Chapter 10

Externalities

Externalities

- Sometimes there are benefits and costs that arise in the market that go uncompensated.
- These are called externalities.

- A positive externality is a benefit that is enjoyed by society, but society doesn’t pay to receive it.
- Example: I enjoy the shade from my neigbour’s tree, and it doesn’t cost me anything.

- A negative externality is a cost suffered by society, and the instigator isn't made to pay for the damage they do.
- Example: my neighbour's nasty dog barks all night and keeps me awake, and my neighbour doesn't compensate me for my lost sleep.

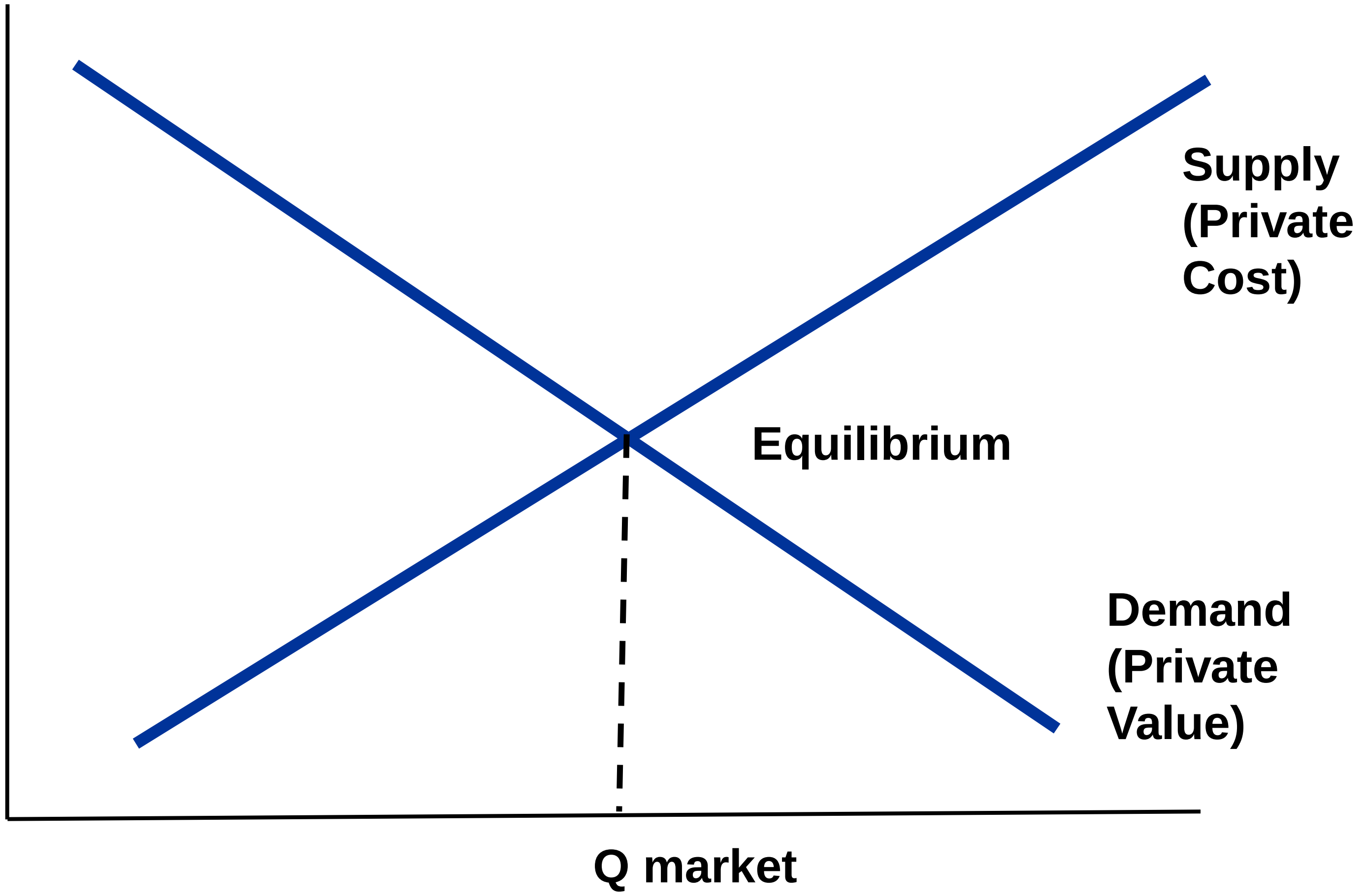
So, externalities:

- are created when a market outcome affects individuals other than buyers and sellers in that market.
- cause welfare in a market to depend on more than just the value to the buyers and cost to the sellers who actually participate in a market transaction.
- can lead to inefficient markets if buyers and sellers do not take them into account when deciding how much to consume and produce.

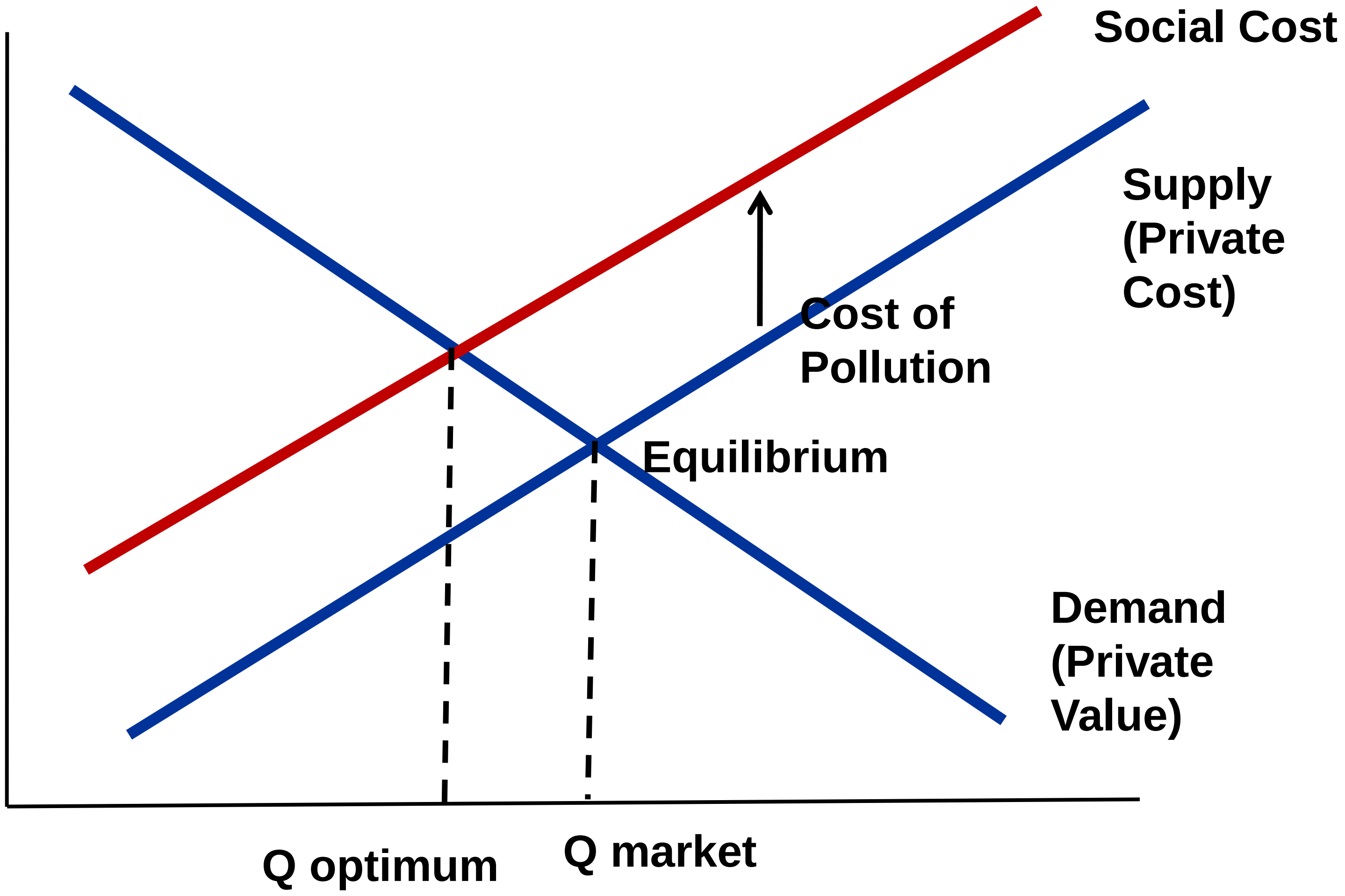
- Negative externalities lead markets to produce more than is socially desirable.
- Positive externalities lead markets to produce less than is socially desirable.

