

Monopoly

Reasons for monopoly: (1) patent, government protection, (2) ownership of a key input, (3) natural monopoly, because LRAC falls until it crosses the market demand curve.

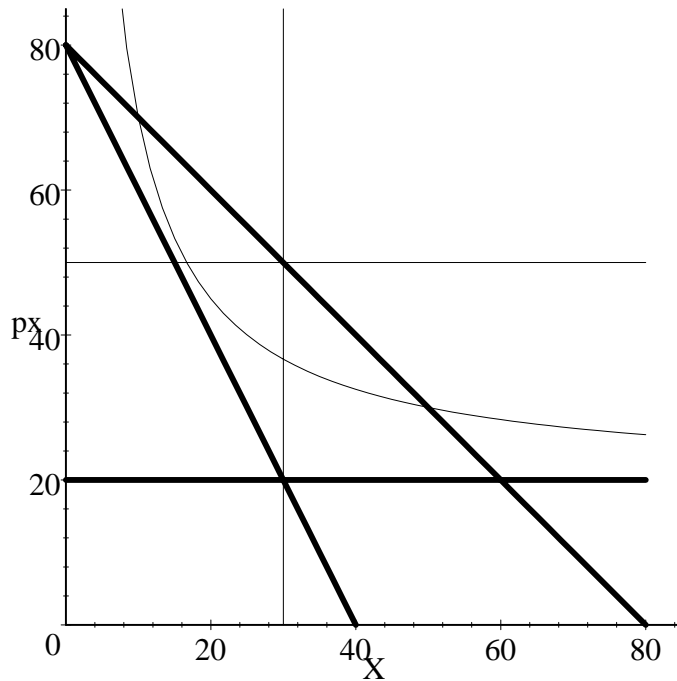
$$\max \pi = p_x x - TC(x)$$

yields the first order condition

$$p_x + x \frac{dp_x}{dx} - MC(x) = 0.$$

The first two terms comprise marginal revenue. When a monopolist produces more output, it takes into account the fact that the price it can charge is lower.

We can think of the monopolist as choosing p_x or as choosing x .



Monopoly

The monopoly quantity satisfies $MR(x) = MC(x)$.
 The monopolist charges the price the market will pay for that quantity.

example:

$$\begin{aligned}X^d &= 80 - p_x \\LRTC &= 500 + 20x.\end{aligned}$$

First, we convert the demand curve into an inverse demand, price as a function of x .

$$p_x = 80 - x.$$

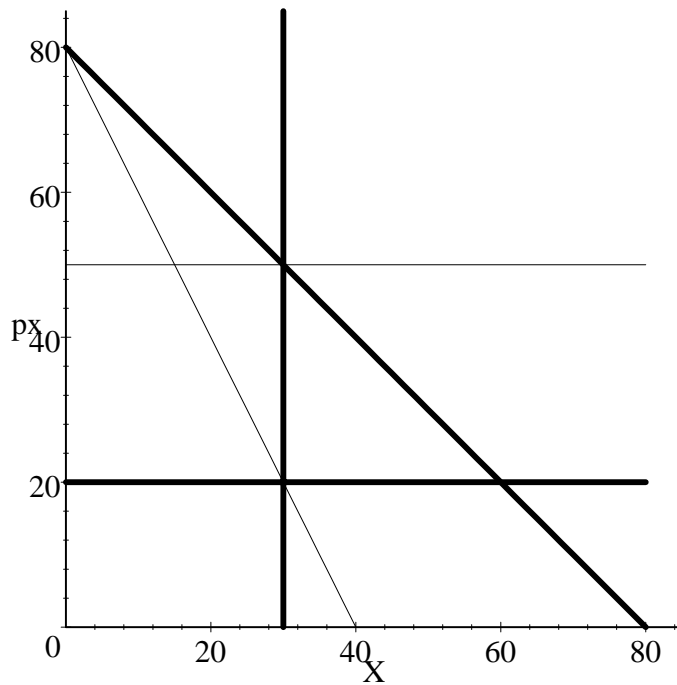
Next, derive the total revenue function.

$$TR(x) = (80 - x)x.$$

Finally, set marginal revenue equal to marginal cost and solve for x .

$$\begin{aligned}MR(x) &= 80 - 2x = 20 = MC(x). \\x &= 30, \text{ which implies } p_x = 50.\end{aligned}$$

The monopolist receives profit equal to $50(30) - 500 - 20(30) = 400$. There is a deadweight loss triangle, since the socially optimal quantity is 60, where demand and marginal cost intersect.



