THE TWO MAIN MARKET FORCES: DEMAND AND SUPPLY

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Some required definitions…

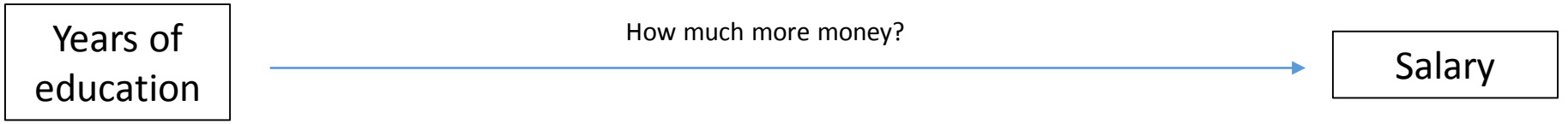
- A good is any article of trade that is tangible and that has the ability to satisfy a need.

E.g. water, laptops, pencils, bread…

- A service, on the other hand, is intangible but still has the ability to satisfy a need.
- E.g. a ride, babysitting, a guided tour…

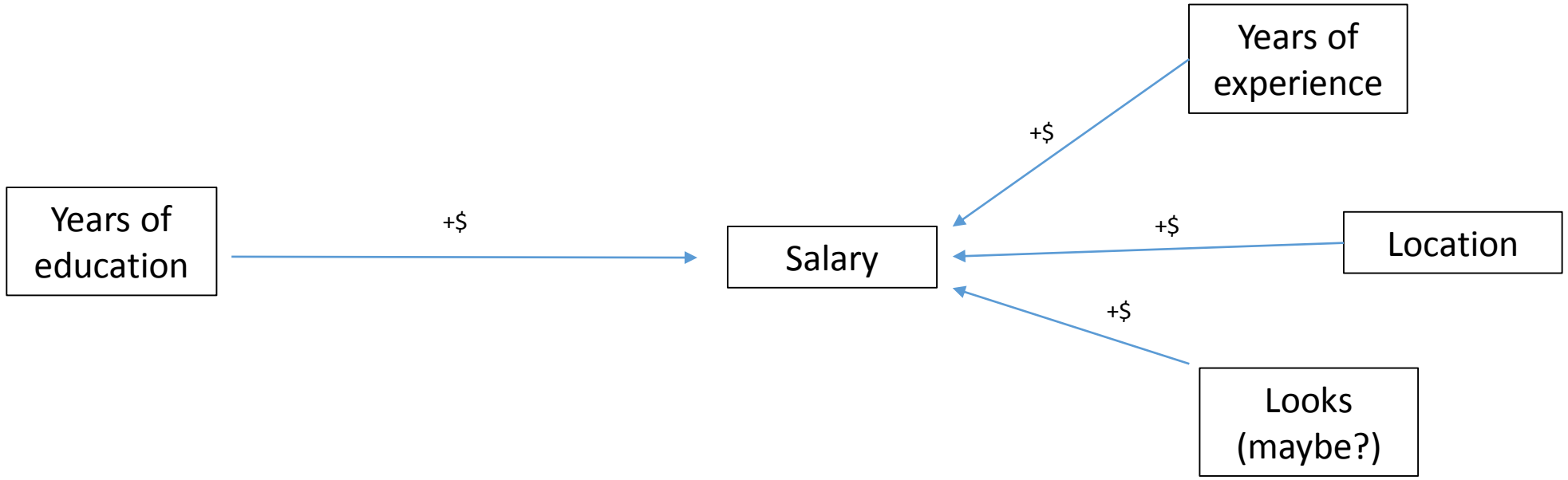
Some required definitions… (2)

- Ceteris paribus: means *“all things held constant”*.
- Let’s use an example to understand the concept.
- We want to identify the effect of a variable A (e.g. years of education) on another variable B (e.g. salary).
- In other words, we ask the question: “How much more money will I earn if I decide to go to school one more year?”



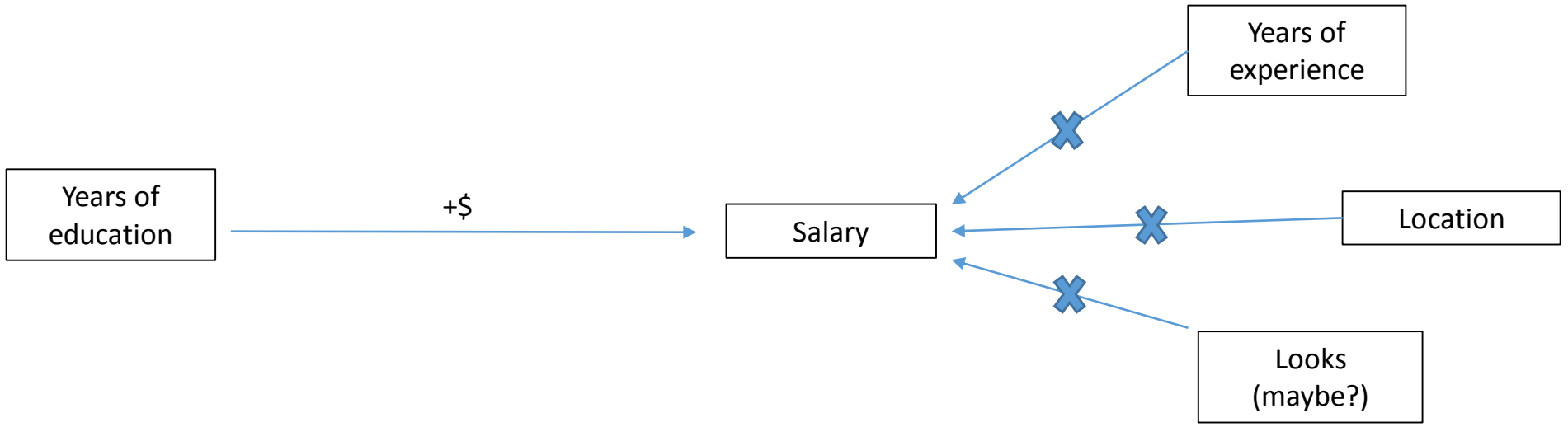
Some required definitions… (3)

- However, it is known that salary is determined by many other factors besides “years of education”.



Some required definitions… (4)

- We are interested in the effect on “years of education” ONLY.
- So we assume that all the other factors, which affect salary remain constant.
- And we only allow “years of education” to change so as to measure its effect on salary.



Some required definitions… (5)

- *“Ceteris paribus”* is used in economics when we want to analyze the impact of one variable A on another variable B.
- It is used to isolate variable B from the effect of any other variable that can affect it.
- We can then quantify the effect of variable A on variable B.

Previously…

- We said that every human being has unlimited needs but is faced with limited goods/services to satisfy these needs. This is *the basic economic problem of scarcity.*
- This presupposes that there are at least two economic agents:

- The person who has a need and wants to buy the good/service that will satisfy their need.
- The person who knows about the need and makes money by providing the desired good/service.

In economics jargon…

- The former agent is a *consumer*. He is *willing* and *able* to buy the goods/services that will satisfy his needs at a given price – he *demands* the goods/services.
- The latter agent is a *producer*. He is *willing* and *able* to produce and sell the goods/services that will satisfy the consumer's needs – he *supplies* the goods/services.
- Demand and supply are the two major market forces we shall study.

Markets

- The “place” where consumers (i.e. buyers) and producers (i.e. sellers) meet is called *a market*.
- *A market* is any organized setting that enables the interaction between buyers and sellers of a good/service.
- In other words, it is the place of interaction between the demand for and the supply of a good/service.
- The “place” need not be physical; it could be virtual: Amazon is a good example.