Consider the market for steel:

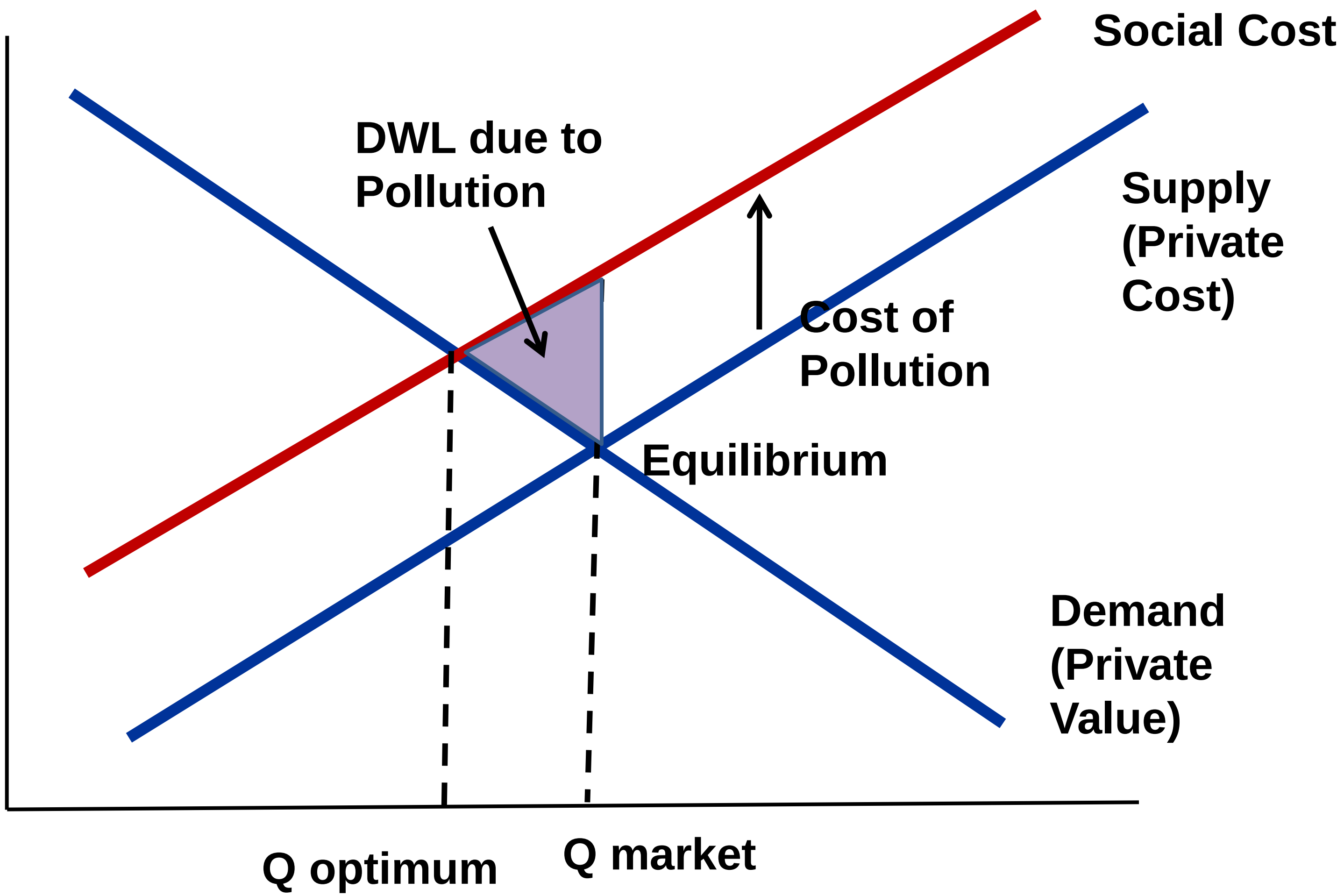
Negative Externalities



- If steel factories emit pollution, the cost to society of producing steel is larger than the private costs of the producers.
- The social cost includes the private costs of producers plus the cost to the public adversely affected by pollution.


Social Cost
Supply
(Private
Cost)
Cost of
Pollution
Equilibrium
Demand
(Private
Value)
Q optimum
Q market

- The socially optimal level of output is less than the market equilibrium level of output.
- In other words, if we don't account for the costs of pollution, we end up producing too much of the good.
