Monopoly

Introduction

The most basic model of profit maximizing behavior by a firm assumes that the firm is a price taker. That means that the firm can sell any quanity at the market price, but the firm's choice of quanity to supply has no effect on that market price.

A more general approach is to assume that the firm faces a downward sloping demand curve because it's choice of quantity to supply does affect the market price. This is a central characteristic of a monopolist, but firms that face a downward sloping demand curve can also be in markets with a limited number of competitors or monopolistic competition. An example of the latter might be a firm selling a branded product where both product price and brand loyalty influence purchasing decisions.

The Model

The firm's average cost function is

$$AC = 15 + 2\ \text{Weather} - 2\ Q + 0.10\ Q^2$$

The firm faces the demand curve

$$Q = 10 - 1.0\ P\ 0.2\ P[-1] + 0.10\ \text{Income}$$

Exercises

1. Draw the average cost (AC) and marginal cost (MC) curves.

2. Draw the demand curve and the marginal revenue (MR) curve.

3. Show that producing 7.96 units maximizes profits.

4. Change the value of the weather variable. Determine what effect that has on the profit maximizing quantity.