Examples of markets

- A market may exist so long as there are people who are willing and able to buy (at least one person) as well as people who are willing and able to produce and sell (at least one person).
- A market with only one buyer = a monopsony.
- A market with only one seller = a monopoly.
- There are markets for all kinds of goods/services: tomatoes (a good), subway rides (a service), stocks (a financial asset)…

Money price and opportunity cost

- *The price* of a good/service is the amount of money you have to give up if you want to obtain it. In economics, we call it the *money price*.
- Do you remember the concept of *opportunity cost*? It is the best forgone alternative to a choice you make.
- Suppose that the money price of a book is $10 and that the money price of a sandwich is $5.
- Suppose also that the book is more important than the sandwich.
- Then, the *opportunity cost* of purchasing a book is *2 sandwiches*.
- *The opportunity cost of a choice is a quantity*.

The concept of demand

- You demand a good/service when you:
  - Want it
  - Can afford it
  - Plan to buy it
- You are *not demanding* if you think: “I would love to buy it if only it were less expensive!”

The concept of quantity demanded

- Let's assume there are 3 consumers in the economy and each of them is asked the question:
- How many cookies would you buy every week if cookies were priced at $x a piece?
- Important: quantity, time period and price.

A		B		C	
Price ($)	Quantity demanded (quantity desired)	Price ($)	Quantity demanded (quantity desired)	Price ($)	Quantity demanded (quantity desired)
5	1	5	3	5	2
3	3	3	7	3	5
1	5	1	12	1	10

The concept of quantity demanded (2)

A	
Price ($)	Quantity demanded (quantity desired)
5	1
3	3
1	5

B	
Price ($)	Quantity demanded (quantity desired)
5	3
3	7
1	12

C	
Price ($)	Quantity demanded (quantity desired)
5	2
3	5
1	10

- These tables show the *specific quantities* of cookies that the consumers A, B and C are *individually* willing and able to buy every week *at each specific price level*.
- These quantities are the *individual quantities demanded* of cookies for each consumer every week at specific prices.
- These tables are called *individual demand schedules*.

The concept of quantity demanded (3)

A	
Price ($)	Quantity demanded (quantity desired)
5	1
3	3
1	5

For example, for consumer A, the quantity demanded of cookies is:

- 1 per week when cookies are $5 a piece.
- 3 per week when cookies are $3 a piece.
- 5 per week when cookies are $1 a piece.

The concept of quantity demanded (4)

- If we sum up all the *individual quantities demanded* for each consumer in the market at each different price level, we obtain the *market quantities demanded*.
- The table here shows the total quantity demanded of cookies in the entire market for a week at each specific price level:

- 6 per week when cookies cost $5.
- 15 per week when cookies cost $3.
- 27 per week when cookies cost $1.

- Such a table is called *a market demand schedule*.

Price (in $)	Consumer	Quantity demanded (quantity desired)	Total quantity demanded (desired)
5	A	1	6
	B	3	
	C	2	
3	A	3	15
	B	7	
	C	5	
1	A	5	27
	B	12	
	C	10	

* The two (2) columns in the middle can be discarded!

Quantity demanded defined

- The *individual quantity demanded* of a good is the specific quantity of a good that a consumer is willing and able to buy during a time period at a specific price, ceteris paribus.
- The *market quantity demanded* for a good is the sum of all the individual quantities demanded of all the consumers in the market. In other words, it is the sum of all the quantities of a good/service that each consumer in the market is willing and able to buy during a time period at a specific price level, ceteris paribus.
- We usually refer to “market quantity demanded” whenever we say “quantity demanded”.

The two types of demand defined: Individual demand

- The *individual demand* for a good/service is the *set of quantities* of the good/service that a consumer (e.g. consumer A) is *individually* willing and able to buy per time period (week, month, quarter, year…) *at different price levels* *ceteris paribus*.
- The individual demand is the information shown by individual demand schedules. E.g:

A	
Price ($)	Quantity demanded (desired)
5	1
3	3
1	5

The two types of demand defined: market demand

- The *market demand* for a good/service is *the set of quantities* of the good/service that all the consumers in a market (i.e. consumers A, B and C) are *collectively* willing and able to buy per time period (week, month, quarter, year…) *at different price levels* *ceteris paribus*.
- The market demand is the information shown by market demand schedules:

Price (in $)	Consumer	Quantity demanded (desired)	Total quantity demanded (desired)
5	A	1	6
	B	3	
	C	2	
3	A	3	15
	B	7	
	C	5	
1	A	5	27
	B	12	
	C	10	

NB: We generally refer to the “market demand” anytime we say “demand”.

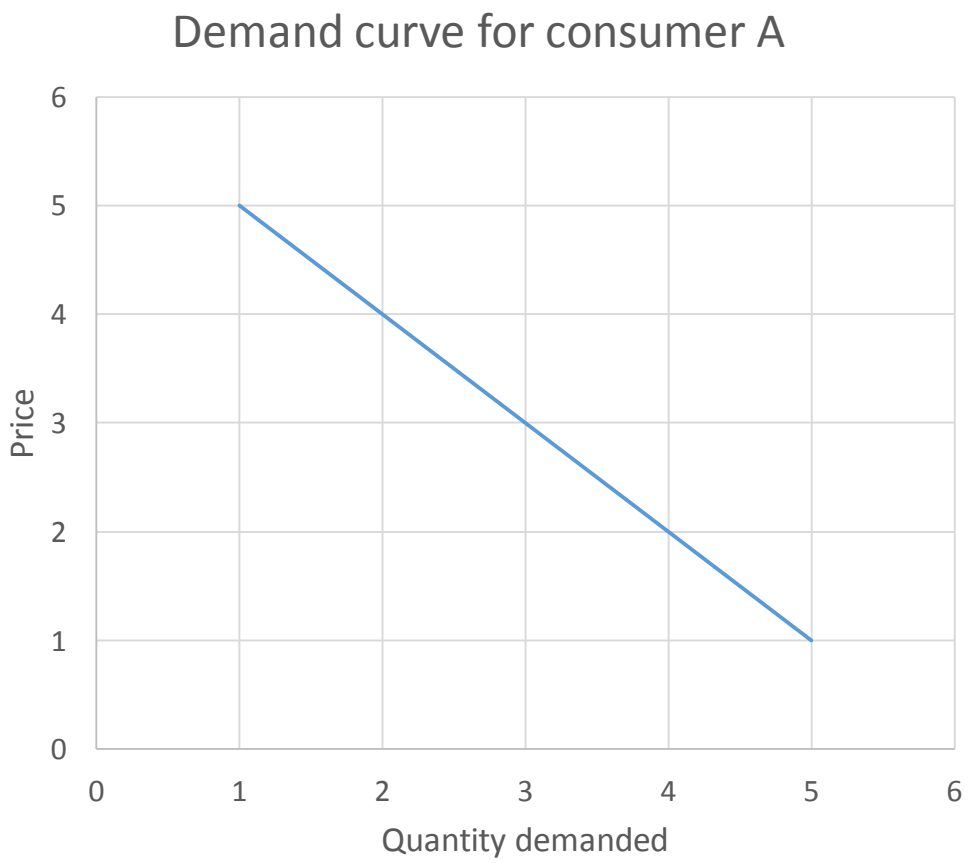
The difference between “quantity demanded” and “demand”

- The *quantity demanded* of a good/service refers to the *specific quantity* of the good/service that the consumers in a market are *collectively* willing and able to buy during a time period at *a specific price level* ceteris paribus.
- The *demand* for a good/service refers to the *set of quantities* of the good/service that the consumers in a market are *collectively* willing and able to buy during a time period at *different price levels* ceteris paribus.
- The former is a *specific quantity* for a specific price and the latter is a *set of quantities* for different prices.