- "Bad" pollution takes away from the benefits of buying and selling steel.
- It takes away from total surplus in the market for steel.
- This loss of surplus is a deadweight loss due to the externality.


Social Cost
DWL due to
Pollution
Supply
(Private
Cost)
Cost of
Pollution
Equilibrium
Demand
(Private
Value)
Q optimum
Q market

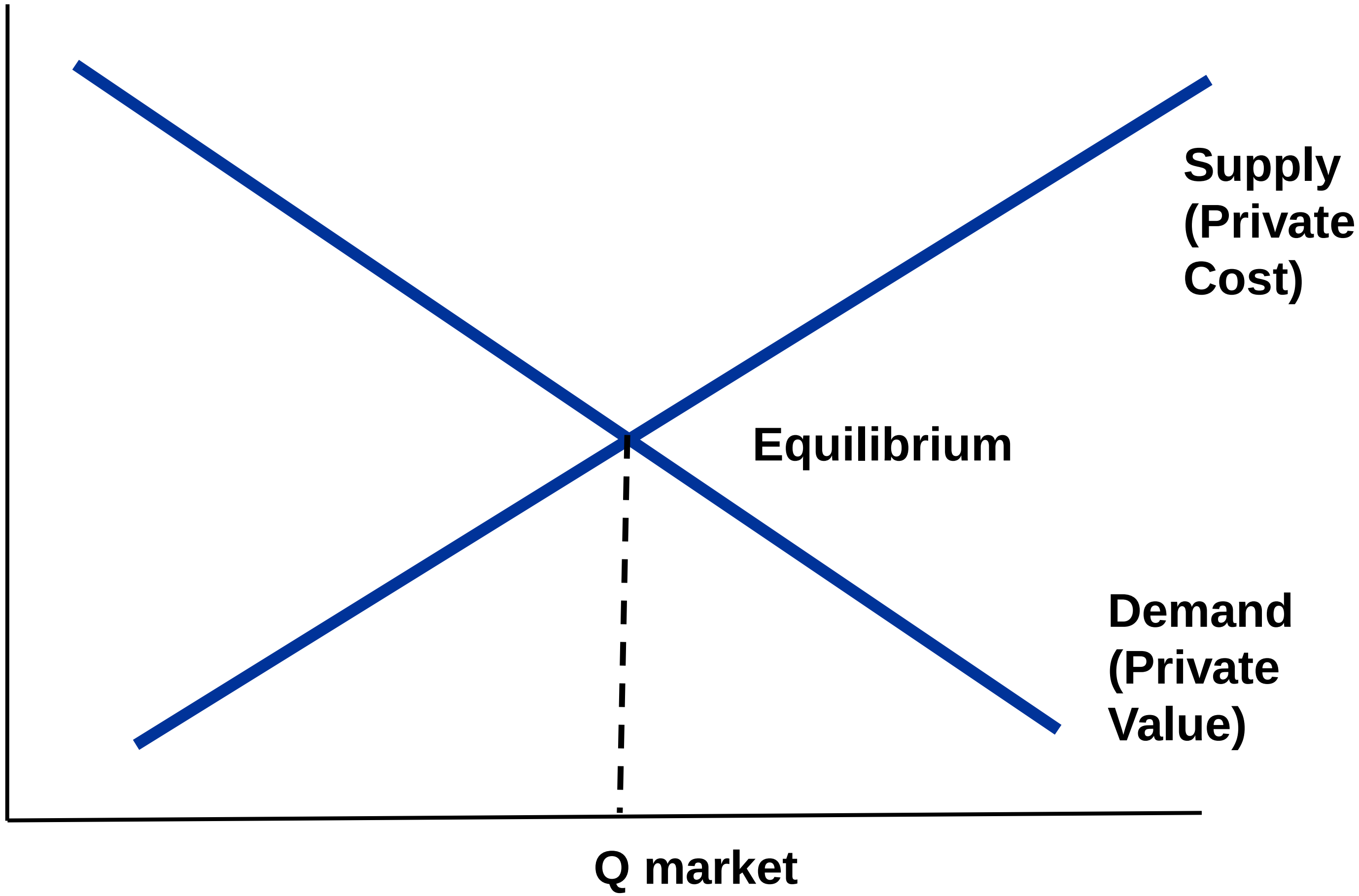
- The government can internalize an externality by imposing a tax on the producer to get them to produce less – to produce the socially desirable quantity.
- This tax is known as a Pigovian Tax, levied on each unit of output sold (we'll see taxes in the next chapters).

