Economics for Business

Lecture 1- The Market Forces of Supply and Demand

The theory of supply and demand (S&D):

- Considers how buyers and sellers behave and interact with one another in competitive markets
- Shows how the interaction between buyers and sellers determines the quantity of each good/service produced and the price at which it is sold in a competitive market

Markets and Competition

A **market** is a group of buyers and sellers of a particular good or service. Whenever you have a group of buyers and sellers interacting to trade a good/service, you have a market. This interaction can occur in a physical place (a square, a shopping centre, e.g. Paddy's Market) or in a virtual one (the internet, e.g. e-Bay).

A **competitive market** is a market in which there are so many buyers and so many sellers that each has a negligible impact on the market price. The smaller the ability of each buyer/seller to affect the market price, the more competitive the market.

Throughout this subject we will assume that markets are **perfectly competitive (PC**). To reach this highest form of competition, a market must have two characteristics:

- The goods being offered for sale are all exactly the same (homogeneous)
- The buyers and sellers are so numerous that none can influence the market price.

Because buyers and sellers accept the market price as given, they are often called **'price takers'.**

Most real world markets fall between the extremes of perfect competition and monopoly. Perfect competition is a useful simplification and many of the lessons that we learn by studying S&D under perfect competition apply in more complex markets as well.

Buyers determine demand and sellers determine supply. A competitive market has many buyers and sellers each with a negligible impact on the market price.

Demand

Quantity demanded of a good is the amount of a good that buyers are **willing and able** to purchase.

Willing = A buyer wants to buy that amount (given his/her tastes and preferences)

Able = Given the price of the good, a buyer has enough income to buy the desired amount

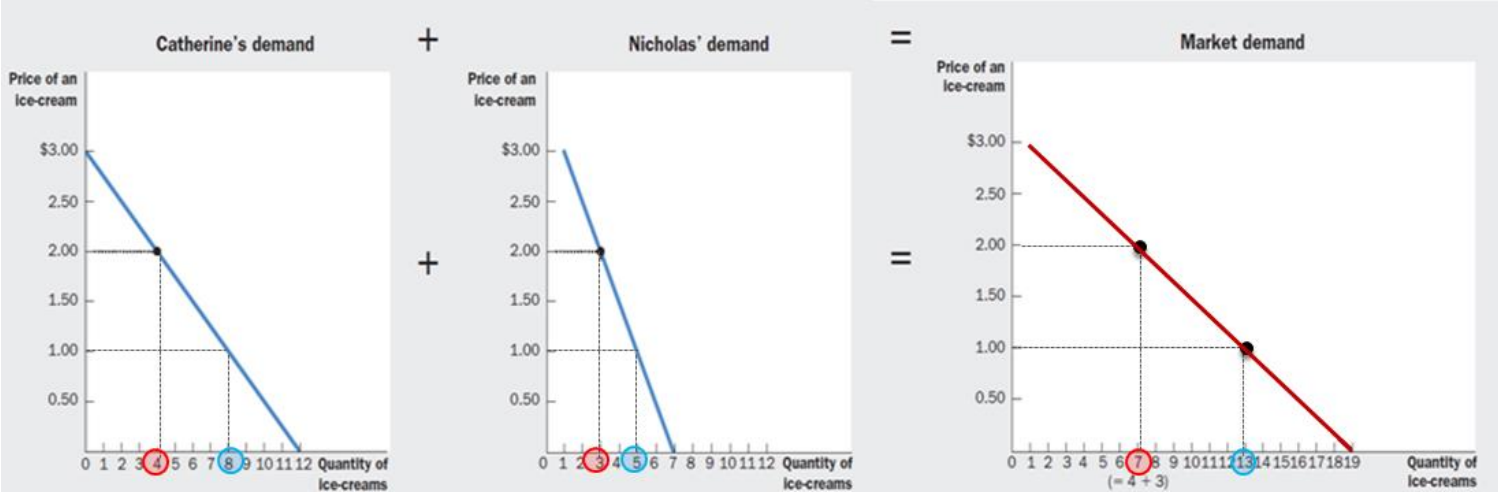
Quantity demanded of a good depends on many factors such as the price of the good, tastes, income and many others.

Law of demand: Other things equal, the **quantity demanded of a good falls (rises) when the price of the good rises (falls).**

Demand Schedule: A Table showing the relationship between the price of a good and the quantity demanded.

Demand Curve: A Graph showing the relationship between the price of a good and the quantity demanded.