Graphical illustration

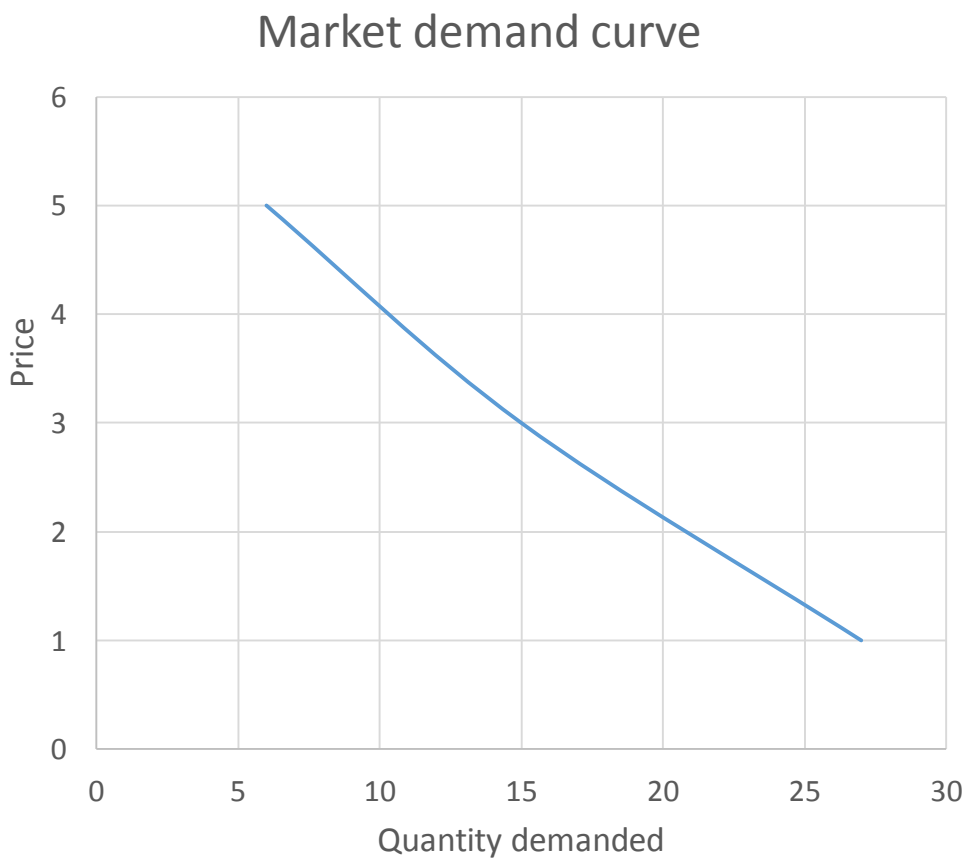
- We can plot individual demand schedules as well as market demand schedules.
- What we obtain is *the individual/market demand curve*.
- We generally refer to the market demand curve anytime we say “demand curve”.
- Prices are on the vertical axis (the y-axis) and quantities demanded are on the horizontal axis (the x-axis).

Plotting individual demand curves



- Individual demand curves slope downward (*they have a negative slope*).
- The negative slope of individual demand curves reflects the *negative relationship between relative price and individual quantities demanded*.
- A negative relationship between two variables means that when one increases, the other one decreases.

Plotting market demand curves

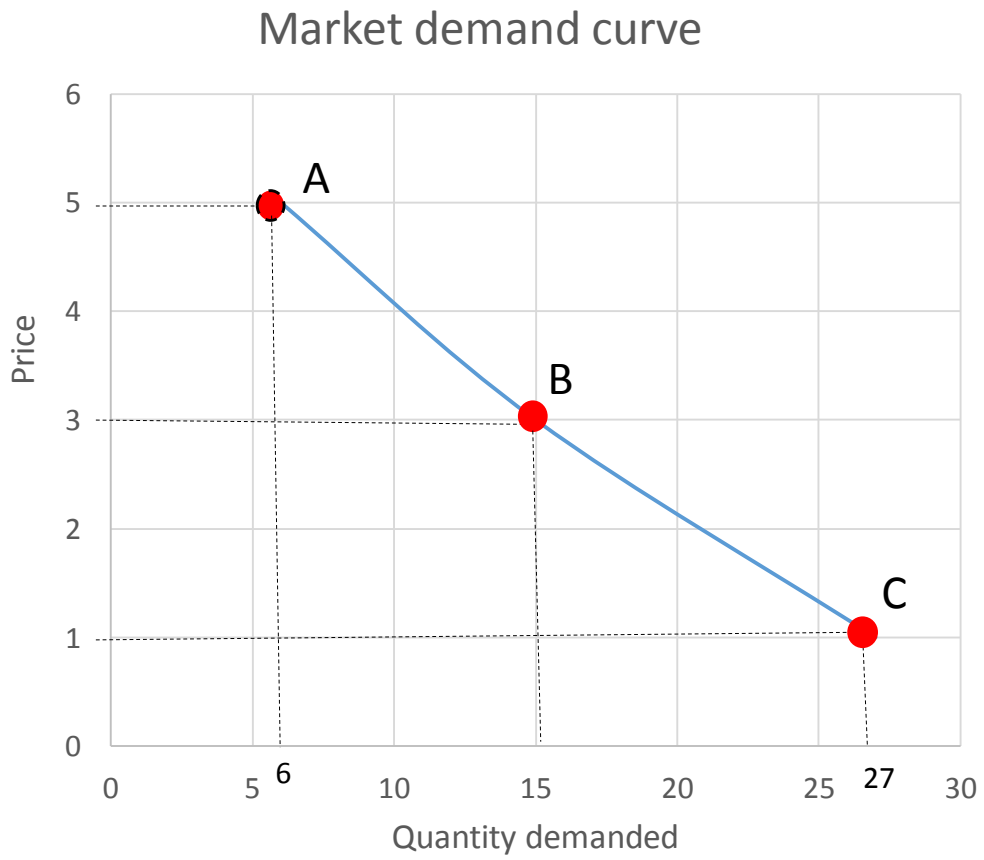


- Market demand curves also *slope downward*.
- The negative slope of market demand curves reflects the *negative relationship between relative price and market quantities demanded*.

