

A monopolist's marginal revenue is always less than or equal to the price of the good. Marginal revenue is the amount of revenue the firm receives for each additional unit of output. It is the difference between total revenue – price times quantity – at the new level of output and total revenue at the previous output (one unit less).

Thus $MR(Q) = P(Q) \times Q - P(Q-1) \times (Q-1) < P(Q) \times Q - P(Q) \times (Q-1) = P(Q)$, since $P(Q-1) > P(Q)$.

Therefore the monopolist's marginal cost curve lies below its demand curve.

Another way to see this:

When a monopoly increases amount sold, it has two effects on total revenue:

– the output effect: More output is sold, so Q is higher.

– the price effect: To sell more, the price must decrease, so P is lower.

For a competitive firm there is no price effect. The competitive firm can sell all it wants at the given price.

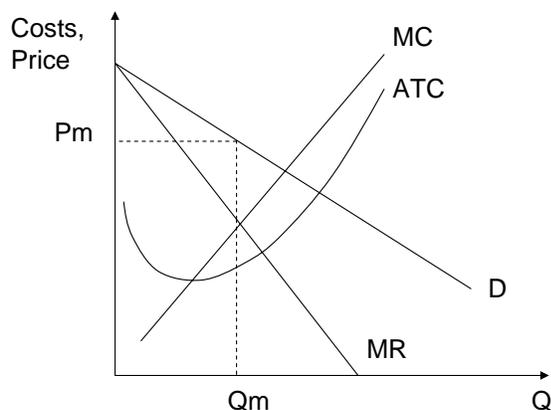
For a monopoly there is a price effect. It must reduce price to sell additional output. So the marginal revenue on its additional unit sold is lower than the price, because it gets less revenue for previous units as well (it has to reduce price to the same amount for all units).

Marginal revenue can even become negative – that is, the total revenue decreases from one output level to the next.

Profit Maximization

Like a competitive firm, the monopolist produces the quantity at which marginal revenue equals marginal cost. The difference is that for the monopolist, marginal revenue no longer equals price.

The price that the monopolist charges is the price at which buyers are willing to buy the profit-maximizing quantity.



Monopoly does not have a supply curve. There is no function of price that determines what quantity a firm will offer given a price. Instead, the quantity a firm offers is determined by the entire demand curve it faces.

The shape of the demand curve determines the shape of the marginal revenue curve, which determines with the marginal cost curve the profit-maximizing quantity.

In a competitive market supply decisions are made based on just price (the demand curve faced by a single firm is horizontal at some price). In a monopoly, supply decisions need more than just the knowledge of one price.

For a firm in competitive market, price equals marginal cost. $P = MR = MC$. For a monopolist, price exceeds marginal cost. $P > MR = MC$.

Monopolist's profit

As with a competitive firm, Profit is $\Pi = TR - TC = (TR/Q - TC/Q) \times Q = (P - ATC) \times Q$.

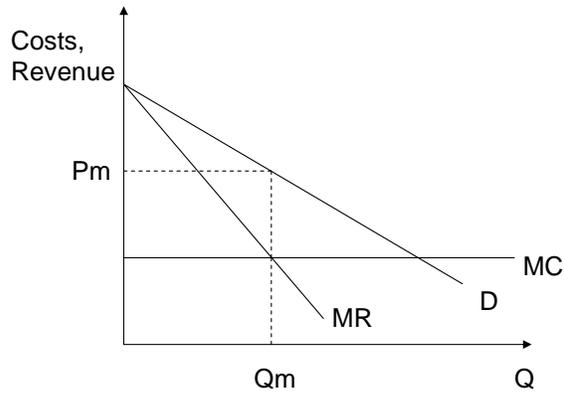
Monopoly drugs versus generic drugs

Prices are determined differently in monopolies and in competitive markets.

This can be seen from the pricing of pharmaceutical drugs: The market for a drug first has monopoly structure, then competitive structure.

When a firm first discovers a drug, it gets a patent on it – this gives the firm a monopoly on the drug.

