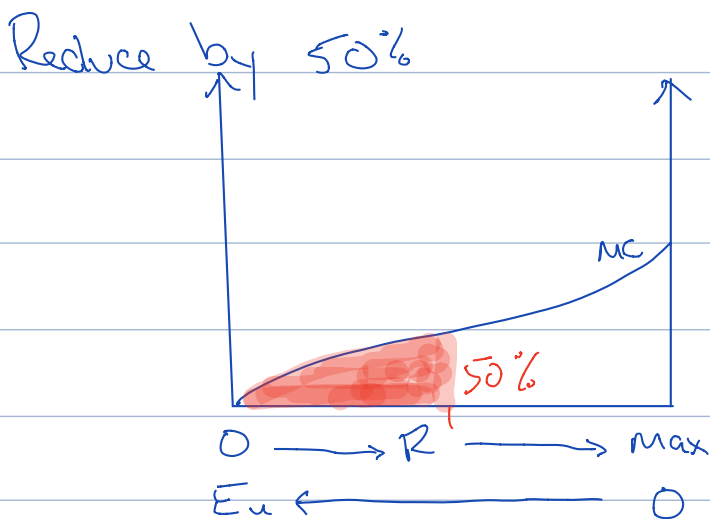


Last week: Sources of Economic Inefficiency

I - Externalities

Case 1: Fixed Ratio

Case 2: Variable Ratio between goods production and pollution emissions



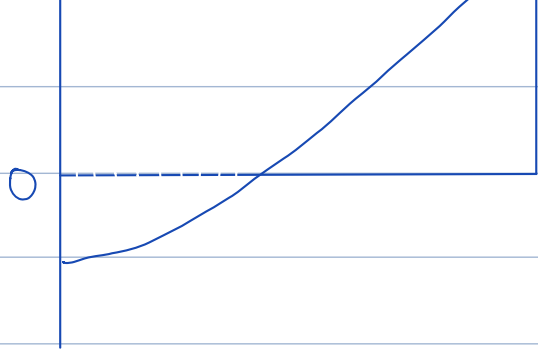
R - reduction (or "Abatement")
 E_u - uncontrolled emissions
 $MC(R)$ - marginal cost of reducing emissions

MC is saying when you start at zero, what would the cost of reducing 1 unit of emissions; going to the cost of reducing that last unit of emissions

While drastic, always an option to stop the operation. This means that cost is always finite.

MC

⇒ Given a cost to not



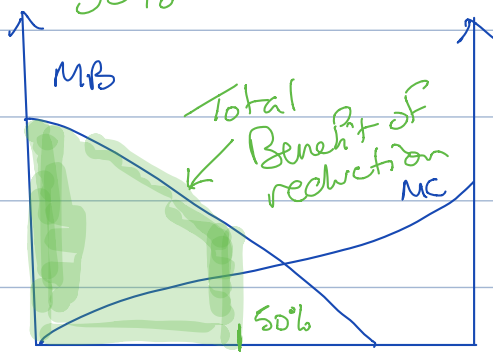
reducing; such as bad
publicity

Sick-bar : Uniformity

- Uniformly mixed pollutants : Green house gases (GHG)
 - ↳ very little falls back on the agent doing the emitting → don't include in analysis
- Non-uniformly mixed pollutants : NO_x , SO_x , VOC = smog
 - ↳ benefit is felt locally, agent more experiences the benefit → may have to include in analysis
 - ↳ ie. if upwind or downwind of pollutants
- Largely going to not address uniformity and the benefit to the agent as it is small and non-uniformly mixed pollutants are not as pronounced as they once were.

Marginal Benefit Curve:

Reduce 50%



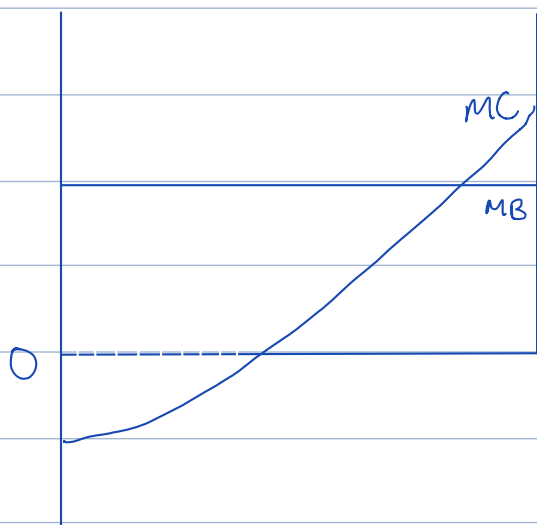
R - reduction (or "Abatement")

E_u - uncontrolled emissions

$MC(R)$ - marginal cost of reducing emissions

$MB(R)$ - marginal benefit of reducing emissions

0 → R → Max
 Eu ← ————— 0



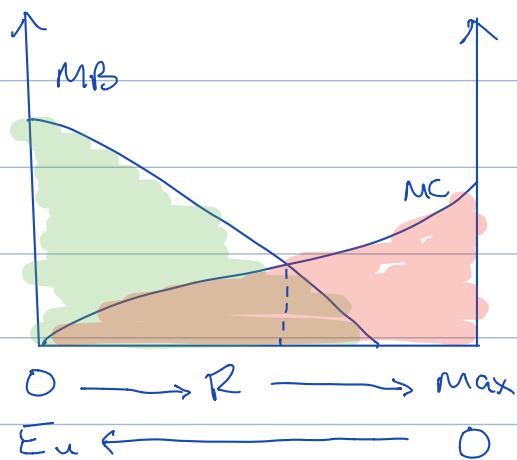
toxics
 ⇒ ie. PCB. Benefits are high and remain high at any level. ⇒ typically we have substitutes for them (not naturally occurring)

MD(E) - marginal damage of emissions (\$)

↳ "external costs"

Marginal damage ^{of emissions} = marginal benefit of reduction
 (right to left) (left to right)

Marginal benefit to the firm = marginal cost
 (right to left) (left to right)



Total Benefit to society of emissions reduction.

Total cost to the firm of emission reduction

The place where it intersects

$$NB = TB - TC$$

$$= 0 \quad \text{as } TB = TC$$

↳ this is what is equitable (good thing for society)

↳ if we believe all of the assumptions, intersection is the social equilibrium

* Socially optimal level of emissions. *

II Public Goods

1. Characteristics :

- Excludability - Non-excludable (Private: excludable)
- Depletability (Rivalness) - Non-Rival (Private: rival)

Club goods or congestible public good :

ie) Utility of the park depends on the use of the park ; more simultaneous use depletes the utility of the park