The Law of Demand

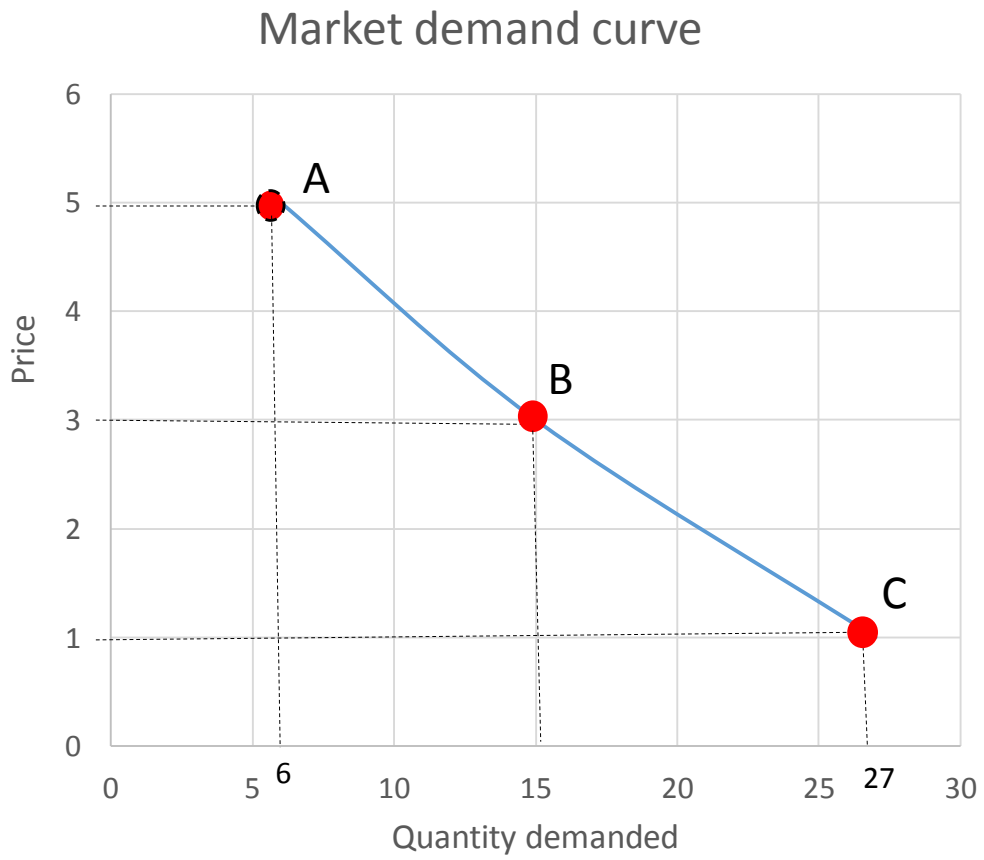
- *Ceteris paribus*, a fall in the relative price of a good/service induces a rise in the quantity demanded.
- Similarly, *ceteris paribus*, a rise in the relative price of a good/service induces a fall in the quantity demanded.

Demand vs quantity demanded (graphically)



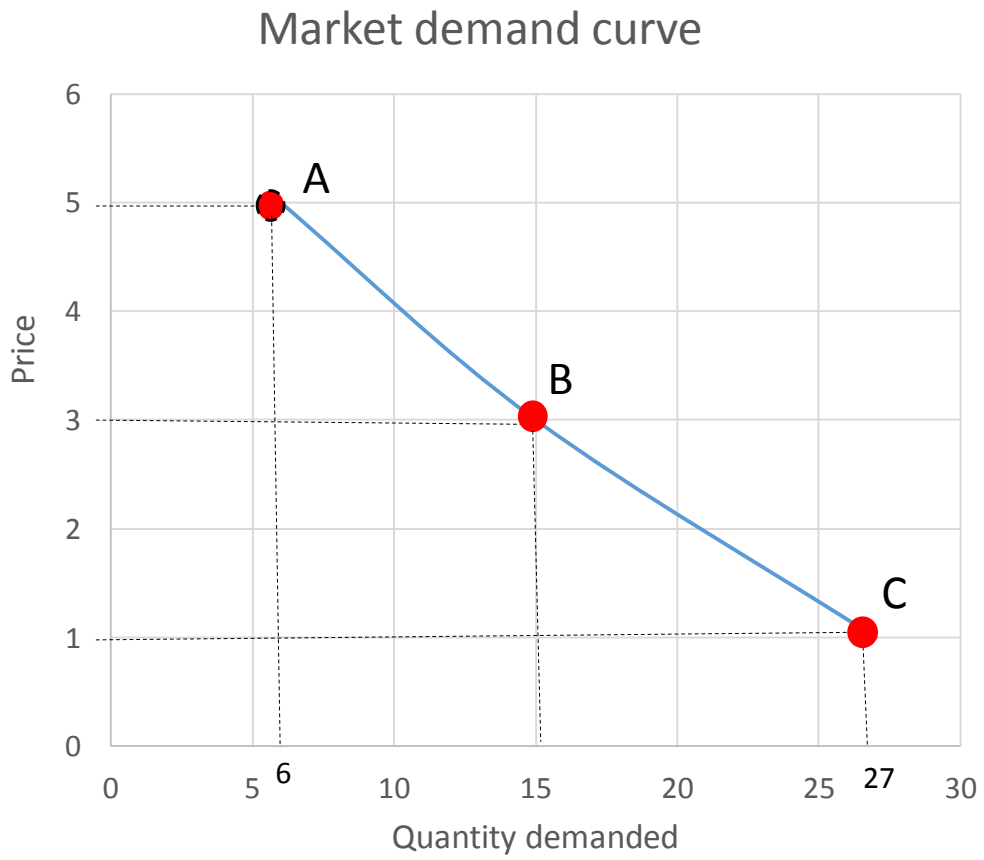
- The *entire curve* represents the demand for cookies.
- However, *each point on the curve* represents a specific quantity demanded with a corresponding price level.

Change in quantity demanded



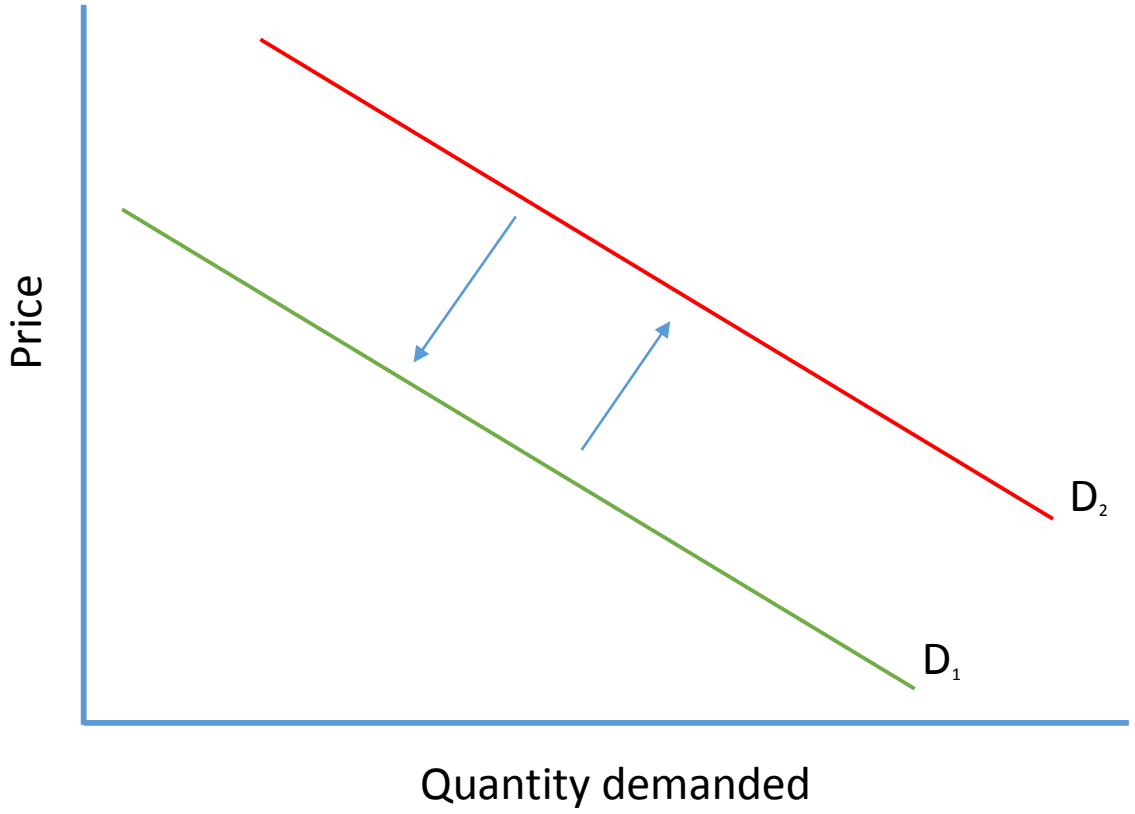
- *A change in quantity demanded is represented by a move along the demand curve*.
- For instance, a move from point A to point B represents an increase in quantity demanded.
- *A change in quantity demanded is caused <u>ONLY</u> by a change in the price of the good/service itself.*

Change in quantity demanded (2)



- A move from point A to point B illustrates a decrease in price from $5 to $3.
- That decrease in price induces an increase in the quantity demanded from 6 to 15.
- Similarly, an increase in price will lead to a decrease in the quantity demanded.