When the patent runs out, any firm can make the drug – the market becomes competitive.



While the patent is in effect, the firm maximizes profit by producing where marginal revenue equals marginal cost and charging price above marginal cost.

When the patent runs out, new firms enter the market encouraged by profits.

Price should fall to equal marginal cost. As more firms enter market, demand curve faced by the firm becomes more elastic, until it becomes horizontal at price and marginal revenue curve changes to equal price.

In reality price does fall when the patent runs out.

But monopolist does not lose all market power, because some people still trust the brand name drug more than the generic drugs.

Welfare costs of monopoly

Monopoly charges price above marginal cost. This is bad for buyers, who would rather have price equal marginal cost.

But good for sellers, who can make profit. Does the harm to buyers of monopoly outweigh the benefits to sellers of monopoly?

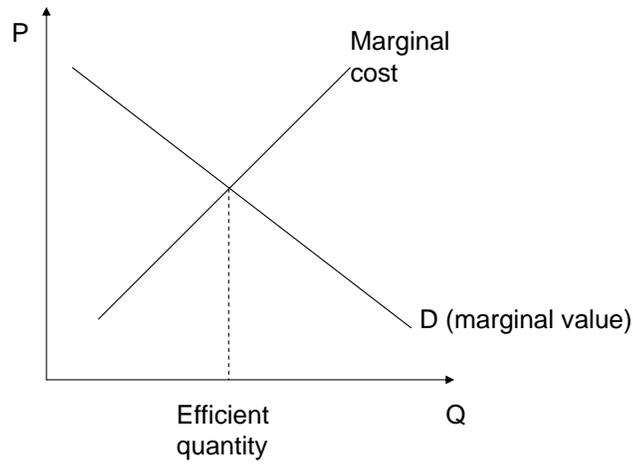
The answer is yes. Monopoly generates deadweight loss. This means that total surplus when there is a monopoly is less than it would be if the same market were competitive.

To show this, consider what the monopolist would do if it were run by a benevolent social planner. The aim of the benevolent social planner is to maximize total surplus (producer surplus plus consumer surplus).

Total surplus is also the benefit to consumers of having the good minus the cost of making the good.

The socially efficient quantity is where the demand curve and the marginal cost curve intersect. At any quantity below this quantity, the marginal benefit to consumers exceeds the marginal cost to producers, so an extra unit should be produced. At any quantity above this quantity, the marginal cost to producers exceeds the marginal benefit to consumers, so decreasing output raises total surplus.

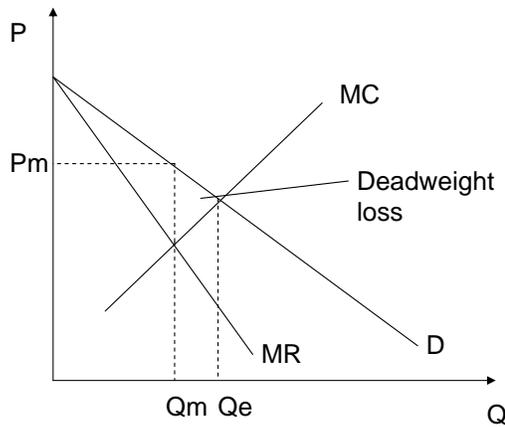
Thus the surplus-maximizing (efficient) quantity produced is where marginal cost and demand curves intersect.



The social planner could maximize total surplus by charging the price corresponding to the point of intersection between demand and marginal cost curves.

To find the welfare effects of monopoly, compare the maximized total surplus with the total surplus when the firm is run by a profit-maximizing owner.

This shows that the monopolist produces at less than the efficiency-maximizing amount, charging a price that is higher than the efficiency-maximizing price.



Some potential consumers value the good higher than the marginal cost of producing an additional unit, but less than the monopolist's price. These consumers, who should be buying the good for efficiency, are not buying it. Monopoly pricing prevents some mutually beneficial trades from taking place.