To analyse how a competitive market works, we need to determine the market demand. Market demand is the sum of all individual demands for a particular good or service. The market demand curve shows how the total quantity demanded of a good varies with the price of the good, holding all other factors constant.



Movements along the Demand Curve

A **change in the price of the good generates a movement along the demand curve**. This is a change in quantity demanded.

Shifts in the Demand Curve

We saw that a D curve shows how the quantity demanded of a good varies with the price of the good, holding all other factors constant. A change in one or more of these "other factors" generates a shift in the demand curve, either to the left or right. In this case we say that there is a change in demand (as opposed to a change in quantity demanded). With a change in demand, the quantity demanded changes at every price.

What are those factors other than price that affect demand?

Income - The relationship between income and demand depends on what type of good the product is.

Normal good – a good for which, other things being equal, an increase in income leads to an increase in demand

Inferior good – a good for which, other things being equal, an increase in income leads to a decrease in demand

Prices of related goods - The relationship between the price of a related good and demand depends on what type of goods the products are.

Substitutes – two goods for which a decrease in the price of one good leads to a decrease in the demand for the other good.

Complements – two goods for which a decrease in the price of one good leads to an increase in the demand for the other good.

Tastes - If you like something you buy more of it. Economists do not normally try to explain people's tastes; however, they do examine what happens when tastes change

Expectations

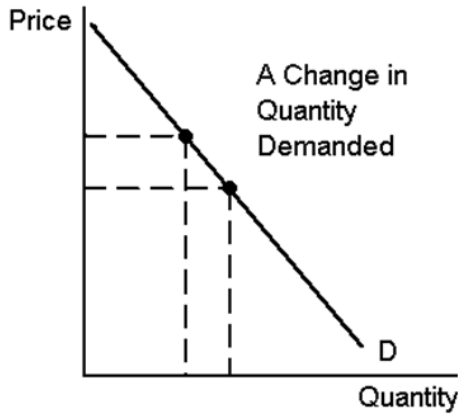
E.g. About your future income

E.g. About the future price of the good

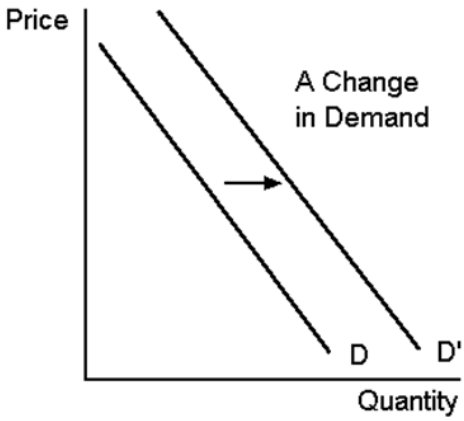
Number of buyers - Because market demand is derived from individual demands it positively depends on the number of buyers

Summary

Movements along the demand curve



Shifts in the demand curve



Supply

Quantity supplied is the amount of a good that sellers are willing and able to sell

Willing = Producer wants to sell that amount

Able = the amount is feasible given resources and technology

The law of supply states that, other things being equal (ceteris paribus) **the quantity supplied of a good rises when the price of the good rises**, and vice versa.

Supply curve and a supply schedule

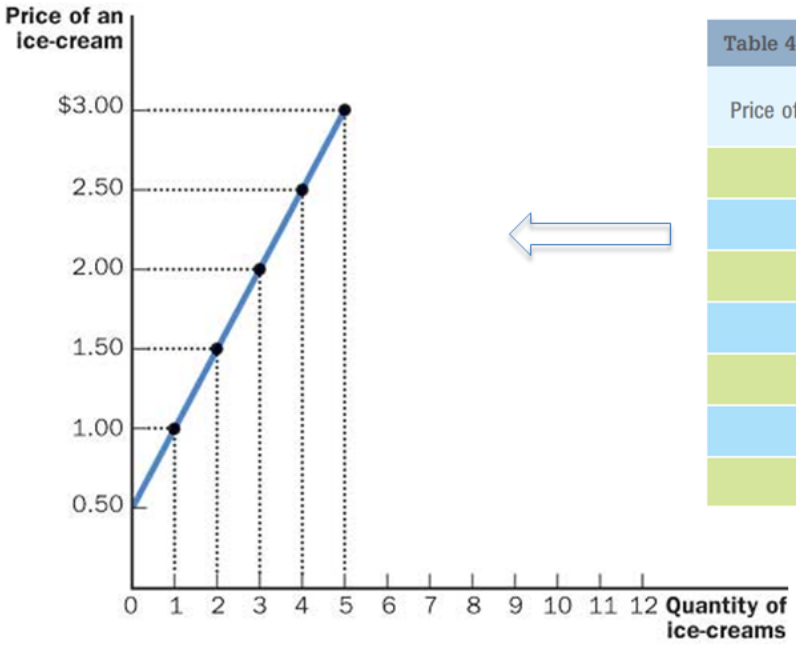


Table 4.4 Tony's supply schedule

Price of an ice-cream ($)	Quantity of ice-creams supplied
0.00	0
0.50	0
1.00	1
1.50	2
2.00	3
2.50	4
3.00	5

What are those factors other than the price that affect supply?