Change in demand



- Unlike a change in quantity demanded, *a change in demand shifts the entire demand curve*.
- An increase in demand shifts the curve to the.
- A decrease in demand shifts the curve to the left.

Factors that change demand

- Many factors may change the demand for a good. Following are six (6) of them:

- The prices of related goods
- Expected future prices
- Income
- Natural factors
- Market size
- Tastes and preferences

1- The prices of related goods

- There are two types of related goods:

- Complements: Goods that are complements cannot be consumed separately. They cannot be consumed independently.

E.g. a toothbrush and a toothpaste, bread and butter, milk and cereals…

- Substitutes: Goods that are substitutes are very similar. You may consume one in place of the other.

E.g. Coca Cola or Pepsi, a Dell or an HP laptop, an HTC or a Samsung phone…

1- The prices of related goods (2)

- *The demand for good X changes when the price of a related good Y changes*.

Type of relation	Change in price of related good Y	Change in demand of good X
Complements	Increase	Decrease in demand
	Decrease	Increase in demand
Substitutes	Increase	Increase in demand
	Decrease	Decrease in demand

1- The prices of related goods (3)

- Bread and butter are complements. When the price of bread decreases, the quantity demanded of bread will increase ceteris paribus (that's the *law of demand*).
- In other words, consumers of bread will buy more bread when bread gets cheaper.
- Since more bread requires more butter, all things held constant, *the demand for butter will increase*.
- Consequently, the demand curve for butter will shift to the right.

1- The prices of related goods (4)

- Gatorade and Powerade are substitutes. When the price of Gatorade increases, the quantity demanded of Gatorade falls ceteris paribus (again, that's *the law of demand*).
- The consumers of Gatorade buy less of it when it gets more expensive.
- Since Powerade is a very good alternative, all things being held constant, many consumers of Gatorade will switch to it and *the demand for Powerade will increase*.
- Consequently, the demand curve for Powerade will shift to the right.

2- Expected future prices

- When the price of a good (that can be stored) is expected to change in the future, *the demand for the good changes*.
- For instance, if the price of cream corn is expected to rise, all the consumers of cream corn will stock up on cream corn cans now so they don't have to spend more money when the price is up.
- *The demand for cream corn will increase ceteris paribus* and, therefore, *shift the demand curve for cream corn to the right*.
- When prices are expected to increase, the demand increases.
- When prices are expected to decrease, the demand falls.

3- Income

- When income increases, the demand for most goods increases.
- However, the demand for some goods does not increase with income; it decreases instead.
- A good whose demand increases with more income is called a normal good. (E.g. electronic gadgets, textbooks, …)
- A good whose demand decreases with more income is called an inferior good. (E.g. fast food, thrift store items, …)

4- Natural factors

- Natural factors may affect the demand for a good.
- For example, it is very cold in the winter and no one is really interested in ice creams. The demand for ice creams falls during the winter.
- After a hurricane, many buildings need repairs and some structures even need to be rebuilt. The demand for construction materials increases.

5- Market size

- The size of the market for a good (especially the number of buyers of the good) affects the demand for the good.
- This is the main purpose of adverts. They aim at attracting more buyers of a good in order to increase its demand.
- So good advertisement increases the number of buyers of a good, *which increases the demand for the good* (rightward shift in the demand curve).
- Propaganda about a good may decrease the number of buyers and therefore decrease the demand for the good (leftward shift in the demand curve).

6- Tastes and preferences

- The taste or the preference of a consumer for a good determines how much value he/she places in the good.
- A change in the taste/preference of the consumers of a good will change the demand for the good.
- If the consumers of a good have more taste for the good, the demand for the good will increase (and the demand curve of the good will shift to the right).
- If the consumers of a good have less taste for the good, the demand for the good will decrease (and the demand curve of the good will shift to the left).

The concept of supply

- You supply a good/service when you:
  - Have the resources and technology to produce it
  - Can profit from producing it
  - Plans to produce and sell it
- To have the resources and technology to produce a good or offer a service is not enough.
- Doing so has to be *profitable*.

The concept of quantity supplied

- Let's assume there are 3 cookie producers in the economy and each of them is asked the question:
- How many cookies would you produce every week if cookies were priced at $x a piece?
- Important: quantity, time period and price.

X	
Price ($)	Quantity supplied
5	5
3	3
1	1

Y	
Price ($)	Quantity supplied
5	12
3	7
1	3

Z	
Price ($)	Quantity supplied
5	10
3	5
1	2

The concept of quantity supplied (2)

X	
Price ($)	Quantity supplied
5	5
3	3
1	1

Y	
Price ($)	Quantity supplied
5	12
3	7
1	3

Z	
Price ($)	Quantity supplied
5	10
3	5
1	2

- These tables show the *specific quantities* of cookies that the producers X, Y and Z are *individually* willing and able to produce and sell every week *at each specific price level*.
- These quantities are the *individual quantities supplies* of cookies by each producer every week at specific prices.
- These tables are called *individual supply schedules*.

The concept of quantity supplied (3)

Y	
Price ($)	Quantity supplied
5	12
3	7
1	3

For example, for producer Y, the quantity supplied of cookies is:

- 12 per week when cookies are $5 a piece.
- 7 per week when cookies are $3 a piece.
- 3 per week when cookies are $1 a piece.

The concept of quantity supplied (4)

- If we sum up all the *individual quantities supplied* by each producer in the market at each different price level, we obtain the *market quantities supplied*.
- The table here shows the total quantity supplied of cookies in the entire market for a week at each specific price level:

- 27 per week when cookies cost $5.
- 15 per week when cookies cost $3.
- 6 per week when cookies cost $1.

- Such a table is called *a market supply schedule*.

Price (in $)	Consumer	Quantity supplied	Total quantity supplied
5	X	5	27
	Y	12	
	Z	10	
3	X	3	15
	Y	7	
	Z	5	
1	X	1	6
	Y	3	
	Z	2	

* The two (2) columns in the middle can be discarded!

Quantity supplied defined

- The *individual quantity supplied* of a good is the specific quantity of a good that a producer is willing and able to produce and sell during a time period at a specific price, ceteris paribus.
- The *market quantity supplied* for a good is the sum of all the individual quantities supplied by all the producers in the market. In other words, it is the sum of all the quantities of a good that each producer in the market is willing and able to produce and sell during a time period at a specific price level, ceteris paribus.
- We usually refer to “market quantity supplied” whenever we say “quantity supplied”.

The two types of supply defined: Individual supply

- The *individual supply of* a good is the *set of quantities* of the good that a producer (e.g. producer Z) is *individually* willing and able to produce and sell per time period (week, month, quarter, year…) *at different price levels* *ceteris paribus*.
- The individual supply of a good is the information shown by individual supply schedules. E.g:

Z	
Price ($)	Quantity supplied
5	10
3	5
1	2

The two types of supply defined: market supply

- The *market supply* of a good is *the set of quantities* of the good that all the producers in a market (i.e. producers X, Y and Z) are *collectively* willing and able to produce and sell per time period (week, month, quarter, year…) *at different price levels* *ceteris paribus*.
- The market supply is the information shown by market supply schedules:

Price (in $)	Consumer	Quantity supplied	Total quantity supplied
5	X	5	27
	Y	12	
	Z	10	
3	X	3	15
	Y	7	
	Z	5	
1	X	1	6
	Y	3	
	Z	2	

NB: We generally refer to the “market supply” whenever we say “supply”.

