Externalities, public goods and environmental policies

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1. Externalities

- Action by either a producer or a consumer which affects other producers or consumers, but is not accounted for in the market price.

- Externalities can be **negative**—when the action of one party imposes (e.g. environmental) costs on another party—or **positive**—when the action of one party benefits another party (e.g. improves the landscape and the environment of a location).

Oil refineries

Cement plants

Coal-fired power plants

Vertical Green Walls
Improved Air Quality
Enhanced Aesthetics
Noise Reduction
Thermal Insulation…

Green cities
Reduction of population stress
Cleaner air
Increase in the value of real estate
Favoring fitness
Supporting inclusion
Encouraging light transport and mobility…

2. Impact of Externalities of steel production

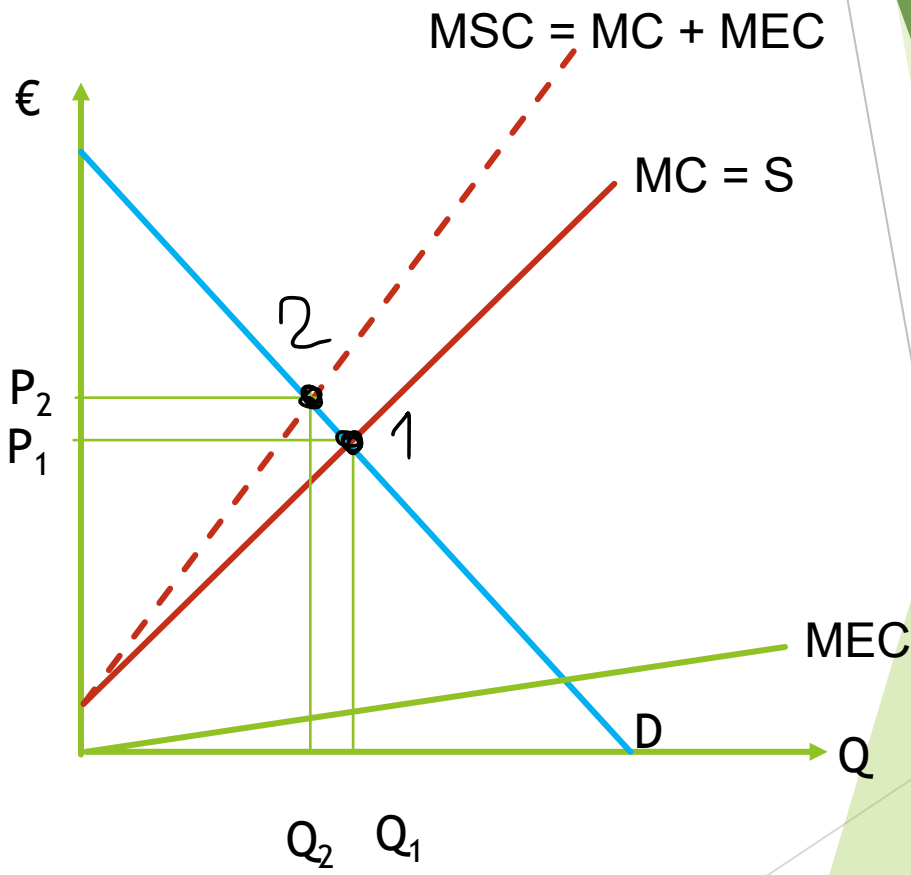
When there are negative externalities, the marginal social cost MSC is higher than the marginal private cost MC.

The difference is the marginal external cost MEC.

A profit-maximizing firm produces at Q_1, where D is equal to S.

