

# Negative Externality

A negative externality exists when the production or consumption of a good imposes an uncompensated cost on society.

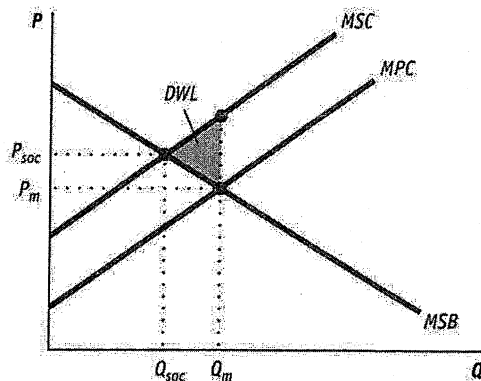
The marginal private cost (MPC) includes the costs of producing a good that are paid by producers—this is the market supply curve.

External costs fall on others (not the producer). They are measured by the distance between the MPC (or S) curve and the MSC curve.

The sum of all private and external costs is the total cost to society (MSC).

On an incremental basis, an additional unit of a good provides marginal social, marginal private, and marginal external costs.

$$MSC = MPC + MEC$$



An unregulated private market will consider only private costs and benefits;  $Q_m$  and  $P_m$  are found where  $MPB$  (which equals  $MSB$  in this case because there are no external benefits) equals  $MPC$ .

The efficient price and quantity consider all costs and benefits;  $Q_{soc}$  and  $P_{soc}$  are found where  $MSB = MSC$ .

The unregulated market quantity ( $Q_m$ ) is higher than the efficient quantity ( $Q_{soc}$ ).

A tax (called a Pigouvian tax) equal to marginal external cost internalizes the negative externality. Forcing the market to pay the total cost of the good results in the exchange of the efficient level of output in the market, reducing deadweight loss in the market equal to the area shown in the graph.

The Coase Theorem states that, as long as property rights are clearly defined and transaction costs are minimal, the market will find a private solution to the problem of externalities.

# Positive Externality

When the production and consumption of a good provides benefits to third parties, that good is said to provide positive externalities to society.

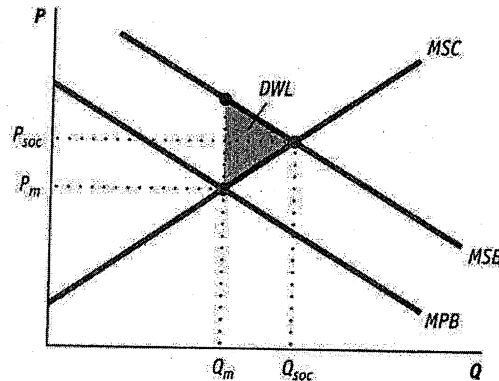
The marginal private benefit (*MPB*) includes the benefits that go to consumers of a good—this is the market demand curve.

External benefits go to others (not the consumer). They are measured by the distance between the *MPB* (or *D*) curve and the *MSB* curve.

The sum of all private and external benefits is the total benefit received by society (*MSB*).

On an incremental basis, an additional unit of a good provides marginal social, marginal private, and marginal external benefits.

$$MSB = MPB + MEB$$



An unregulated private market will consider only private costs and benefits;  $Q_m$  and  $P_m$  are found where *MPB* equals *MPC* (which equals *MSC* in this case because there are no external costs).

The efficient price and quantity consider all costs and benefits;  $Q_{soc}$  and  $P_{soc}$  are found where  $MSB = MSC$ .

The unregulated market quantity ( $Q_m$ ) is lower than the efficient quantity ( $Q_{soc}$ ).

A subsidy (called a Pigouvian subsidy) equal to marginal external benefit internalizes the positive externality. Providing a subsidy equal to the external benefit of the good results in the exchange of the efficient level of output in the market, reducing deadweight loss in the market equal to the area shown in the graph.