Public economics

NOVA SBE

Undergraduate program

Spring 2017

Practical Session IV

Externalities II

1. Why do governments sometimes impose quantity regulations that limit the level of negative-externality-inducing production? Why do governments sometimes impose price regulations by taxing this production?

2. Two firms are ordered by the federal government to reduce their pollution levels. Firm A's marginal costs associated with pollution reduction are $MC = 20 + 4Q$. Firm B's marginal costs associated with pollution reduction are $MC = 10 + 8Q$. The marginal benefit of pollution reduction is $MB = 400 - 4Q$.

a) What is the socially optimal level of each firm's pollution reduction?

b) Compare the social efficiency of three possible outcomes:

(1) require both firms to reduce pollution by the same amount;

(2) charge a common tax per unit of pollution;

(3) require both firms to reduce pollution by the same amount but allow pollution permits to be bought and sold.