

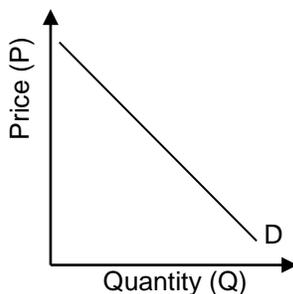


Microeconomics: Supply, Demand, Equilibrium, and Market Shocks

“Micro” means small. Microeconomics is about economics on a small scale of individual households and firms and their exchanges of buying and/or selling.

There are two sides of the market system: demand (from buyers) and supply (from sellers). An example of a retail market is the demand for donuts by consumers and the supply of donuts by businesses. Another example is the labour market, e.g. the demand for construction workers (here businesses do the demanding) and the supply of construction workers (from the population).

Demand is the consumer side of the equation. It is described by a linear equation that shows the quantity of a good that consumers will demand over a range of prices. It has a negative slope (slopes downward to the right), meaning that price (P) and quantity demanded (Q_D) are negatively related. When one goes up, the other goes down, and vice versa. This should make sense: when things go on sale ($P \downarrow$), we buy more of them ($Q_D \uparrow$)!



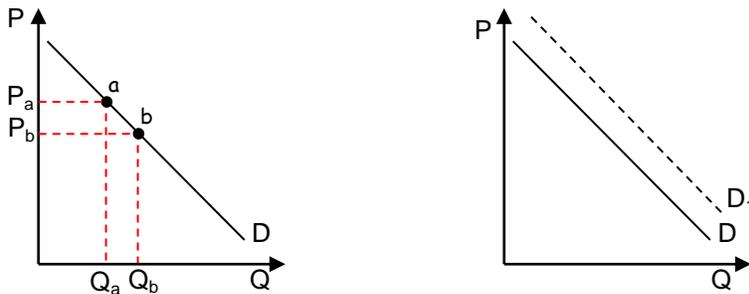
There are three reasons why P and Q_D have a negative relationship: (1) **income effect**: as the price goes down, we can buy more of the same good with the same amount of money; (2) **law of diminishing marginal utility**: the utility of consuming each extra unit of the same good decreases. Thus, consumers are willing to pay less and less for each additional unit; and (3) **substitution effect**: people will substitute a cheaper equivalent good (choosing to buy the cheaper tortilla chips rather than a particular name brand).

There are seven determinants of demand (things that affect the demand curve or where exactly on the demand curve we are): (1) Product price (2) Price of substitutes or complements (3) Income (4) Consumer taste and preference (5) Number of buyers (6) Expectation of future prices (7) Expectation of future income.

Product price is the only determinant that results in movement along (from one point to another) the same demand curve. We call this a **change in quantity demanded**. Moving from point **a** to point **b** on the following graph shows an increase in quantity demanded as price decreases. If you compare the x-coordinates for each point, you can see that the quantity demanded at b is larger than the quantity demanded at a. If you compare the y-coordinates for each point, you can see that the price at b is lower than the price at point a.



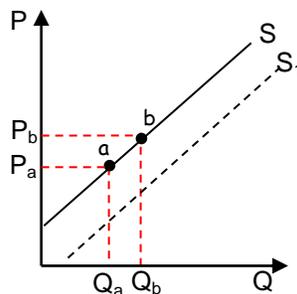
The other six determinants result in shifting the entire demand curve to a new location, which is called a **change in demand** (ex. **D** to **D₁**, lower right graph).



The supply side of the market is also described by a linear equation relating price and the quantity of good that firms are prepared to sell. The supply curve has a positive slope (goes upwards to the right). This means price and quantity will change in the same direction: when one increases, the other increases. This is because suppliers are willing to supply more goods if they receive a higher price. Suppliers will supply less of goods if they receive a lower price.

Most goods are **normal goods**; so as we have more income available, we will buy more of these goods. Demand for normal goods is positively related to income. There are also **inferior goods** whose demand is negatively related to buyers' incomes. Things like canned meat and ramen noodles are inferior goods. We buy more of them when we are broke or out of a job.

Supply has six determinants: (1) Product price (2) Production costs (price of input goods needed to make a product) (3) Technology (4) Number of sellers (5) Price expectations of output price (6) Taxes and subsidies.

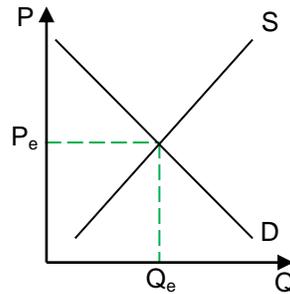


Just like demand, changes in product price result in a **change in quantity supplied** (moving along the curve, e.g. point a to point b). Changes in the other five determinants result in a **change in supply** (shift of the curve, e.g. **S** to **S₁**).

