

## Module 9 - Externalities

- **Ex.:** Chernobyl was a nuclear power plant in Pripyat, Ukraine that in 1986 during a safety test, occurred an accident that led to explosions and released large quantities of radioactive material

- what were the costs of the Chernobyl accident?

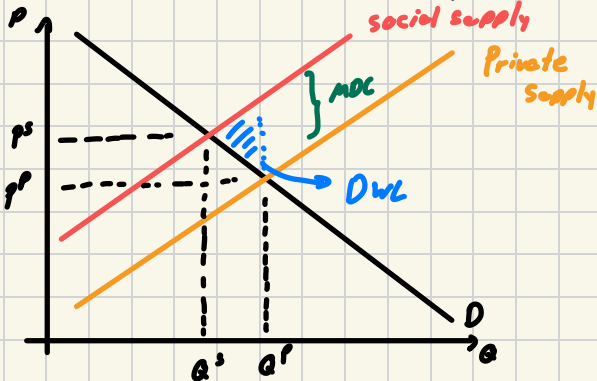
- \* People lost their job
  - \* People lost their houses
  - \* Lower energy supply  $\Rightarrow$   $\uparrow$  energy prices
  - \* Destruction of the biome
  - \* Cultural impact
- } Private
- } Social

- Private: Impact the prices directly
- Social: Don't impact on prices directly

- what about education?
  - Private benefit: Increase in income
  - Social benefit: Lower violence

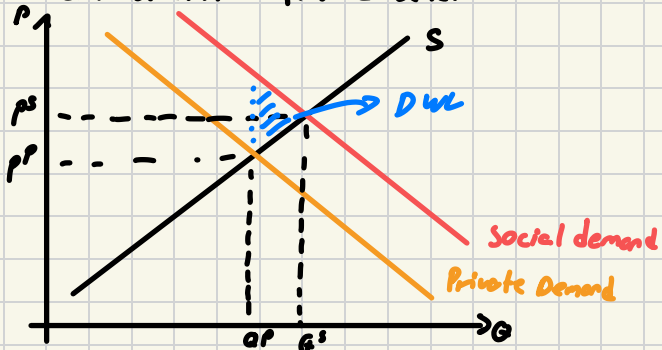
## Question 1 worksheet

- Think about pollution. The Firms should also account for the social cost of pollution



## Question 2 worksheet

- Think about education, not only will increase the income but also decrease violence
- Social Benefit > Private Benefit



### Question 3

Imagine that one day before the midterm your neighbor decides to throw a party with loud music.

He is having the benefit of throwing the party but not accounting for the cost of you sleeping well before the exam

- Solutions:

- Set a rule of about loud music
- Pay him to not throw the party that day.

## Question 6

c)

$$\text{Demand: } P = 50 - Q/10$$

$$\text{Supply: } P = 10 + 3Q/10$$

$$50 - Q/10 = 10 + 3Q/10 \Rightarrow 40 = \frac{4Q}{10} \Rightarrow Q = 100$$

$$P = 50 - \frac{100}{10} = 50 - 10 = 40$$

$$\text{Surplus: } \frac{(50-10) \cdot 100}{2} = 2000$$

b) Negative Externality  $\Rightarrow$  Higher cost  
 $\Rightarrow$  Affect supply

$$\text{Social supply: } P = 10 + \frac{3Q}{10} + 4 = 14 + \frac{3Q}{10}$$

Social equilibrium:

$$14 + \frac{3Q}{10} = 50 - \frac{Q}{10} \Rightarrow 36 = \frac{4Q}{10} \Rightarrow Q = 90$$

$$P = 14 + \frac{270}{10} = 41$$



c) DWL : Blue triangle in page 4 (Question 1)

1) The increase in prices is 4

$$2) Q^D - Q^S = 100 - 90 = 10$$

$$3) \text{Area : } \frac{4 \cdot 10}{2} = 20$$

## Types of goods

- **Rivalry**: The fact that I'm using it imply that you can't use it
- **Excludable**: I can exclude someone from using it

Rivalry

Yes

No

Excludable

Yes

No

Yes

No

Private

Common  
Resource

Club goods

Public good

Ex.:  
clothes

Ex.:  
fish in  
a lake

Ex.:  
Electricity

Ex.:  
National  
Park

## Question 5

- Free-rider problem: Someone that didn't pay for the public good is using it