Deadweight loss from monopoly similar to deadweight loss from a tax. Like a tax, monopoly places a wedge between consumer's willingness to pay and producer's marginal costs.

Is monopoly's profit a social cost?

The firm's profit itself need not be a problem for society. The transfer of more money from consumer to monopolist is not what affects total surplus.

What makes total surplus be less than the efficient amount in a monopoly is that the monopoly produces at less than the efficient quantity.

An exception: If a monopoly has to incur costs to stay a monopoly. E.g. a government-created monopoly pays lobbyists to convince government to keep it as a monopoly.

In such a case, the profits of the monopoly are helping to create deadweight loss.

Public policy toward monopoly

Possible responses:

1. Try to make monopolized industries more competitive
2. Regulate monopolist's behavior
3. Turn private monopolies into public firms
4. Do nothing

Antitrust laws

A collection of laws whose goal is to reduce monopoly power.

Microsoft was involved in several large antitrust cases. One had to do with the going out of business of the company that made Netscape. Internet explorer introduced by Microsoft, made free. Caused it to be automatically installed in any new computer. Work needed to be done to change browser to Netscape.

The claim was that Microsoft was using its monopoly power in the operating system market to gain monopoly power in the browser market. That is illegal (considered anti-competitive behavior – the law is somewhat vague).

Another case involved the attempted merger with Intuit (a tax software creating company). The Department of Justice challenged this merger in court, because the judge believed that the merger would make the market for software significantly less competitive.

First, most important of antitrust laws was Sherman Antitrust Act, passed in 1890 to reduce power of large trusts seen as dominating the economy at the time. (A trust was a holding company – a company that owns many other companies – which coordinates their activities to promote its own market power).

Examples: Railroads and the banking system – if credit was tight, railroads still had the assurance of getting credit; Media connected with other business – advertise their own products.

Clayton Antitrust Act strengthened government's powers to curb monopoly power and allowed private lawsuits.

Due to antitrust laws, government has various powers to promote competition – it can prevent mergers, prevent collusion (ch.16), break up companies. In 1984, government split up AT&T into eight smaller companies.

Some costs of antitrust laws. Companies may merge to lower costs, as when the market is a natural monopoly. Benefits from mergers called synergies.

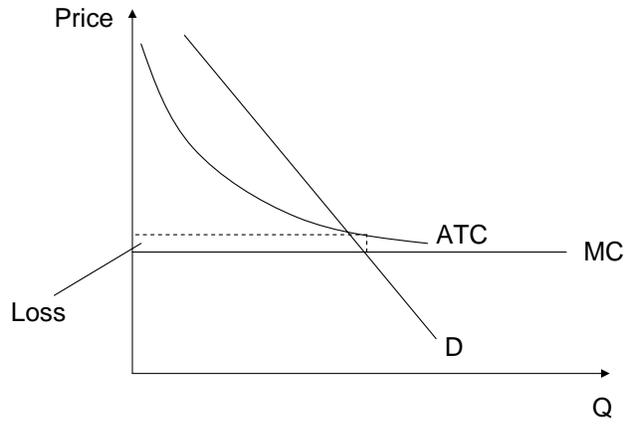
Some banks merged recently, allowed them to reduce administrative staff, cut costs.

To raise social welfare through antitrust laws, government should be able to determine which mergers raise social welfare and which don't. Critics of antitrust laws are skeptical that government can make these decisions. (firms always claim there are cost advantages to a merger). If there is no cost advantage of a merger, the merger is really inefficient.

Regulating behavior of monopolists. Common solution for natural monopolies, like water and electric companies. Government agencies regulate their prices.

Problem for setting the price of a natural monopoly: Natural monopolies have declining average total cost. Therefore marginal cost lies below average total cost.

If the government sets the price equal to marginal cost, the monopolist will make a loss and exit the market.



One way to respond to this is to subsidize the monopolist. But a subsidy creates its own deadweight loss.

Another way is to allow the monopolist to charge average total cost. Then the monopolist will earn zero profit. But there will be deadweight loss due to the price not equalling marginal cost.