as a function of the number of cigarettes (X) he smokes and the amount of money (m_A) he has:

$$U_A = 36X - 2X^2 + m_A$$

The costs of smoking X cigarettes are $C(X) = X^2$.

Bob, who is Adam's roommate, detests smoking. His utility is a decreasing function in the number of cigarettes Adam smokes:

$$U_B = 128 - X^2 + m_B$$

where m_B represents the amount of money Bob has.

Assume that Adam and Bob each starts with a sufficiently large amount of money M, such that their budget constraints never bind.

(a) How many cigarettes will Adam choose to smoke, if he lives alone and makes rational decisions?

(b) What is the efficient number of cigarettes when they live together?

Suppose that Adam owns the apartment, and Bob has to bribe Adam to stop him from smoking.

(c) What is the threat point for Adam? For Bob?

(d) How many cigarettes does Coase theorem predict that Adam will smoke?

(e) How much is the gains from cooperation?

(f) How much money will Bob be willing to pay Adam to make him smoke the efficient number of cigarettes?

(g) If the gains from cooperation are splitted evenly between Adam and Bob, how much then should Bob pay Adam to make him smoke the efficient number of cigarettes?

(h) Suppose that Adam owns the apartment, and Bob can only bargain with the help of a lawyer. What is the maximum amount that the lawyer is able to charge, if Bob pays the lawyer fees? What if Adam pays the fees instead?