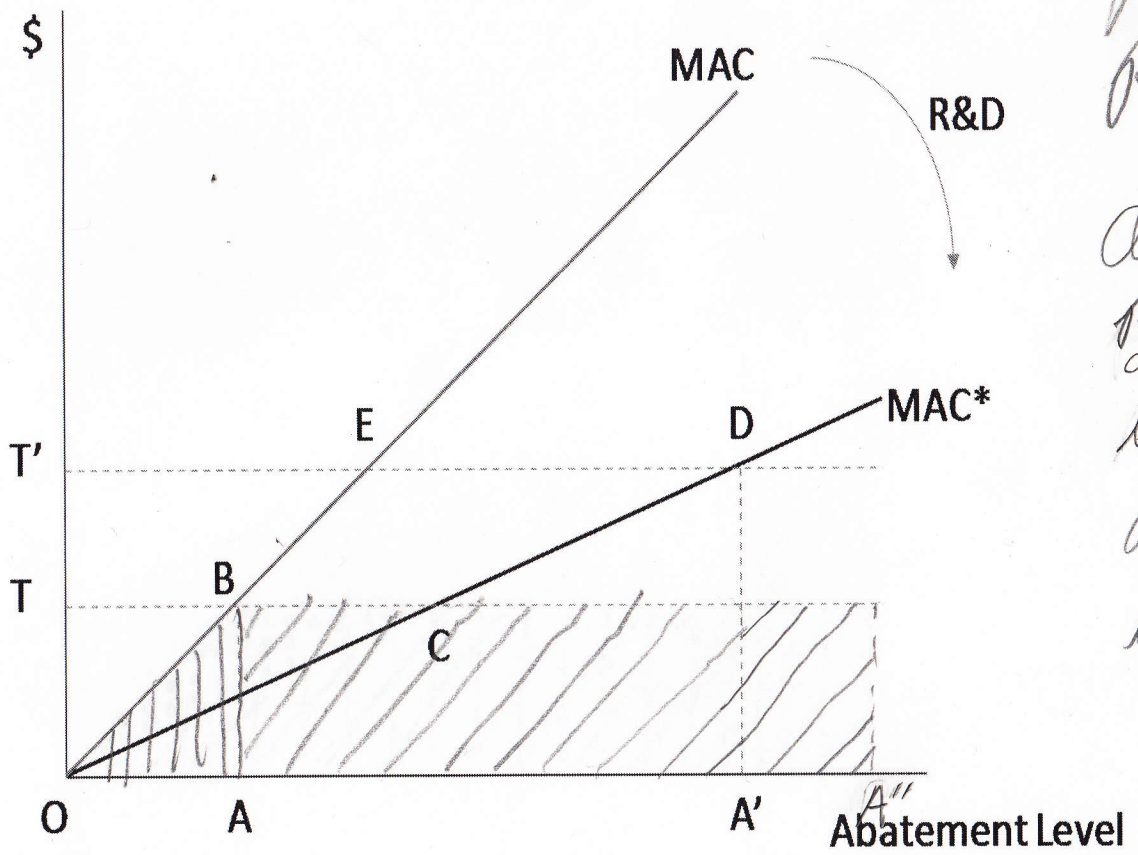
Regulation and Innovation



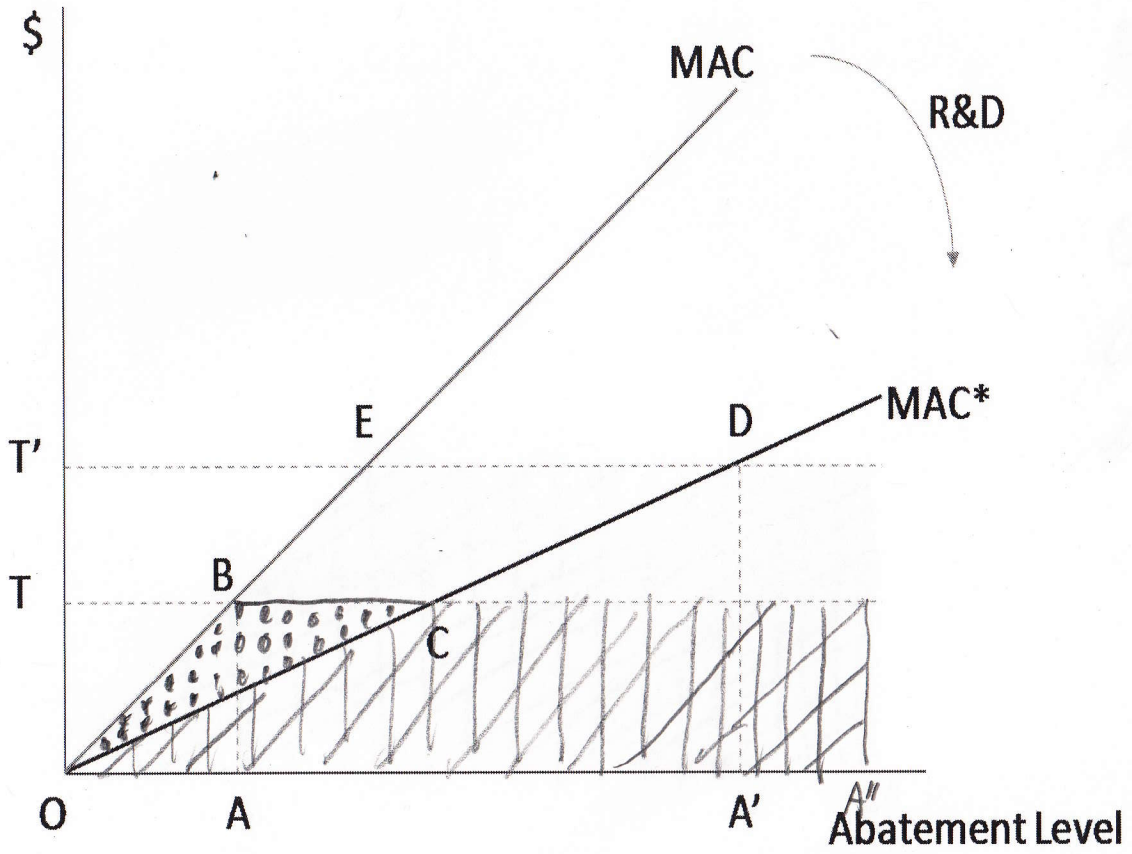
OAB is what the firm currently pays for abatement

Assume maximum possible abatement at chosen output is A'' so taxes are T * (A''-A) in addition

- Suppose a polluting firm operates in a perfectly competitive market and maximizes profits
- Suppose the firm could invest to reduce its marginal abatement cost (R&D to develop new pollution abatement technology)

