

ALLOCATING PROPERTY RIGHTS TO REDUCE EXTERNALITIES

Instead of controlling externalities directly through emissions fees and emissions standards, the government may take an indirect approach by assigning a **property right**: an exclusive privilege to use an asset.

ALLOCATING PROPERTY RIGHTS TO REDUCE EXTERNALITIES

If no one holds a property right for a good or a bad, the good or bad is unlikely to have a price.

ALLOCATING PROPERTY RIGHTS TO REDUCE EXTERNALITIES

For many bads, such as pollution, and for some goods, property rights are not clearly defined. No one has exclusive property rights to the air we breathe. Because of this lack of a price, a polluter's private marginal cost of production is less than the full social marginal cost.

COASE THEOREM

According to the *Coase Theorem* (Coase, 1960), the optimal levels of pollution and output can result from bargaining between polluters and their victims if property rights are clearly defined.

COASE THEOREM

- To illustrate the Coase Theorem, consider a chemical plant and a boat rental company which share a small lake
- The chemical manufacturer dumps its waste by-products
 - Smells bad but harmless otherwise
 - Pollution can only be reduced with decreases in the output
- Pollution hurts the boat rental firm's business
 - Other lakes nearby where people can rent boats
- Therefore, people only rent only if the boat firm charges a lower price to compensate fully for the bad odor

PROPERTY RIGHTS AND BARGAINING

(a) No Property Rights

		Boat Rental Firm: Boats Rented per Day		
		0	1	2
Chemical Firm: Tons per Day	0	\$0	\$0	\$0
	1	\$10	\$10	\$10
	2	\$15	\$15	\$15

		Boat Rental Firm: Boats Rented per Day		
		0	1	2
Chemical Firm: Tons per Day	0	\$0	\$0	\$0
	1	\$10	\$10	\$10
	2	\$15	\$2	-\$3

(b) Boat Rental Firm Has Property Right: Chemical company pays the boat rental firm \$7 per ton for the right to dump

		Boat Rental Firm: Boats Rented per Day		
		0	1	2
Chemical Firm: Tons per Day	0	\$0	\$0	\$0
	1	\$3	\$3	\$3
	2	\$1	\$1	\$1

		Boat Rental Firm: Boats Rented per Day		
		0	1	2
Chemical Firm: Tons per Day	0	\$0	\$0	\$0
	1	\$3	\$17	\$12
	2	\$1	\$16	\$11

PROPERTY RIGHTS AND BARGAINING

(c) *Chemical Company Has Property Right: Boat rental firm pays the chemical company \$6 for each ton by which it reduces its production below 2 tons*

		Boat Rental Firm: Boats Rented per Day		
		0	1	2
Chemical Firm: Tons per Day	0	\$12	-\$12	\$2
	1	\$16	-\$6	\$4
	2	\$15	\$0	\$2

COASE THEOREM

- If there are no impediments to bargaining, *assigning property rights results in the efficient outcome at which joint profits are maximized.*
- *Efficiency is achieved regardless of who receives the property rights.*

COASE THEOREM

- Who gets the property rights affects the income distribution. *The property rights are valuable.* The party with the property rights may be compensated by the other party.

PROBLEMS WITH THE COASE APPROACH

First, if transaction costs are very high, it might not pay for the two sides to meet.

Second, if firms engage in strategic bargaining behavior, an agreement may not be reached.

Third, if either side lacks information about the costs or benefits or reducing pollution, a nonefficient outcome may occur.

MARKETS FOR POLLUTION

If **high** transaction costs preclude bargaining, we may be able to **overcome this problem** by using a **market**, which facilitates exchanges between individuals.

Getting back to emission tax...