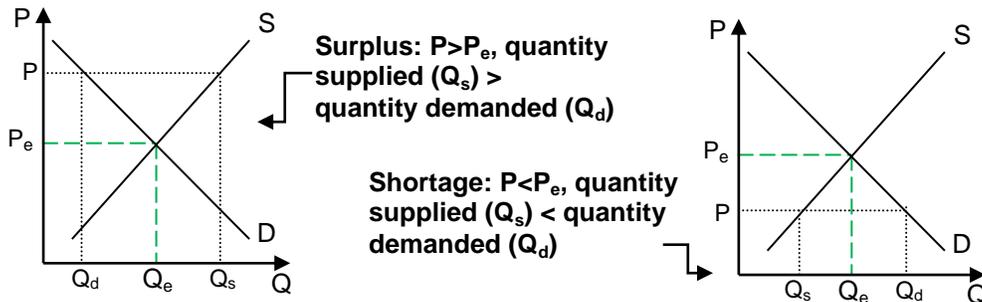
Note that for both supply and demand, a shift to the right is an increase in that side of the market; a shift to the left is a decrease in that side of the market.



Market equilibrium happens when demand is equal to supply, which is where the two curves intersect (Q_e, P_e). When a market is in equilibrium, the market clears at the market clearing price P_e and market clearing quantity Q_e , where quantity supplied equals quantity demanded. In other words, consumers who are willing to purchase such good at P_e were able to buy the quantity that he/she desires, and producers who want to produce and sell such good at P_e were able to sell every unit they produced.



When a market is in a period of disequilibrium (either a **surplus** or a **shortage**), the market is functioning at a price where supply is NOT equal to demand. The price is higher or lower than the equilibrium price and there will be pressure from market forces to return to the equilibrium price.



Practice Problems

- Hot chocolate and marshmallows are complementary goods (used together). The price for hot chocolate goes up. What happens to the demand for marshmallows? Describe any changes to equilibrium price and quantity. Show a graph.
- Potato chips and tortilla chips are substitute goods (can be traded off in place of each other). The price for potato chips increases. What happens to the demand for tortilla chips? Describe any changes to equilibrium price and quantity. Show a graph.
- The number of sellers of mp3 players has increased rapidly in the last couple of years. What happens to the supply curve for mp3 players? Describe any changes to equilibrium price and quantity. Show a graph.
- If sellers expect the price of cars to increase next year, what will happen to the supply curve for cars this year? Describe any changes to equilibrium price and quantity. Show a graph.
- AC brand bread is an inferior good. If consumers experience a fall in their incomes, then the demand for AC bread will (increase/decrease) and the price of AC bread will (rise/fall).
- (a) Use the table below to determine the equilibrium price and quantity.
(b) The price of oil falls, lowering production costs, and the quantity supplied increases by 180 units at each price level. What is the new equilibrium price and quantity?

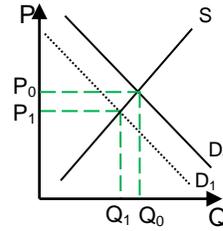
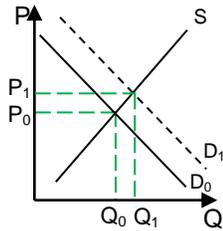
Price (per unit)	Quantity Demanded (units)	Quantity Supplied (units)
2.50	1,000	50
3.50	700	100
4.50	600	200
5.50	500	320
6.50	400	400
7.50	320	480
8.50	200	560

- The demand and supply curve for fair trade coffee is given by $P = -5.6Q_d + 25$ and $P = 0.4Q_s + 1$. Find the equilibrium price and quantity.
- Wine and cheese are complementary goods. When the price of wine falls, what happens to: supply, demand, quantity supplied, quantity demanded, equilibrium price and quantity for cheese? Include all necessary graphs.



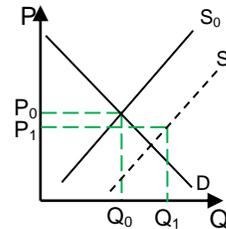
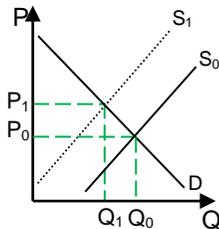
Solutions

1. Demand for marshmallows decreases. Equilibrium price and equilibrium quantity both decrease.



2. Demand for tortilla chips increases. Equilibrium price and quantity both increase.

3. Supply of mp3 players increases. Equilibrium price decreases and equilibrium quantity increases.



4. Supply of cars will decrease in the present. (Sellers would rather reserve their inventory for when they can get higher selling prices.) Equilibrium price increases and equilibrium quantity decreases.

5. Increase; rise

6. (a) \$6.50/unit; 400 units (b) \$5.50/unit; 500 units

7. $Q_e = 4$ units; $P_e = \$2.60$

8. When the price of wine falls, the demand for cheese rises, the supply of cheese remains constant, the quantity supplied of cheese increases, the quantity demanded of cheese is constant, equilibrium price and equilibrium quantity of cheese increases.