Input prices - The quantity supplied is negatively related to the price of inputs used to make the good: If the price of an input rises (falls), the supply decreases (increases)

Technology - An improvement in production technology increases productivity: with the same inputs, the producer can supply more

Expectations – e.g. If suppliers expect the price to rise they will be more likely to store some of the good and supply less to the market today

Number of sellers - Because market supply is derived from individual supply it positively depends on the number of sellers

Lecture 2- Equilibrium + Elasticity

Equilibrium- D & S Together

Equilibrium – a situation in which supply and demand have been brought into **balance**

Equilibrium price: The price that balances quantity supplied and quantity demanded. It is also known as the market-clearing price

On a graph: it is the price at which the supply and demand curves intersect

Equilibrium quantity

Is both the quantity supplied and the quantity demanded at the equilibrium price.

On a graph: it is the quantity at which the supply and demand curves intersect.

Markets not in Equilibrium

When market price is higher than the equilibrium price, then there is a surplus (or excess supply): quantity supplied is larger than quantity demanded. Suppliers lower price to increase sales, thereby moving toward equilibrium.

When market price is lower than the equilibrium price, then there is a shortage (or excess demand): quantity supplied is smaller than quantity demanded. Suppliers raise price due to too many buyers chasing too few goods, thereby moving toward equilibrium.

Equilibrium

As we have just seen, if the market is not in equilibrium, in perfectly competitive markets the actions of buyers and sellers naturally move the price – and hence the market – **towards equilibrium**

Law of supply and demand: The claim that the price of any good adjusts to bring the supply and demand for that good into balance

This does not mean that markets are never out of equilibrium. Surpluses and shortages exist. Once the equilibrium is reached, all buyers and sellers are satisfied and there is no upward or downward pressure on price

Changes in Equilibrium

If some event occurs that shifts D and/or S, the equilibrium changes. The analysis of a change in equilibrium is called **comparative statics**. It is done in three steps:

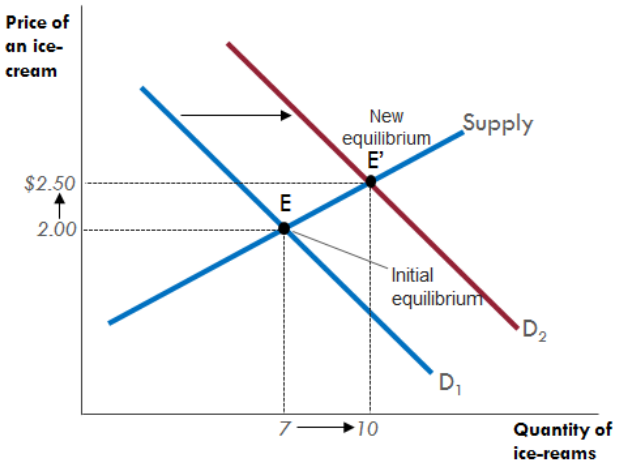
1. Decide whether the event shifts the supply or demand curve (or perhaps both).
2. Decide in which direction the curve shifts.
3. Use the supply-and-demand diagram to see how the shift changes the equilibrium.

Changes in equilibrium – Increase in demand

- Let's stay with the market for ice-cream and suppose that one summer gets very hot. How does this event affect the market for ice-cream?