Monopoly

What is wrong with monopoly?

The monopoly keeps prices high by restricting output.
Deadweight loss.

The monopoly may waste additional resources by trying to maintain their market power. (Lobbying governments, erecting barriers to entry)

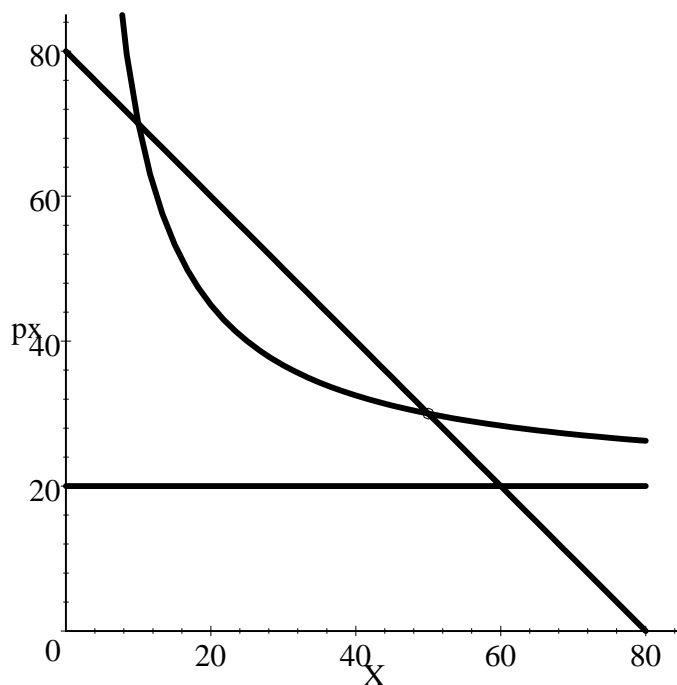
What can society do about monopoly?

Antitrust Laws allow for lawsuits if one firm is monopolizing an industry, or if a group of firms conspires to restrain competition (for example, if they were to form a cartel). Mergers to form monopolies can be prevented. Unfortunately, the issues are complicated, and judges and juries are sometimes unable to sort out the economic arguments.

For example, consider resale price maintenance. If a manufacturer drops a retailer who discounts its product, but reinstates the retailer if he promises to charge the suggested price in the future, that is an illegal conspiracy. If the manufacturer promises to forever cut off any retailer who discounts its product, there is no conspiracy, so this is legal.

Antitrust laws will not help the problem of natural monopoly, where we want there to be just one firm. Competition or breakup would lead to duplication of costs.

1. Rate of return regulation. Allow the firm to receive a normal rate of return on the firm's capital, so that economic profits are zero. Choose x such that $LRAC = p_x$.



Monopoly

Problems with rate of return regulation:

(a) A slightly inefficient quantity is chosen, since the efficient quantity would be where $MC = p_x$.

(b) Cost of having a regulatory commission, time delays, danger of the firm capturing the regulation process (revolving door theory).

(c) The firm might be able to shift costs from the non-regulated part of the firm to the regulated part of the firm (where the costs are added to the capital base).

(d) If the rate of return on capital is set too high, there is an incentive to overinvest in capital.

2. Force the firm to price at marginal cost, yielding an efficient amount of output.

Problems:

(a) Since marginal cost is below average cost, the firm makes negative profits. This scheme is not viable.

(b) Cost of having a regulatory commission, time delays, danger of the firm capturing the regulation process (revolving door theory).

3. Marginal cost pricing, but with a subsidy to the firm, allowing it to break even.

Problems:

(a) It isn't fair for noncustomers to pay towards the subsidy. On the other hand, if the customers must pay, we must raise p_x until the firm can break even, and we are back with rate of return regulation.

4. Have firms bid for the right to become the (unregulated) monopolist for a period of time. That way, the monopoly profits go back to the government.

Problems:

(a) Pinning down and committing to the details of the agreement is difficult.

(b) After the first auction, the incumbent insider has an advantage.

(c) Now the monopolist will drastically raise the price and restrict the supply, so we are back to the huge deadweight loss of an unregulated monopoly. Rather than bidding a flat amount of money, the firms should bid in terms of the price they will charge.