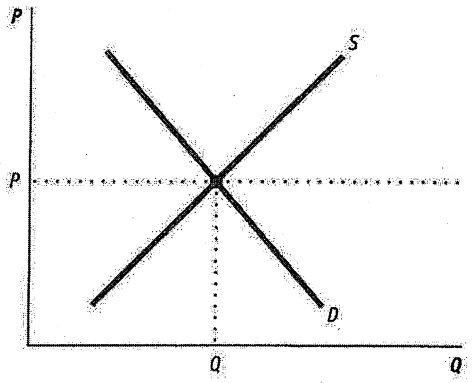
Perfect Competition

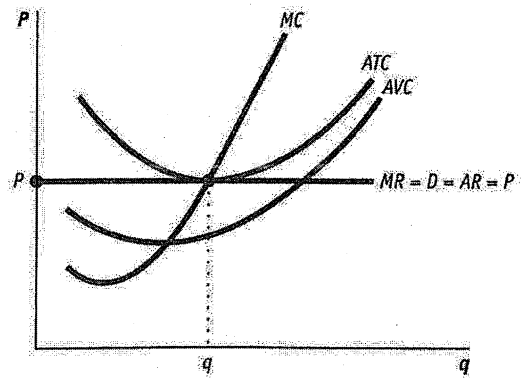
The industry and firm graphs for a perfectly competitive industry show the market price of the good and the market/firm level of output.

The market price of the good is determined in the market. Once the market price is determined by the intersection of the supply and demand curves, the perfectly competitive firm takes that price as given (firms are price takers) and the firm's demand and marginal revenue curves are horizontal at the market price. Showing that the firm's price comes from the market is the purpose of asking for side-by-side graphs.



The firm maximizes profit by producing the level of output at which $MC = MR$. If $P > ATC$ at that level of output, the firm earns a profit. If $P < ATC$, the firm earns a loss. If $P = ATC$, the firm earns a normal profit.

In the long run, the firm will earn a normal profit due to the free entry and exit of firms in response to profits or losses. Note: we know the firm above is in the short run because there are fixed costs. Remember the shut-down rule: a firm continues to produce in the short run when $P > AVC$.



Monopoly

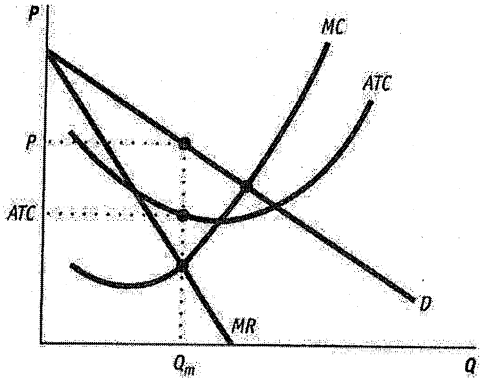
Because the monopolist is the only producer in the market, the market demand is the same as the firm's demand. The demand is downward sloping, therefore the marginal revenue curve is below the demand curve, creating a gap between price and marginal revenue.

The monopolist maximizes profit at the output level where $MR = MC$.

Price is found on the demand curve above the output level where $MC = MR$.

Economic profit is a rectangle with area $(P - ATC)(Q)$.

When compared to the perfectly competitive outcome, the monopolist produces less and charges a higher price. Unlike perfect competitors, monopolists can earn long-run economic profits.



Because price exceeds average total cost on this graph, the firm is earning a profit. The profit per unit for this firm is $(P - ATC)$. The total profit is the profit per unit multiplied by the quantity, which is the area of the rectangle, $(P - ATC)(Q)$.

If price is below average total cost, the firm earns a negative profit (a loss).

If price is equal to average total cost, the firm earns a normal profit.

In the short run, a monopoly firm can earn a profit, a loss, or a normal profit.

If a monopoly is earning a loss in the short run, it will use the shut-down rule to decide whether to or not to continue to produce. If $P > AVC$, the firm will continue to produce at a loss in the short run. If $P < ATC$, the firm will shut down.