2

Regulation and Innovation

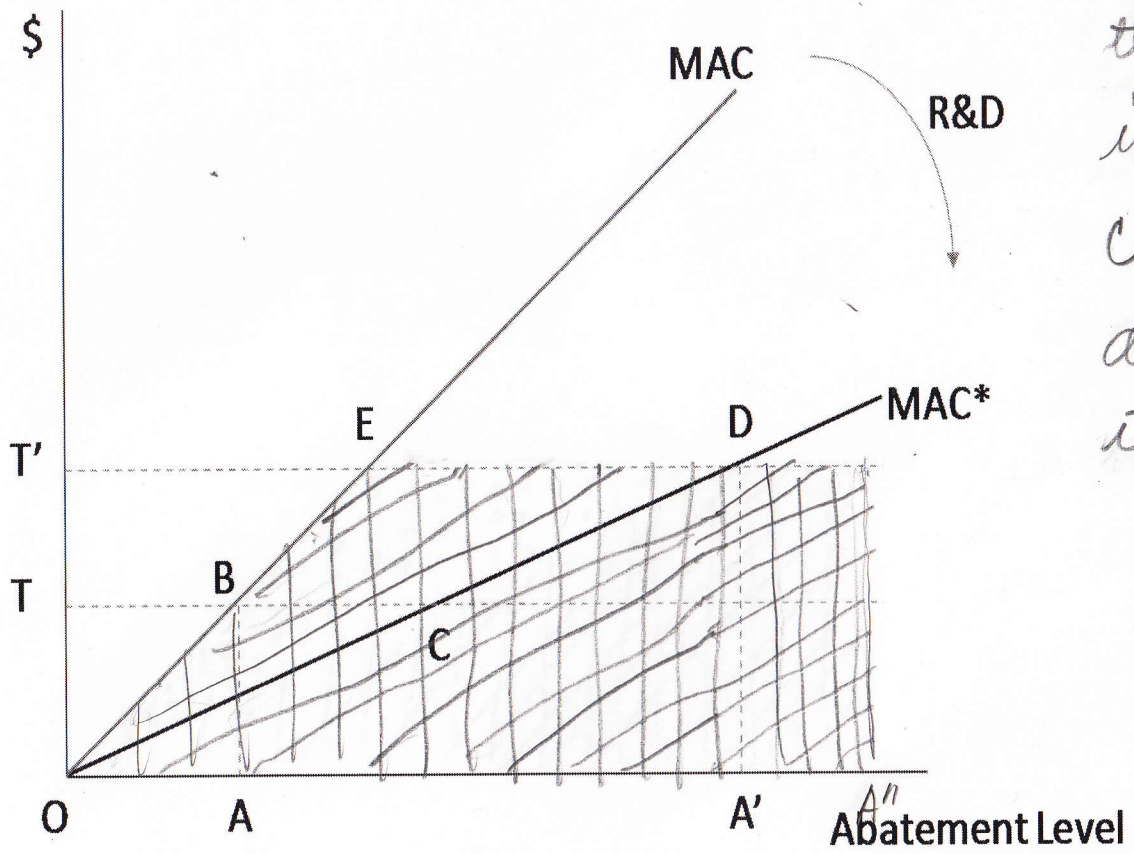


If taxes stay at T and the firm invests then the cross hatched area is what it pays, and the dotted area OBC is what it saves

- Suppose a polluting firm operates in a perfectly competitive market and maximizes profits
