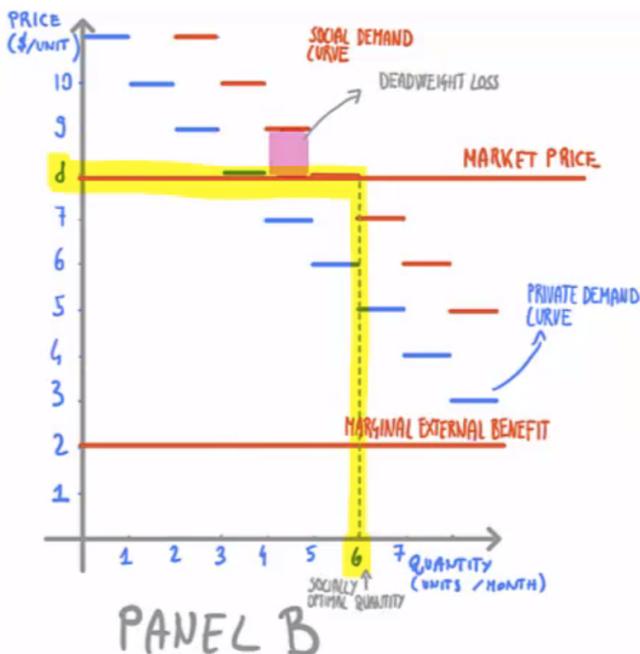
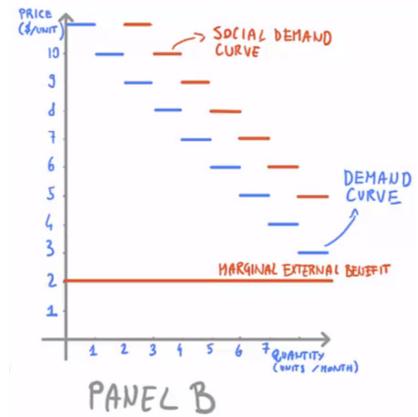


Externalities

9.1 Positive Consumption Externality

- **Positive Consumption Externality:** A Positive Consumption Externality represents a benefit accrued to someone who is not involved in the consumption of a given good.
- This marginal external benefit is represented by the horizontal line
- $MC = MB_{\text{individual}} + MB_{\text{social}} = \text{positive consumption externality}$.
- In order to find the social demand curve we just need to add up the private marginal benefit and the marginal external benefit for each unit of perfume.
- Note that the quantity that the individual chooses will not maximise total surplus (e.g. The social marginal benefit would be equal to \$9 whereas the marginal cost remains \$8 society as a whole would experience a \$1 surplus on the 5th unit of perfume).
- By making consumption decisions without accounting for their external benefit, you are not maximizing social surplus - therefore deadweight loss arises
- Note that therefore the Invisible Hand Principle is being violated, because individual satisfaction does not translate to the socially optimal quantity.
- Dead-weight loss due to positive consumption externality (when consuming 4 units):



- 4 units = \$10, so \$8 doesn't maximise social surplus. Should be producing 6 units (invisible hand principle fails)

