

# End-of-chapter Questions

## Chapter 6: Externalities: Theoretical Issues

1. What is the distinction between a pecuniary and a technological externality? Why is one a problem for a market economy and the other not?
2. Distinguish between an aggregate and an individualized externality and give an example of each. What difference does it make to the government's attempt to correct for externalities whether the externality is aggregate or individualized?
3. Consider the case of industrial water or air pollution in which pollution is proportional to output and an aggregate externality. The people are affected by the pollution and their marginal damage functions are:

$$MD_1 = 5Q \quad MD_2 = 7Q \quad MD_3 = 13Q$$

What is the difference between the private and social market supply curves at  $Q = 10$ ?

4. Consider the case of industrial water or air pollution in which pollution is proportional to output. What is a Pigovian tax for the pollution externality and why does it achieve an efficient solution to the externality? Assume that the polluting firms sell their output in competitive markets.
5. Discuss the following: 'Industrial polluters should pay for their pollution in direct proportion to the total amount of pollution they cause.'
6. Consider the case of industrial water or air pollution in which pollution is proportional to output. The output market is competitive.
  - a. If the pollution is an individualized externality, why is there no tax levied at the market level?
  - b. If there is no tax at the market level, is there a difference between the private and social market supply curves? If no, why not? If yes, what is it?
  - c. Is a Pigovian tax still central to the efficient solution of the externality? Explain.
7. Why is industrial pollution unlikely to be directly proportional to firms' outputs?
8.
  - a. Why is air (water) a useful factor of production for many industrial firms?
  - b. Why do industrial firms have an incentive to pollute air (water)?
  - c. Why is a tax on the use of air (water) a good strategy for reducing industrial pollution? (Name two or three of its desirable properties).

- d. Why do economists prefer a tax to a command-and-control approach to reducing industrial air (water) pollution?
- 9. a. Why is zero pollution (100% pollution reduction) unlikely to be the correct policy for many industrial pollutants?
- b. Why might it be the correct policy for some industrial pollutants?