- Suppose the firm could invest to reduce its marginal abatement cost (R&D to develop new pollution abatement technology)

3

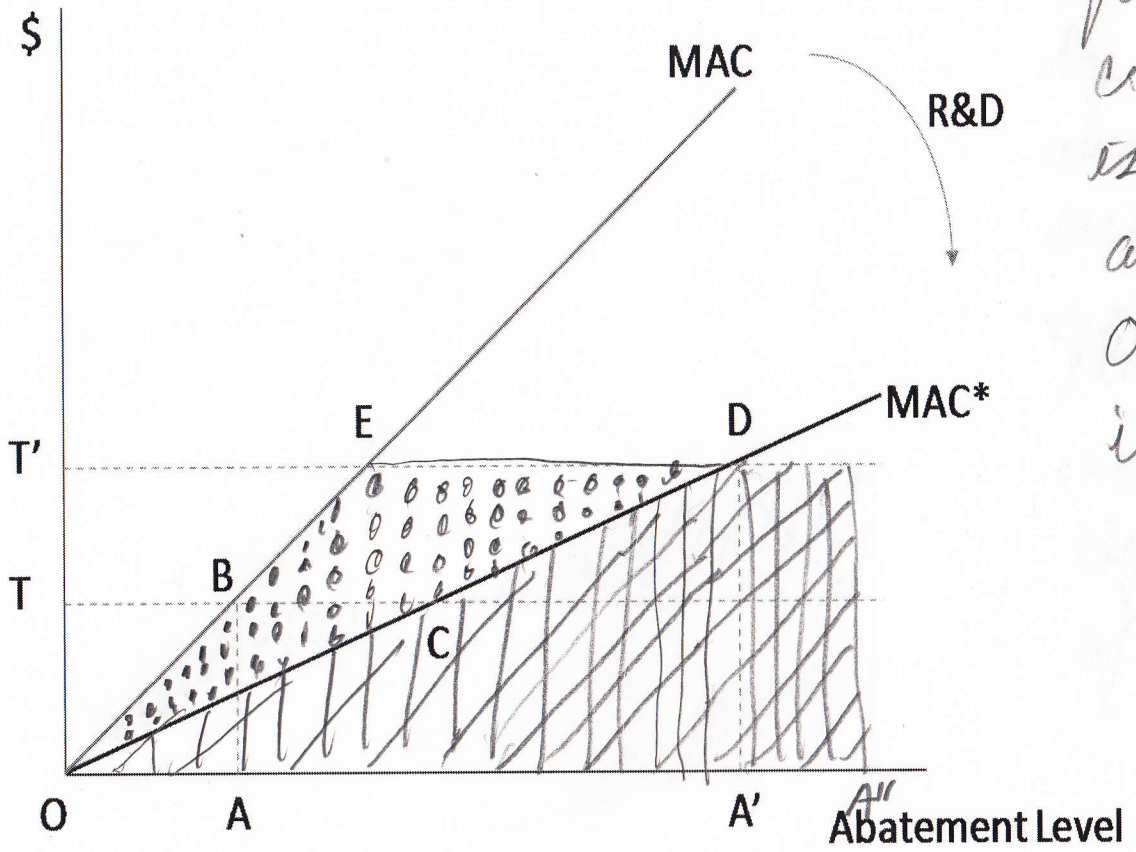
Regulation and Innovation



If taxes are increased and there is no investment, the cross hatched area, is what it pays

