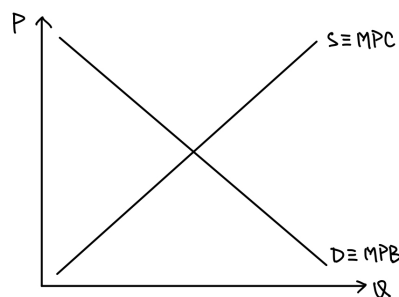


Discussion 7: Economics of the Public Sector¹

1 Externality

Definition 1 (Externality). Uncompensated cost or benefit of one person's actions on the well-being (welfare) of another.

- Recall:
 - MSB: Marginal Social Benefit
 - MPB: Marginal Private Benefit, which is equivalent to the demand (D) in market
 - MSC: Marginal Social Cost
 - MPC: Marginal Private Cost, which is equivalent to the supply (S) in market
- Externality can exist in production, consumption, or both
- Q_{mkt} vs. Q_{eff}
 - Market reaches equilibrium quantity Q_{mkt} , where MPC (supply) intersects MPB (demand)
 - Efficiency quantity is reached at Q_{eff} , where MSC intersects MPC
 - Note that the value of marginal externality cost is the **vertical** distance between MSC and MPC (or between MSB and MPB)
- Positive vs. Negative Externality
 - Positive externality in consumption: $MSB > MPB \equiv D$
 - ex. Market for vaccines (immunization creates a safer environment for everyone else)
 - $\Rightarrow Q_{\text{mkt}} < Q_{\text{eff}}$
 - \Rightarrow Market – if left alone – under-produces relative to efficiency
 - Negative externality in production: $MSC > MPC \equiv S$
 - ex. Market for electricity (production of electricity pollutes the atmosphere)
 - $\Rightarrow Q_{\text{mkt}} > Q_{\text{eff}}$
 - \Rightarrow Market – if left alone – over-produces relative to efficiency



(For your review: Depict a positive externality in production on the graph above)

¹Produced based off Ziwei Wang's handout for Spring 2016

- Ways to address externality:
 - Public venue: government interventions
 - Private venue: Coase theorem

Theorem 1 (Coase Theorem). If private parties can bargain without cost over the allocation of resources, they can solve the problem of externalities on their own.

2 Common Resources and Public Goods

Definition 2 (Excludability). The extent to which non-payers can be kept from consuming the good.

Definition 3 (Rivalry in Consumption). The extent to which one's consumption of a good inhibits (or even, prohibits) another's consumption of the same good.

		Rivalry in Consumption?	
		Yes	No
Excludable?	Yes	Private Goods	Club Goods
	No	Common Resources	Public Goods

- Common resources:
 - The tragedy of the commons: Private decision makers use the common resources too much.
ex. Polluted air and water; Congested roads; Excessive fishing and whaling.
 - Why “tragedy”?
 - * Rivalry in consumption can be viewed as negative externalities in consumption, so the market outcome will be over-consumption of the common resources.
 - * Government can help market internalize the externalities by taxing those goods:
ex. carbon tax, toll.
- Public Goods:
 - The free-rider problem: People have an incentive to be free riders who receive the benefit of a good but avoid paying for it.
 - This market failure can be viewed as a result of positive externalities.
 - * Production of public goods benefits everyone in the society, but the decision to produce is reached by considering *MPB*.
 - * Here, $MSB > MPB$, so we have a positive externality in production.