To answer, start from an initial equilibrium (point E) and do our comparative statics exercise:

1. Hot weather will affect D or S?
2. Demand will increase or decrease?
3. Where is the new equilibrium?

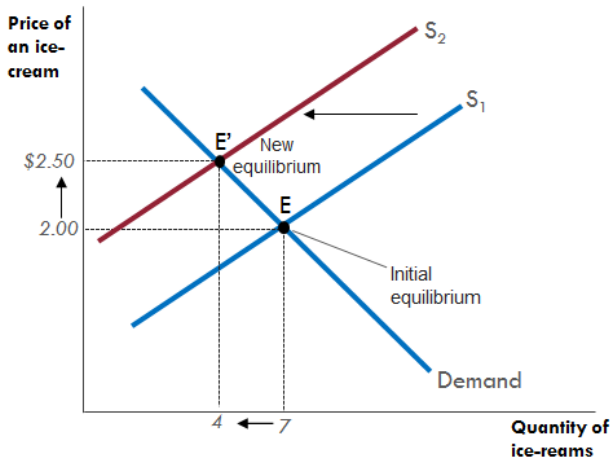


Conclusion: High temperature in Summer are likely to lead to…an increase in the price of ice-cream as well as in the quantity sold and bought.

Changes in equilibrium – Decrease in supply

- Now suppose that a bushfire destroys several ice-cream factories (assume that temperatures are just normal).

- Always start from an initial equilibrium (point E) and then do our comparative statics exercise:
  1. Which side of the market will be affected by a bushfire destroying several ice-cream factories?
  2. How will the supply curve shift?
  3. Where is the new equilibrium?



- **Conclusion:** A bushfire destroying several ice-cream factories is likely to…an increase in the price of ice-cream and a decrease in the quantity sold and bought

	No change in supply	An increase in supply	A decrease in supply
No change in demand	P same Q same	P down Q up	P up Q down
An increase in demand	P up Q up	P ambiguous Q up	P up Q ambiguous
A decrease in demand	P down Q down	P down Q ambiguous	P ambiguous Q down

Important to highlight two roles performed by prices:

- Prices are a mechanism for allocating scarce resources (rationing function of prices)
- Prices co-ordinate the actions of large numbers of buyers and sellers, each acting independently

How Prices Allocate Resources

- The combination of freely made, individual buying and selling decisions determines market D and S.
- In turn the interaction of market D and S sets the equilibrium price, i.e. the price that clears the market, as well the equilibrium quantity, i.e. how much is produced and bought.
- Who gets what is produced?
  - In effect, the market mechanism of S and D means that any buyer who is willing and able to pay the equilibrium price can purchase the good.
  - Similarly, any seller who is willing and able to produce and sell the good at the equilibrium price, will do so.
- **This is known as the 'rationing function of prices' or 'prices as a mechanism for rationing resources'.**

Elasticity

Elasticity of demand: measures how much demand responds to changes in its determinants

Price elasticity of demand, Income elasticity of demand, Cross-price elasticity of demand

Elasticity of supply: measures how much supply responds to changes in its determinants

Price elasticity of supply: Elasticity allows analysis of supply and demand with greater precision (that does not depend on units of measurement).

Price Elasticity of Demand

The **price elasticity of demand** is a measure of how much the quantity demanded of a good responds to a change in the price of that good.

It allows us to conclude whether quantity demanded responds a lot or a little to a change in price.

It is calculated as the percentage change in quantity demanded divided by the percentage change in price.

- Say a 10% increase in price leads to a 20% decrease in quantity demanded. What is the value of the price elasticity of demand?

This should be -20%, but we ignore the minus sign

$$\text{Price elasticity of demand} = \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in price}} = \frac{20\%}{10\%} = 2$$

- Elasticity of demand is just a number
  - It allows us to compare the responsiveness to price for goods with different measures of quantity (eg kilos, litres) and different currencies (eg dollars, euros)

- The price elasticity of demand is a number that tells you how quantity demanded changes ***in proportion*** to a given change in price
  - If the price elasticity of demand is equal to **2**, then a given change in price will lead to a change in quantity demanded that is **twice as large** (for example, you can conclude that a 4% increase in price will lead to a 8% decrease in quantity demanded)
  - If the price elasticity of demand is equal to **0.5**, then a given change in price will lead to a change in quantity demanded that is **half as large** (for example, you can conclude that a 4% increase in price will lead to a 2% decrease in quantity demanded)

- The higher the price elasticity of demand, the higher the responsiveness of quantity demanded to a change in price

- If greater than 1, demand is said to be ***elastic***:
  - A given percentage change in price leads to a proportionally larger change in quantity demanded
  - Buyers respond strongly to a change in price

- If less than 1, demand is said to be ***inelastic***:
  - A given percentage change in price leads to a proportionally smaller change in quantity demanded
  - Buyers do not respond strongly to a change in price

- If equal to 1, demand is said to have ***unitary elasticity***:
  - A given percentage change in price leads to a proportionally equal change in quantity demanded.

