Positive production externalities

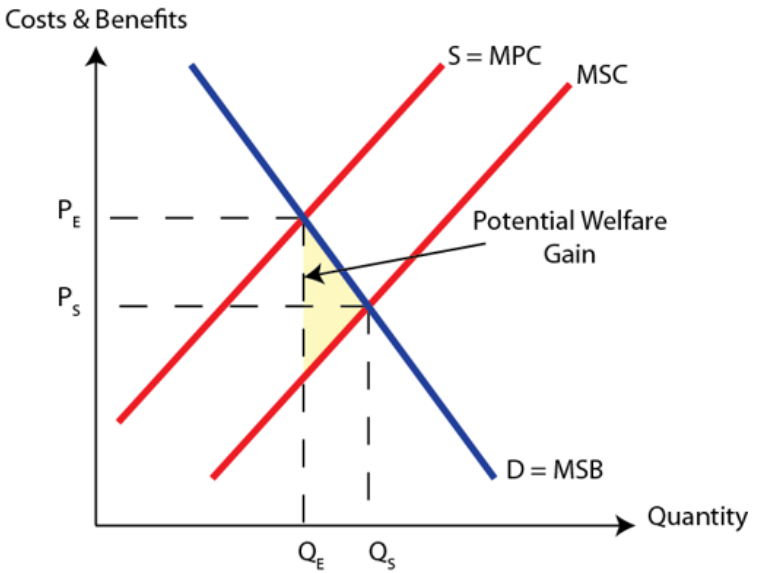
RIDLEY COLLEGE
SINCE 1889

Assessment Objectives

Specific Expectations	
AO2	Explain positive externalities of production and the resulting welfare loss
AO4	Draw a diagram illustrating positive externalities of production and welfare loss
AO4	Calculate welfare loss that arises from positive externalities of production
AO2	Explain government intervention to correct positive externalities of production: government provision, subsidies
AO4	Draw diagrams to illustrate the above government responses
AO3	Discuss strengths and limitations of the above government policies with respect to: difficulties in measurement of externalities, degree of effectiveness, consequences for stakeholders.

Positive Production Externalities

- **Positive production externalities** a positive externality caused by production activities, leading to a situation where marginal social costs are less than marginal private costs (MSC $<$ MPC).
  - **Example:** If a firm engages in research and development, and succeeds in developing a new technology that spreads throughout the economy, there are external benefits not only to the firm but also society benefits from the widespread adoption of the new technology.



Positive Production Externalities

- The MSC curve lies below the MPC curve, and the difference between the two curves is the value of the external benefits (these can be thought of as "negative costs").
- When there is a positive production externality, the free market underallocates resources to the production of the good.
- Too few resources are allocated to its production, and too little of it is produced. This shown by $Q_E < Q_S$ and MSB $>$ MSC at Q_E.
- The underallocation of resources to the production of a good with a positive production externality leads to a welfare loss.
- **Example:** A firm provides first aid classes to employees to improve work safety; external benefits are created as this knowledge is applied tlso to people outside the workplace.

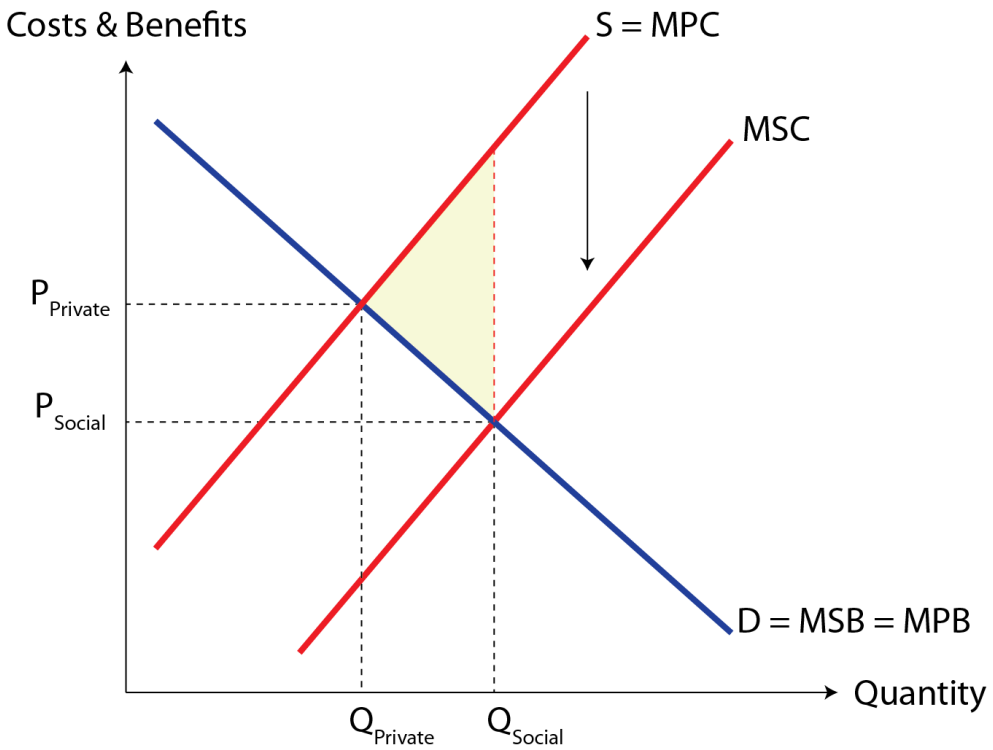
Correcting Positive Production Externalities

- Correction of positive production externalities involve shifting the MPC curve downward toward the MSC curve through direct government provision or by subsidies.
- For allocative efficiency to be achieved, the quantity produced and consumed must increase to Q_{Social} as price falls to P_{Social}.

1. **Direct government provision**
   - A solution often pursued by governments involves direct government provision of the good or service creating the positive production externality
   - **Example:** Governments often engage in research and development (R&D) for new technology, for medicine and pharmaceuticals, and many other areas.
   - Governments pay for such activities with government funds, raised through taxes.

Correcting Positive Production Externalities

- The government intervenes by providing the good and service itself, this has the effect of shifting the supply curve (MPC) downward toward the MSC curve so that the optimum quantity of the good, Q_{Social}, will be produced with price falling from $P_{Private}$ to P_{Social}.



Correcting Positive Production Externalities

2. **Subsidies**

- Subsidies can correct allocative inefficiency by correcting market failure
- If the government provides a subsidy to a firm per unit of the good produced that is equal to the external benefit, then the marginal private cost (MPC) curve shifts downward until in coincides with the MSC curve.
- The result is to increase the quantity produced to $Q_{Optimal}$ and to lower the price from $P_{Private}$ to $P_{Optimal}$.
- The problem of underallocation of resources and underprovision of the good is corrected, and allocative efficiency is achieved.
- Direct government provision and subsidies have the same market outcomes.