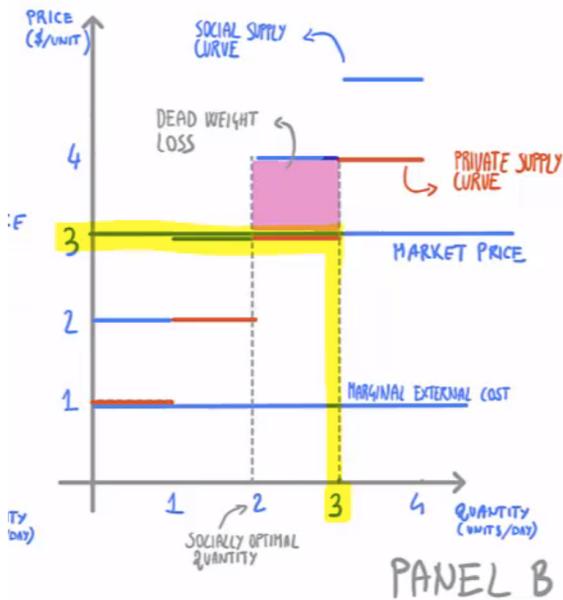
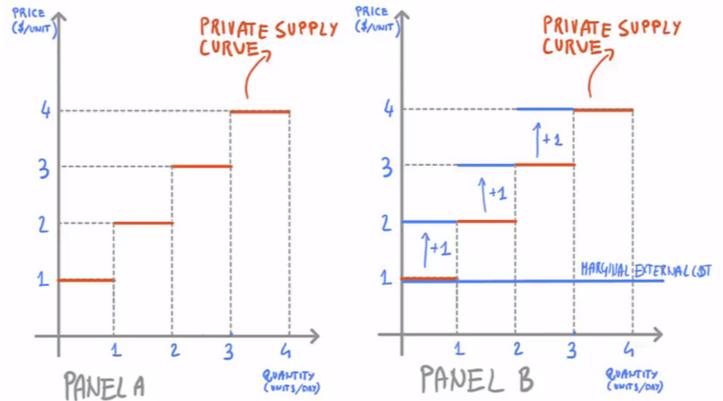
- How is this solved? the under-consumption problem can be solved by private negotiation e.g. you can offer to consume two extra units of perfume (6 units instead of 4) in exchange for \$2 per extra unit.
- No government = Coase theorem
- The idea that in certain cases the inefficiency arising from externalities can be solved without government intervention is encapsulated in Coase Theorem.
- **Coase Theorem:** "If trade in an externality is possible and there are no transaction costs, bargaining will lead to an efficient outcome regardless of the initial allocation of property rights."

List of some positive consumption externalities:

1. **Fitness activities:** by remaining in good health, an individual reduces the health care costs incurred by society.
2. **Vaccinations:** by receiving a vaccination, an individual reduces the likelihood that others get infected.
3. **Bike to work:** by biking to work, an individual reduces traffic congestion and pollution.
4. **Education:** by acquiring an education, an individual has a positive impact on society overall in the form of increased productivity.
5. **Social networking:** by participating in social networks, an individual has the potential to enrich the experience for the other members of the network.
6. **Fire protection services:** by acquiring fire protection services, an individual reduces the likelihood that a fire originated in his or her place may spread to other homes.

9.2 Negative Production Externality

- **Negative Production Externality:** A Negative Production Externality represents a cost incurred by someone who is not involved in the production of a given good.
- In order to find the social supply curve we just need to add the marginal external cost to the private marginal cost for each unit of hot-dog
- $MB_{\text{individual}} = P = MC_{\text{individual}} + MC_{\text{social}} = \text{negative production externality}$
- Again, in the presence of externalities, your private production decision does not maximize social surplus - the social marginal cost when you produce 3 units is given by your personal marginal cost (\$3) plus the marginal external cost (\$1), for a total of \$4. The social marginal cost (\$4) is clearly greater than the marginal benefit (the market price, \$3), hence society as a whole experience a negative surplus equal to \$1.
- Therefore there is deadweight loss:



- Private optimal production = 3 units
- Social optimal production = 2 units

• Again, the over-production problem can be solved by private bargaining. You can offer to decrease production by one unit (2 units instead of 3) in exchange for \$1 - price will be accepted because it is exactly the marginal cost that the social had to incur.

There are numerous other examples of negative production externalities. Here is a list including a few:

1. *Harmful production activities:* by adopting inadequate production technologies, firms impose a cost on society by increasing air, water, and noise pollution. The costs associated with global warming are considered as the biggest negative production externality ever created in human history.
2. *Excessive risk-taking:* by engaging in excessive risk-taking, banks can kickstart global financial crises

that have the potential to affect thousands of people.

3. *Over-fishing:* by engaging in over-fishing, firms run the risk of depleting the stock of fish in the ocean.

9.3 Externalities in Large Markets

- Market with many buyers and sellers are characterized by smooth private demand and private supply curves
- Below Panel A shows the social demand curve in a market with positive consumption externalities; Panel B shows the social supply curve in a market with negative consumption externalities.
- M represents the point of market equilibrium whilst O represents the socially optimal price and quantity where the social curves intersect.
- **Note** that Coase's condition no longer applies - the sheer number of buyers and sellers creates high