Determinants of Price Elasticity of Demand

Availability of close substitutes: Price elasticity tends to be higher when there are many close substitutes

Necessities versus Luxuries: Elasticity tends to be higher for luxuries

Definition of the market: Elasticity tends to be higher when market is defined narrowly ('food' versus 'ice cream')

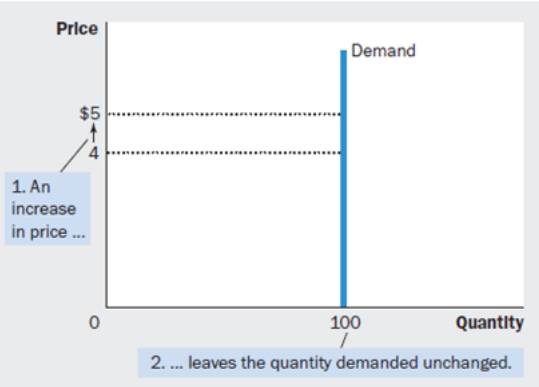
Time horizon: Elasticity tends to be higher the longer the time period considered

Since the price elasticity of demand measures how much quantity demanded responds to a change in price, it is closely related to the slope of the demand curve

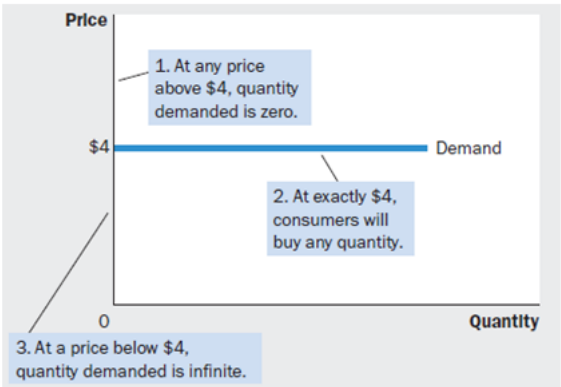
Rule of thumb: the steeper (flatter) the demand curve that passes through a given point, the lower (greater) the price elasticity of demand

Two extreme cases

Perfectly inelastic demand (elasticity=0)



Perfectly elastic demand (elast=infinity)



- TR = P x Q
  - If P increases, what happens to TR?

- If demand is *inelastic* → an *increase in P* → a *less than proportional* decrease in Q → *increase in TR*
  - What happens if there is a decrease in P?

- If demand is *elastic* → an *increases in P* → a proportionally larger decrease in Q → *decrease in TR*
  - What happens if there is a decrease in P?

- If demand has *unit elasticity* → a change in P → proportionally equal change in Q → TR are unaffected

- *Income elasticity of demand* measures how much the **quantity demanded** of a good responds to a change in consumers' **income**

$$\text{Income elasticity of demand} = \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in Income}}$$

- Normal goods have **positive** income elasticity (greater than 0)
- Inferior goods have **negative** income elasticity (less than 0)

In this case the sign is important

- Among normal goods:
  - Goods consumers regard as necessities tend to be income inelastic, i.e. low positive income elasticity (less than 1)
    - Examples: food, fuel, clothing, utilities and medical services
  - Goods consumers regard as luxuries tend to be income elastic, i.e. high positive income elasticity (greater than 1)
    - Examples: Porsche cars, yachts and caviar

- *Cross-price elasticity of demand* measures how much the quantity demanded of a good (say good 1) responds to a change in the price of a related good (say good 2)

$$\text{Cross - price elasticity of demand} = \frac{\text{Percentage change in quantity demanded of good 1}}{\text{Percentage change in price of good 2}}$$

- **Complements** have **negative** cross-price elasticity
- **Substitutes** have **positive** cross-price elasticity

Also in this case the sign is important

- Examples: Pepsi and Coke (substitutes), Cars and petrol (complements)

Price elasticity of supply

- *Price elasticity of supply* is a measure of how much the **quantity supplied** of a good responds to a change in the price of that good.

$$\text{Price elasticity of supply} = \frac{\text{Percentage change in quantity supplied}}{\text{Percentage change in price}}$$

- It is positive

- Supply is said to be:
  - *Elastic* if price elasticity of supply is greater than 1
  - *Inelastic* if price elasticity of supply is smaller than 1
  - *Unit elastic* if price elasticity of supply is equal to 1

Determinants of price elasticity of supply

- Ability of suppliers to change the amount of the good they sell
  - The supply of a Picasso painting or beach-front land is inelastic
  - The supply of books, cars, or manufactured goods tend to be elastic

- Time period being considered
  - Supply is more elastic over longer periods.