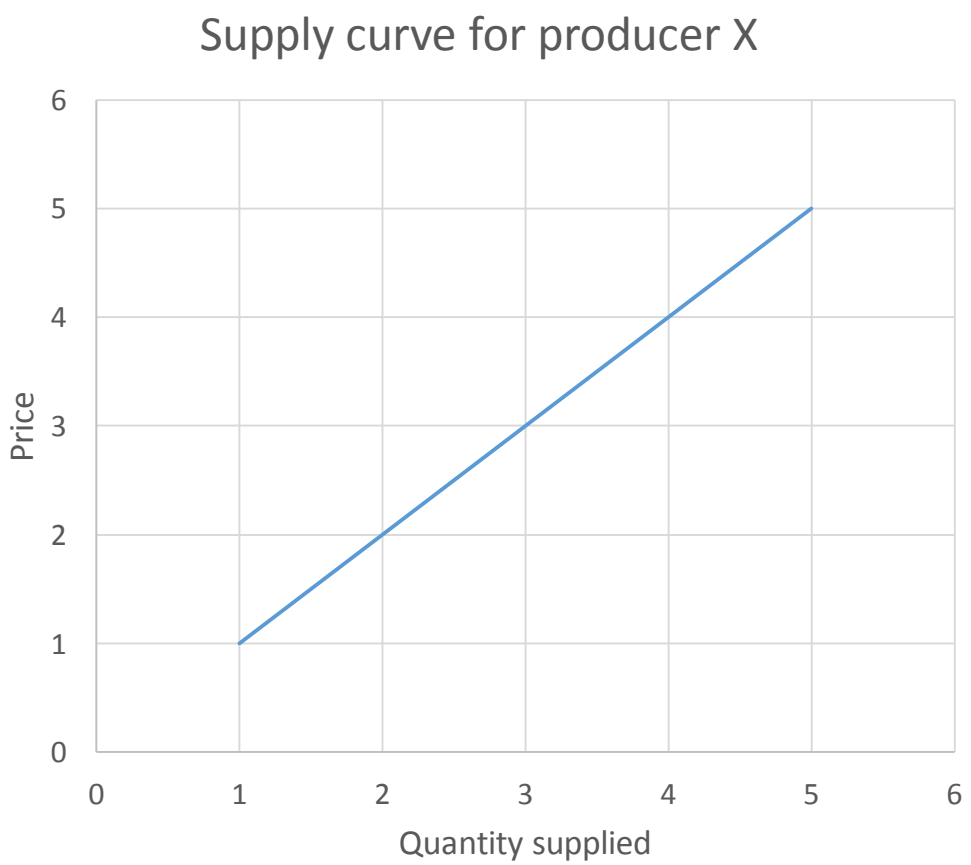
The difference between “quantity supplied” and “supply”

- The *quantity supplied* of a good refers to the *specific quantity* of the good that the producers in a market are *collectively* willing and able to produce and sell during a time period at *a specific price level* ceteris paribus.
- The *supply* of a good refers to the *set of quantities* of the good that the producers in a market are *collectively* willing and able to produce and sell during a time period at *different price levels* ceteris paribus.
- The former is a *specific quantity* for a specific price and the latter is a *set of quantities* for different prices.

Graphical illustration

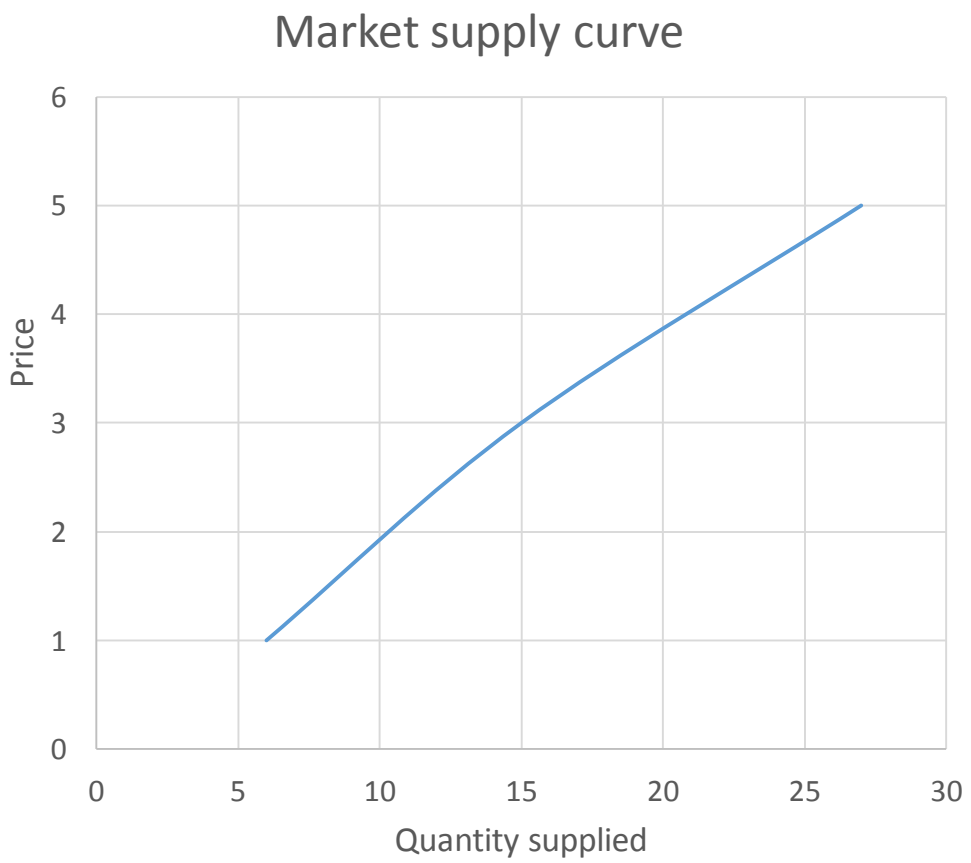
- We can plot individual supply schedules as well as market supply schedules.
- What we obtain is *the individual/market supply curve*.
- We generally refer to the market supply curve whenever we say “supply curve”.
- Prices are on the vertical axis (the y-axis) and quantities supplied are on the horizontal axis (the x-axis).

Plotting individual supply curves



- Individual supply curves slope upward (*they have a positive slope*).
- The positive slope of individual supply curves reflects the *positive relationship between relative price and individual quantities supplied*.
- A positive relationship between two variables means that when one increases, the other one increases also.