In the long run, due to barriers to entry, a monopoly can earn a profit or a normal profit.

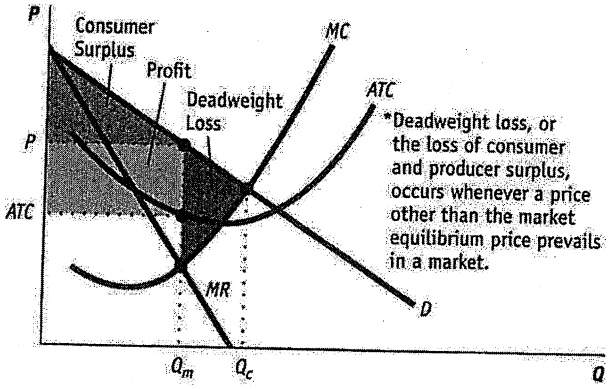
Deadweight Loss

A monopoly reduces quantity and increases price compared to a competitive market.

The lower quantity and higher price in a monopoly market lead to a decrease in consumer surplus and an increase in producer surplus (in the form of profit). The loss of consumer surplus outweighs the gain to producer surplus resulting in a deadweight loss.

Deadweight loss occurs because output is reduced and $P > MC$, which causes mutually beneficial transactions to go unmade.

Deadweight loss from monopoly markets can be reduced through regulation, antitrust laws, or public ownership.



A natural monopoly exists when one large firm can produce the product at lower average costs than can several competing firms. The markets for utilities, such as electricity, natural gas, and water are good examples.

In the case of a natural monopoly, there is increased productive efficiency (lower *ATC*) when one firm produces the entire industry output. However, left unregulated, a monopoly will lead to deadweight loss.

The government can try to regulate a natural monopoly to achieve the gains of productive efficiency (lower *ATC*) while preventing deadweight loss.

If the government regulates the natural monopoly to achieve allocative efficiency ($P = MC$), deadweight loss is eliminated but the firm will suffer losses. If the government regulates price such that normal profits are earned ($P = ATC$), then deadweight loss is not eliminated.

Monopolistic Competition (Short-run)

Many firms exist in a monopolistically competitive market but not as many as in perfect competition.

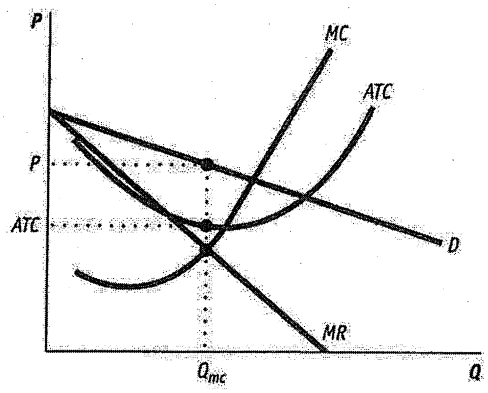
The product is differentiated, so each firm has some ability to set its price.

A monopolistic competitor faces a downward-sloping (but relatively elastic) demand curve for its output. Because the firm's demand curve is downward sloping, its marginal revenue curve is below it. $P > MC$ but not as much as with monopoly.

The firm maximizes profit by producing the level of output at which $MC = MR$.

The firm will charge the price indicated by the demand curve above the profit-maximizing output.

There are no barriers to entry or exit.



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If price is below average total cost, the firm earns a negative profit (a loss).

If price is equal to average total cost, the firm earns a normal profit.

In the long run, monopolistically competitive firms earn a normal profit because of easy entry and exit in the industry.

When firms earn a short-run profit, new firms enter the industry. This decreases demand for existing firms, which reduces profit. Entry continues until profit disappears.

When firms are operating at a loss in the short run, firms exit the industry. As firms exit, demand increases for remaining firms, which reduces losses. Exit continues until firms no longer operate at a loss.