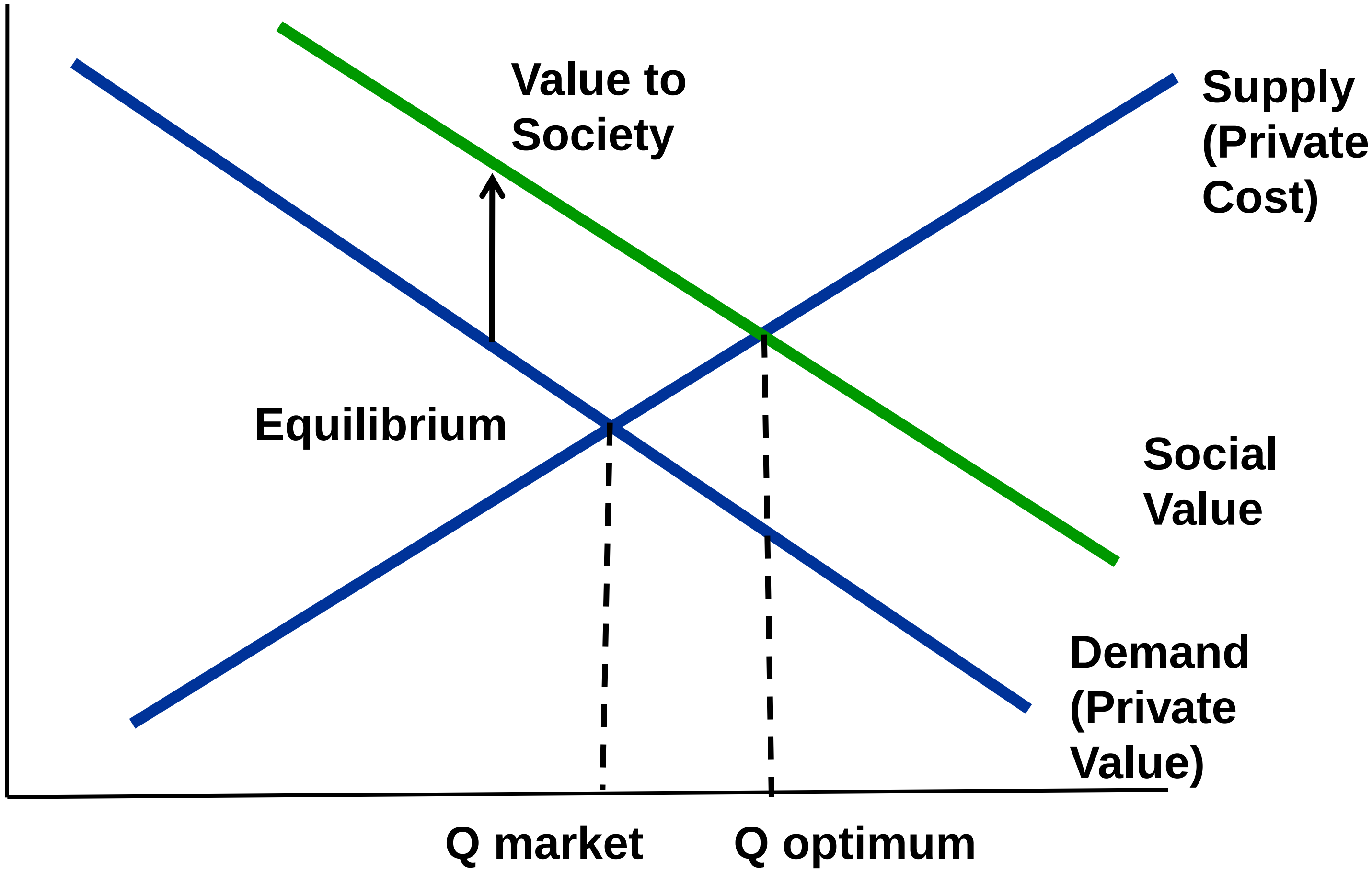
- The government can also regulate the amount of pollution a firm may produce.
- It may sell permits to firms allowing them a certain amount of pollution.
- Firms which can reduce pollution at lower costs can sell these permits to other firms which can only reduce pollution at high costs and may not even bother to try.