Plotting market supply curves

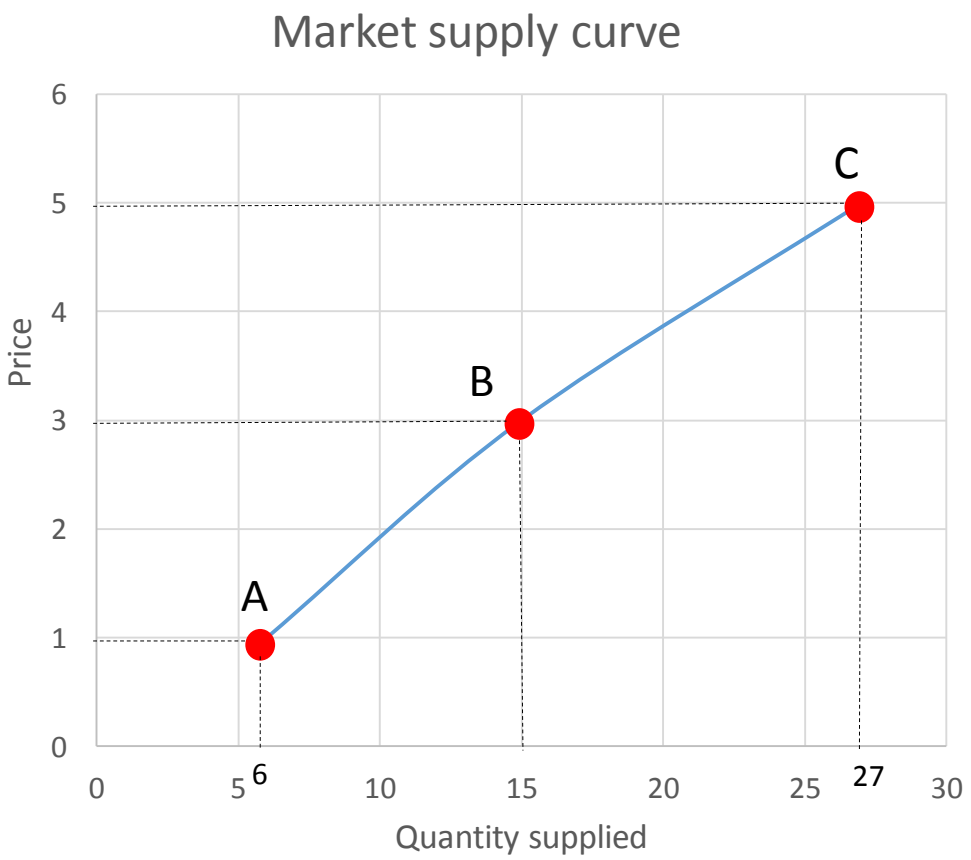


- Market supply curves also *slope upward*.
- The positive slope of market supply curves reflects the *positive relationship between relative price and market quantities supplied*.

The Law of Supply

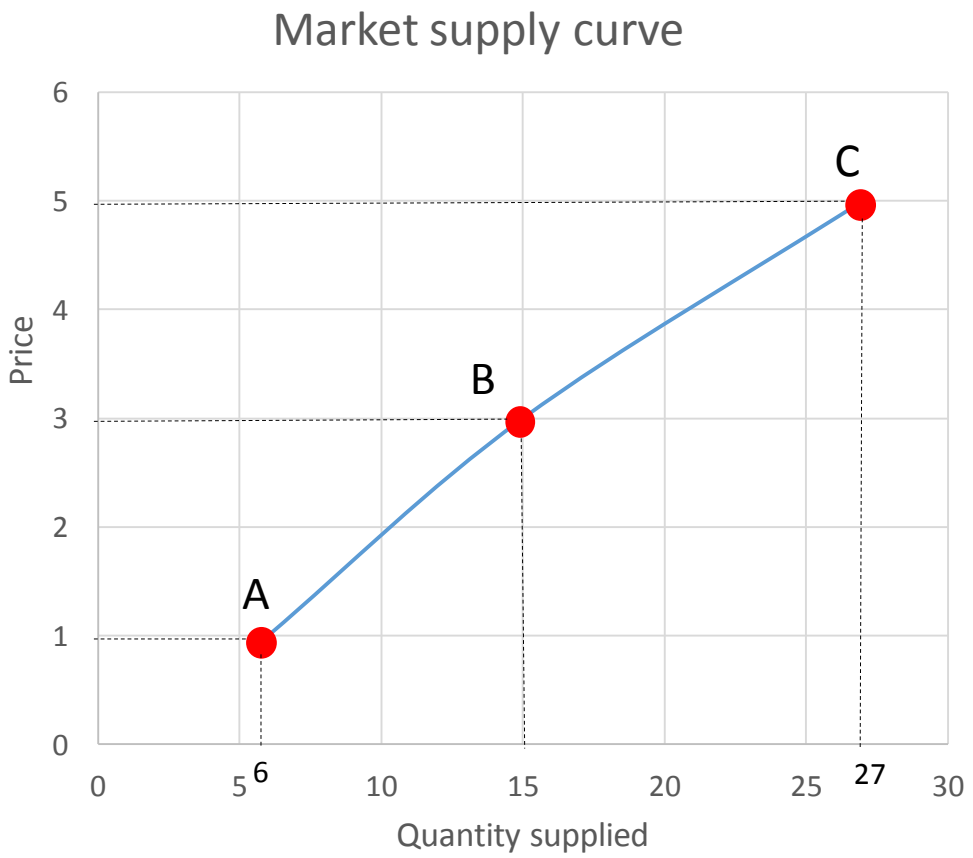
- *Ceteris paribus*, a rise in the relative price of a good/service induces a rise in the quantity supplied.
- Similarly, *ceteris paribus*, a fall in the relative price of a good/service induces a fall in the quantity supplied.

Supply vs quantity supplied (graphically)



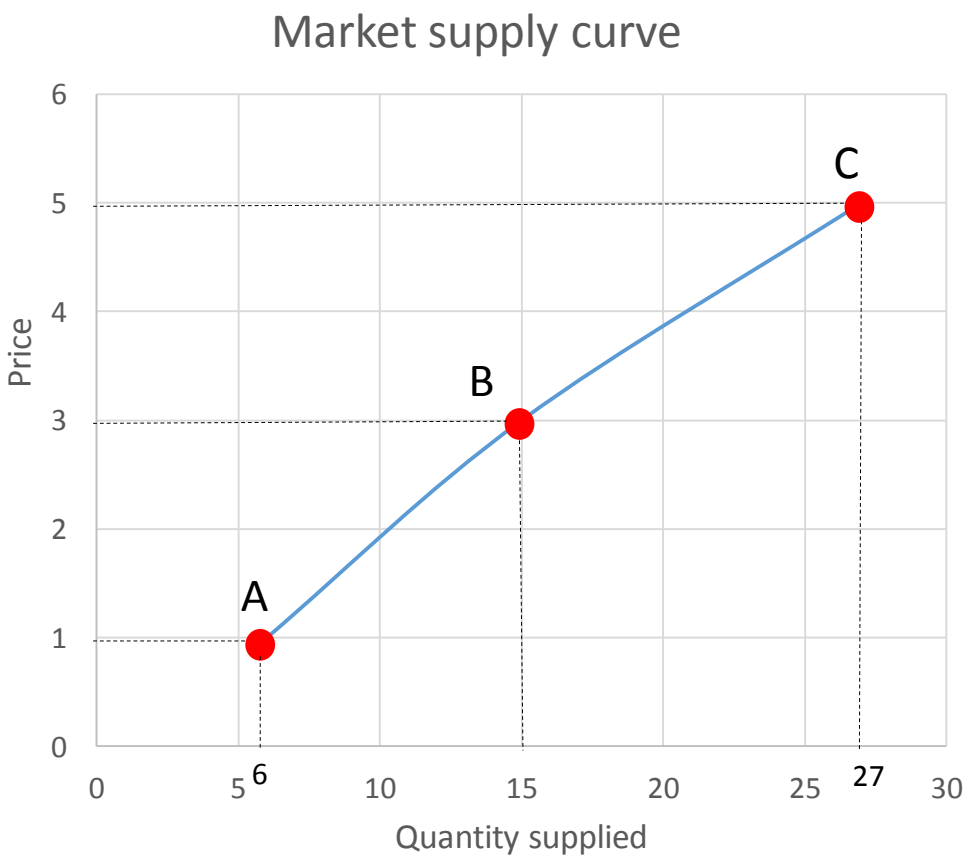
- The *entire curve* represents the supply of cookies.
- However, *each point on the curve* represents a specific quantity supplied with a corresponding price level.