- Suppose a polluting firm operates in a perfectly competitive market and maximizes profits
- Suppose the firm could invest to reduce its marginal abatement cost (R&D to develop new pollution abatement technology)

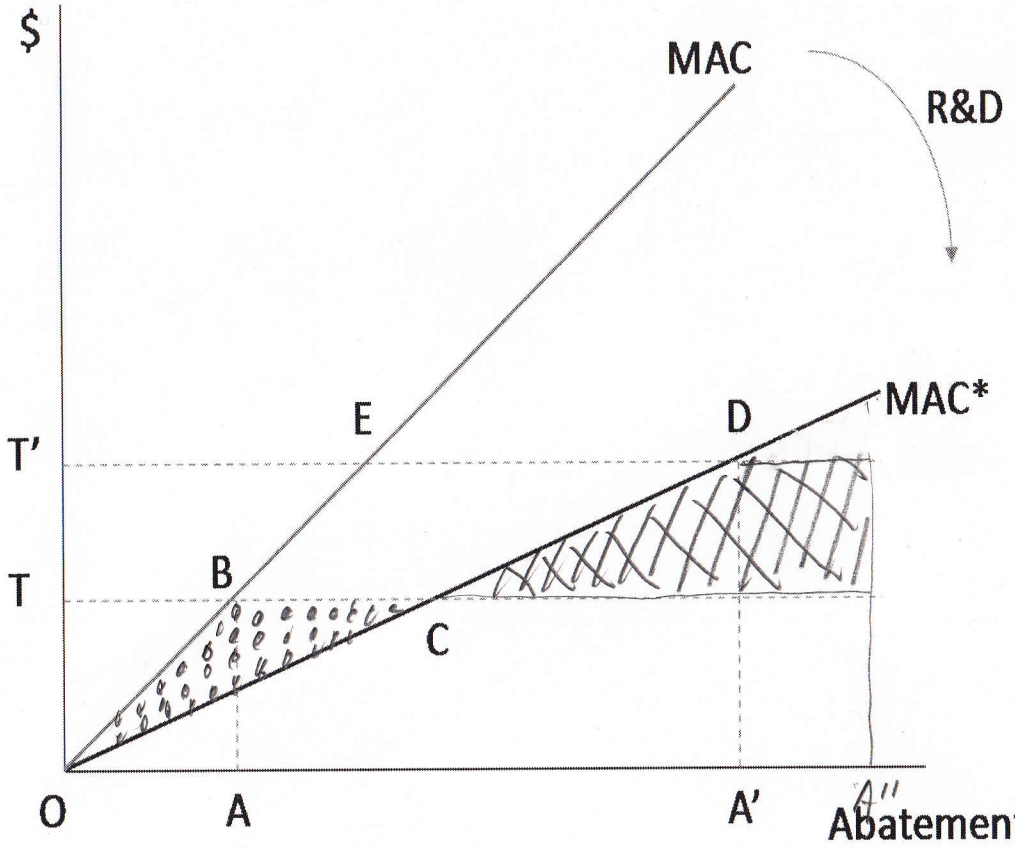
Regulation and Innovation



If taxes are increased and the firm invests the cross hatched area is what it pays and the dotted area OED is what it saves

- Suppose a polluting firm operates in a perfectly competitive market and maximizes profits
- Suppose the firm could invest to reduce its marginal abatement cost (R&D to develop new pollution abatement technology)

Regulation and Innovation



However, the firm is worse off because cost has increased by the cross-hatched area minus the dotted area

The further we move A'' to the right, the worse off the firm is

- Suppose a polluting firm operates in a perfectly competitive market and maximizes profits
- Suppose the firm could invest to reduce its marginal abatement cost (R&D to develop new pollution abatement technology)