Positive Externalities

- Now, consider the discovery of penicillin as treatment for STDs.
- The drug not only helps those with an STD but also benefits all of society by limiting their exposure to disease.
- The discovery and production of penicillin has a positive externality.

- The social value of the drug includes not only the private value to those who take the drug, but also includes the value to the rest of society.


Supply (Private Cost)
Equilibrium
Demand (Private Value)
Q market



Value to Society
Supply (Private Cost)
Equilibrium
Social Value
Demand (Private Value)
Q market
Q optimum

- The socially desirable level of output is greater than the market equilibrium level of output.
- In other words, we are not producing enough of the good.
- If we produced more, there would be greater benefits for society.
- We could increase total surplus in the market.

- The government can internalize the externality by subsidizing the production of the good – get firms to supply more.

- Government action is not always necessary.
- The private sector can sometimes solve the problems of externalities.

Examples include:

- Moral codes and social sanctions
- Charities
- Contracts between parties

The Coase Theorem

- This is a proposition that if private parties can bargain without cost over the allocation of resources, they can solve the externalities problem on their own.

- However, property rights have to be well defined for bargaining to work.

- A property right is the exclusive authority to determine how a resource is used, whether that resource is owned by government or by individuals.

- Private property rights have two other attributes in addition to determining the use of a resource:

- One is the exclusive right to the services of the resource.
- For example, the owner of an apartment with complete property rights to the apartment has the right to determine whether to rent it out and, if so, which tenant to rent to; to live in it himself; or to use it in any other peaceful way.
- That is the right to determine the use.
- If the owner rents out the apartment, he also has the right to all the rental income from the property.
- That is the right to the services of the resources (the rent).

- Second, a private property right includes the right to delegate, rent, or sell any portion of the rights by exchange or gift at whatever price the owner determines (provided someone is willing to pay that price).
- If I am not allowed to buy some rights from you and you therefore are not allowed to sell rights to me, private property rights are reduced.

- If it is unclear who has the rights to a resource, how can you determine how to allocate it or who decides how to allocate it?
- How can you bargain over any compensation for incurring a negative externality if it is unclear who is responsible?
- Even if bargaining can take place, sometimes the costs of bargaining (called transaction costs) can be so high that private agreements aren't possible.