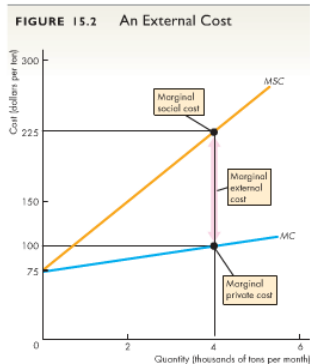


Negative Externalities $MSC > MC$

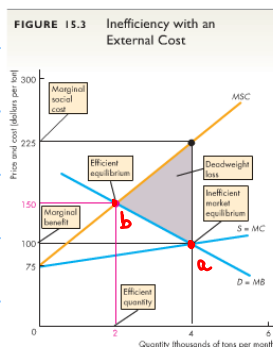
Note Title

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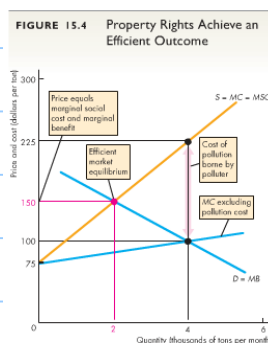
All figures from Parkin 7th, your text.



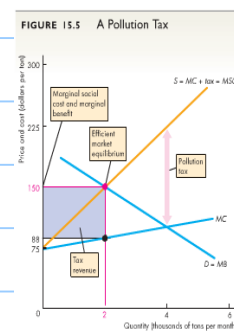
The MC curve shows the private marginal cost borne by the factories that produce a chemical. The MSC curve shows the sum of marginal private cost and marginal external cost. When output is 4 tons of chemicals per month, marginal private cost is \$100 a ton, marginal external cost is \$125 a ton, and marginal social cost is \$225 a ton.



The market supply curve is the marginal private cost curve, $S = MC$. The demand curve is the marginal benefit curve, $D = MB$. Market equilibrium at a price of \$100 a ton and 4,000 tons a month is inefficient because marginal social cost exceeds marginal benefit. The efficient quantity is 2,000 tons a month. The gray triangle shows the deadweight loss created by the pollution externality.



With property rights, the marginal cost curve that excludes pollution costs shows only part of the producers' marginal cost. The marginal private cost curve includes the cost of pollution, and the supply curve is $S = MC = MSC$. Market equilibrium is at a price of \$150 a ton and a quantity of 2,000 tons a month and is efficient because marginal social cost equals marginal benefit.



A pollution tax is imposed equal to the marginal external cost of pollution. The marginal cost curve that excludes pollution costs shows only part of the producers' marginal cost. The marginal private cost curve includes the cost of pollution, $MC + \text{tax} = MSC$. Market equilibrium is at a price of \$150 a ton and a quantity of 2,000 tons a month and is efficient because marginal social cost equals marginal benefit. The government collects a tax revenue shown by the purple rectangle.

$MSC = \text{marginal social cost}$

$MC = MPC \text{ marginal private cost}$

$MSC - MC = \text{marginal external cost}$

This is sometimes called the marginal damage costs.

- (a) point of private equilibrium
 $MB = MC$. This occurs in
 absent of a social solution
 and leads to over consumption
 and inefficiency.
- (b) point of social equilibrium
 and efficient outcome level

The problem is how to get our private supplier to produce in the common good, that is to "own" and internalize the marginal external cost.

The answer is to either

- (1) assign the damage to the supplier through assignment of property rights, or
- (2) to set an externality tax equal to the marginal external costs.

Efficiency requires:

$$MSB = MPB = P = MPC = MSC$$

The graphs above show

$$MSB = MPB \quad \text{and} \quad MPC < MSC$$