

SECTION NOTES 27

Covering material from Lecture on May 2nd

CLASS OUTLINE

1. Externalities

1 Externalities

An externality is an effect from a market transaction on the welfare of an individual that is not accounted for in the market transaction. These “external” effects can either be positive or negative. For positive externalities, the market (private) equilibrium production level is usually less than the socially optimum, and for negative externalities, the market equilibrium production is usually more than the socially optimum.

Problem: (Pindyck & Rubinfeld, Chapter 18, Exercise 7)

In a market for dry cleaning, the inverse market demand function is given by $P = 100 - Q$ and the (private) marginal cost of production for the aggregation of all dry-cleaning firms is given by $MC = 10 + Q$. Finally, the pollution generated by the dry cleaning process creates external damages given by the marginal external cost curve $MEC = Q$.

- a. Calculate the output and price of dry cleaning if it is produced under competitive conditions without regulation.
- b. Determine the socially efficient price and output of dry cleaning.
- c. Determine the tax that would result in a competitive market producing the socially efficient output.
- d. Calculate the output and price of dry cleaning if it is produced under monopolistic conditions without regulation.
- e. Determine the tax that would result in a monopolistic market producing the socially efficient output.
- f. Assuming that no attempt is made to monitor or regulate the pollution, which market structure yields higher social welfare?

Problem: (Pindyck & Rubinfeld, Chapter 18, Exercise 8)

A beekeeper lives adjacent to an apple orchard. The orchard owner benefits from the bees because each hive pollinates about one acre of apple trees. The orchard owner pays nothing for this service, however, because the bees come to the orchard without his having to do anything. Because there are not enough bees to pollinate the entire orchard, the orchard owner must complete the pollination by artificial means, at a cost of \$10 per acre of trees.

Beekeeping has a marginal cost of $MC = 10 + 5Q$, where Q is the number of beehives. Each hive yields \$40 worth of honey.

- a. How many beehives will the beekeeper maintain?
- b. Is this the economically efficient number of hives?
- c. What changes would lead to a more efficient operation?