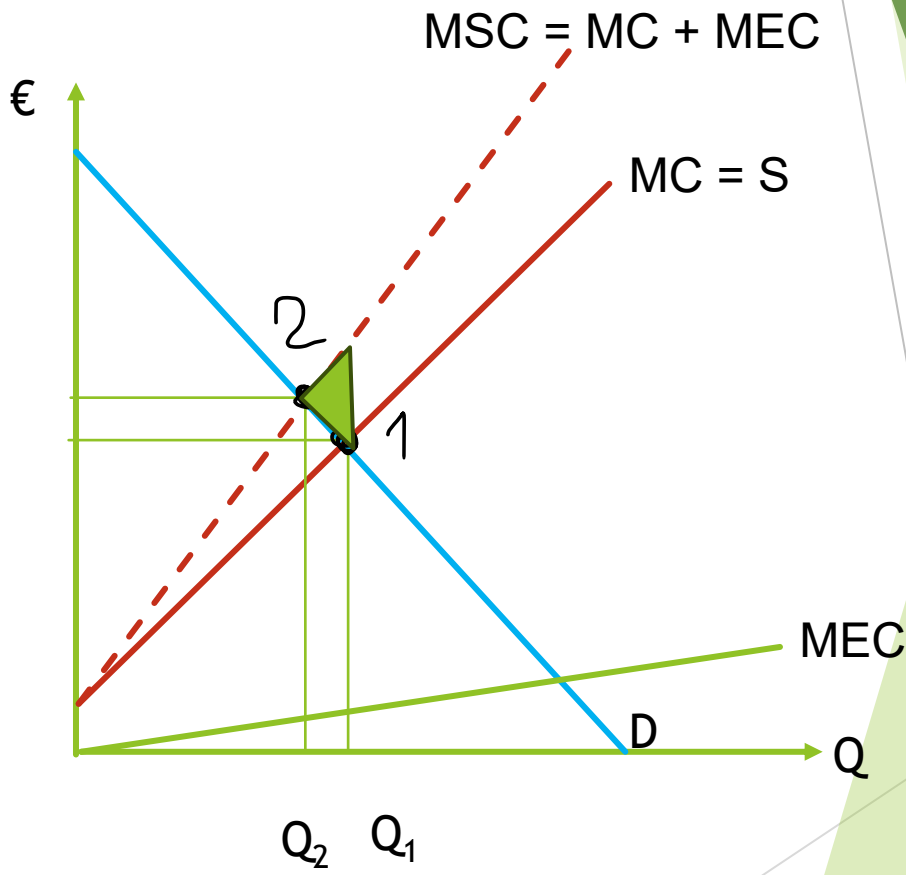
The efficient output is Q_2 at which D equals MSC.

We produce too much (Q1) and the equilibrium price is too low (P1).



2. Impact of Externalities of steel production

- Social welfare loss = green triangle!
- What is MEC measuring?
  - Environmental damage
  - Health problems for residents
  - CO_2 emissions and climate change
  - Lower value of real estate
  - Other external economic impacts?



Problem

- D = 200 – Q
- MC = 2+ 2Q
- MEC = Q
- Find the social welfare loss

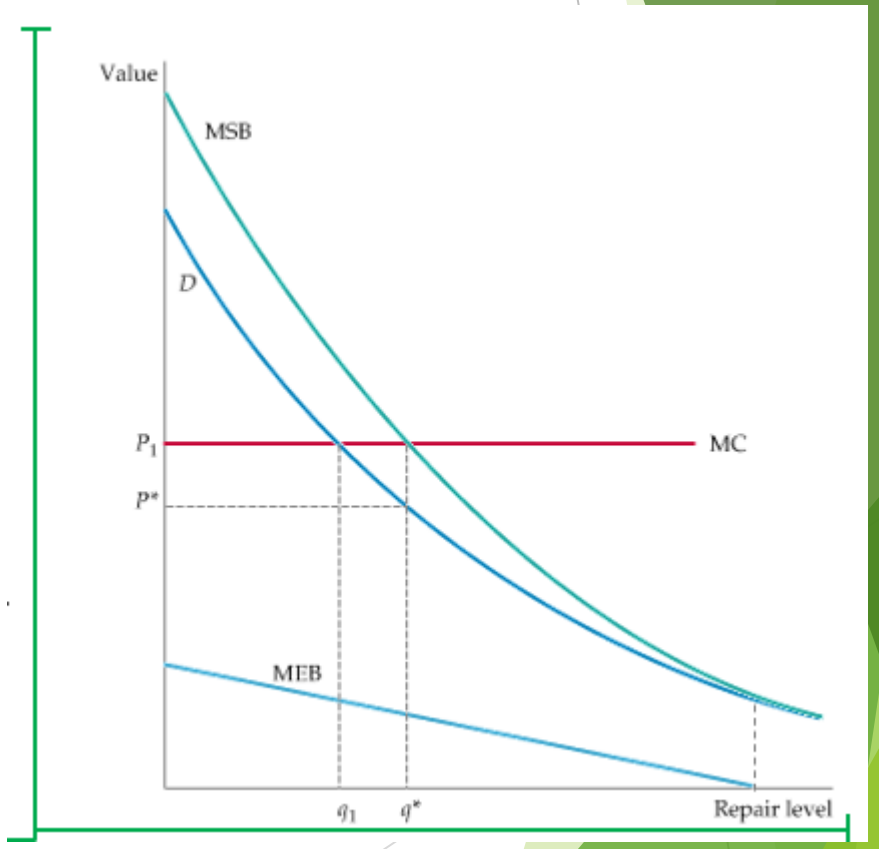
2. Impact of positive Externalities of green areas

When there are positive externalities, marginal social benefits MSB are higher than marginal private benefits *D*.

The difference is the marginal external benefit MEB.

A self-interested residents invests q_1 in greening the neighborhood, determined by the intersection of the marginal benefit curve *D* and the marginal private cost curve S = MC.

The efficient level of investments in green area q^* is higher and is given by the intersection of the marginal social benefit and marginal private cost curves.



Problem

- D = 200 – Q
- MEB = 100 - Q
- MC = 180
- Find:
  - q_1;
  - q^*;
  - the subsidy needed to change the equilibrium quantity from q_1 to q^*