Change in quantity supplied



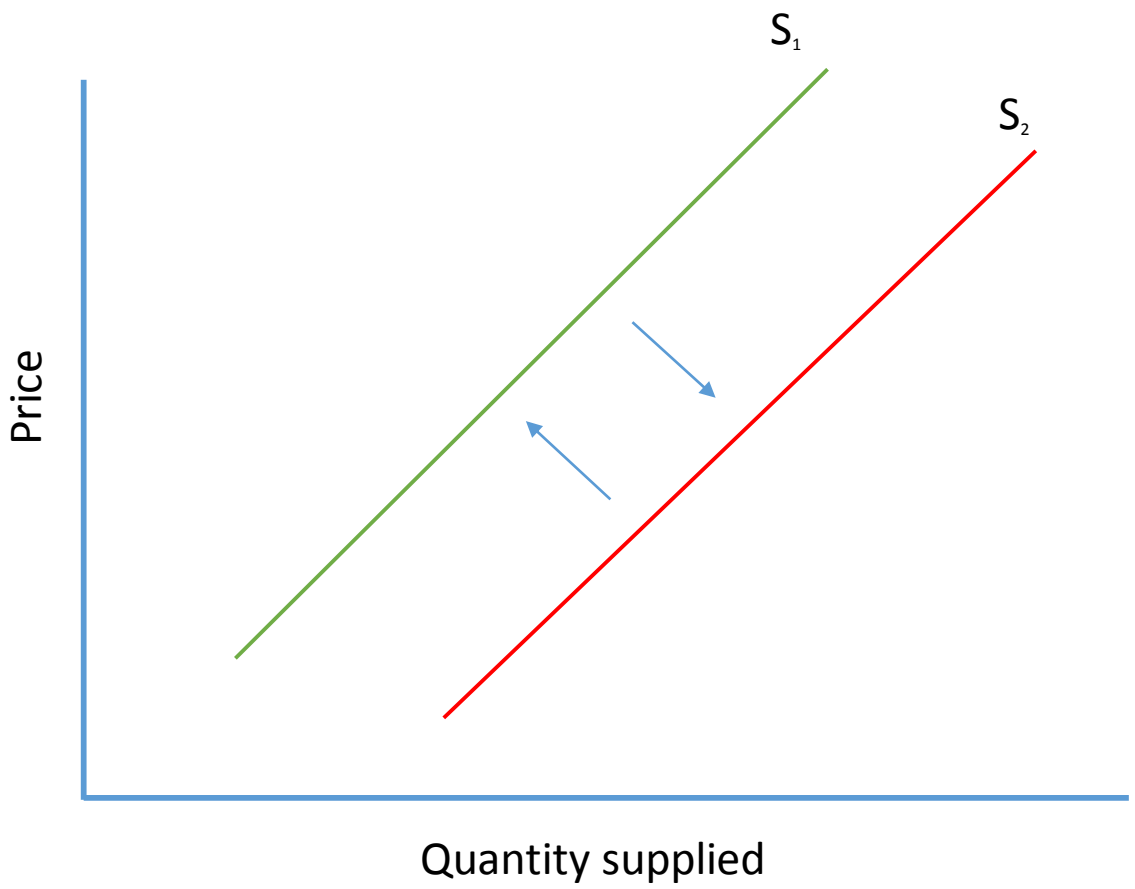
- *A change in quantity supplied is represented by a move along the supply curve*.
- For instance, a move from point B to point C represents an increase in quantity supplied.
- *A change in quantity supplied is caused <u>ONLY</u> by a change in the price of the good/service itself.*

Change in quantity supplied (2)



- A move from point B to point C illustrates an increase in price from $3 to $5.
- That increase in price induces an increase in the quantity supplied from 15 to 27.
- Similarly, a decrease in price will lead to a decrease in the quantity supplied.

Change in supply



- Unlike a change in quantity supplied, *a change in supply shifts the entire supply curve*.
- An increase in supply shifts the curve to the right.
- A decrease in supply shifts the curve to the left.

Factors that change supply

- Many factors may change the supply of a good. Following are six (6) of them:

- The prices of inputs
- The prices of related goods
- Expected future prices
- Technology
- Natural factors
- Number of suppliers

1- The price of inputs

- When the price of an input decreases, it becomes cheaper to produce the output.
- For example, it become cheaper to produce tables when the price of wood falls.
- Consequently, the producer has an incentive to produce output.
- *There is an increase in the supply of the output*.
- *A fall in the price of inputs leads to an increase in supply.*
- *A rise in the price of inputs leads to a decrease in supply.*

2- The prices of related goods

- Again, there are two types of related goods: complements and substitutes.
- A change in the price of a complementary good Y will shift the supply of a good X.
- For example, if the price of shoes (complements) increases, the quantity supplied will also increase (this is the *law of supply*).
- The producers of shoe polish will respond by increasing its supply [the supply of shoe polish].
- *The supply of a good is positively correlated with the price of its complements*.

2- The prices of related goods (2)

- A change in the price of a substitute Y will shift the supply of good X.
- For example, if the price of vegetable oil (substitute) rises, the (profit-minded) producers of peanut oil will switch and begin the production of vegetable oil in search of higher profits.
- Consequently, *the supply of peanut oil will fall*.
- *The supply of a good is negatively related with the price of its substitutes*.

2- The prices of related goods (3)

- *The supply of good X changes when the price of a related good Y changes*.

Type of relation	Change in price of related good Y	Change in supply of good X
Complements	Increase	Increase in supply
	Decrease	Decrease in supply
Substitutes	Increase	Decrease in supply
	Decrease	Increase in supply

3- Expected future prices

- When the expected future price of a good changes, its supply also changes.
- For example, let's assume the price of cars is expected to rise during the summer.
- The car manufacturers will decrease their supply of cars before the summer so they can take advantage of the higher price later.
- *The supply of a good is negatively related with its expected future prices*.

4- Technology

- A higher level of technology means a higher supply.
- For example, the supply of books was much lower 200 years ago than it is now.
- This is due to the advancement of the technology involved in the printing industry.
- *An increase in the technology used to produce a good will also increase the supply of the good*.

5- Natural factors

- *Many natural factors may affect the supply of a good*.
- Weather, for instance, is a crucial natural factor that affects agricultural production.
- Or a hurricane will negatively affect the production of many goods in a city.
- Many more examples can be given.

6- Number of suppliers

- Obviously, if the number of suppliers of a good changes in the market, the supply of the good will change.
- For example, the supply of mobile phones has drastically increased over the years.
- This is due to the increase in the number of phone manufacturers: Samsung, HTC, Motorola, Apple…
- *The supply of a good is positively correlated with the number of its suppliers*.

You should now be able to…

- Define a good/service
- Explain the significance of *ceteris paribus* in economics
- Define a market
- Define quantity demanded and demand and explain the main differences between both concepts (with words and graphs)
- Draw a demand curve and comment on its slope
- State the reason that can cause quantity demanded to change
- Illustrate a change in quantity demanded graphically
- State the law of demand
- Give a few reasons that can cause demand to change and explain the mechanics
- Illustrate a change in demand graphically

You should now be able to… (2)

- Define quantity supply and supply and explain the main differences between both concepts (with words and graphs)
- Draw a supply curve and comment on its slope
- State the reason that can cause quantity supply to change
- Illustrate a change in quantity supplied graphically
- State the law of supply
- Give a few reasons that can cause demand to change and explain the mechanics
- Illustrate a change in supply graphically

THANK YOU ☺