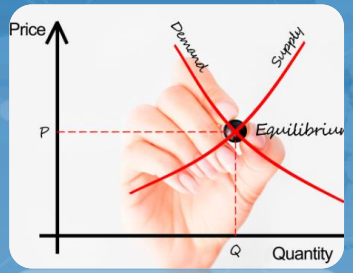
FACULTY OF ECONOMIC AND SOCIAL SCIENCES
Department of Economics
Course code: BMEGT301004



ECONOMICS I

BUDAPEST UNIVERSITY OF TECHNOLOGY AND ECONOMICS

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Week 2 - 14th February 2019

TIMELINE OF THE SEMESTER

Week	Topic	Date
1.	Introduction – Basic Definitions of Microeconomics	7th Febr 2019
2.	Market Theory: The Basics of Supply And Demand	14th Febr 2019
3.	Markets and Welfare	21st Febr 2019
4.	Consumer Theory	28th Febr 2019
5.	Production and Cost Theory	7th Mar 2019
6.	**1st Test**	**14th Mar 2019**
7.	**SPRING BREAK**	**21st Mar 2019**
8.	***Sketch Design week***	***28th Mar 2019***
9.	Firm Behaviour and the Organization of Industry: Competitive Markets & Monopolistic Competition	4th Apr 2019
10.	Firm Behaviour and the Organization of Industry: Monopoly	11th Apr 2019
11.	Firm Behaviour and the Organization of Industry: Oligopolistic Markets	18th Apr 2019
12.	The Economics of Labour Markets	25th Apr 2019
13.	Externalities, The Economics of the Public Sector	2nd May 2019
14.	**2nd Test**	**9th May 2019**
15.	***Draughting Week***	***16th May 2019***
16.	***Re-Submission: Repetitive Tests***	***22nd May 2019***

Section I

I. Revision
II. The Demand Curve

Revision: What Do You Remember from Last Lesson?

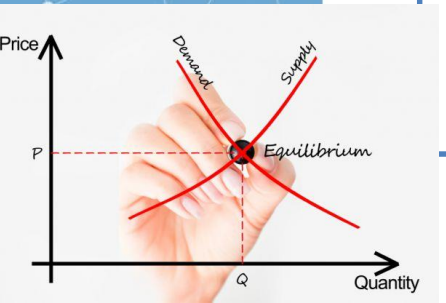
- Wants and desires of human beings are ..... unlimited .....
- Microeconomics studies the behavior of individual economic decision makers, such as ..... consumers, workers, firms .....
- Factors of production are: ..... land, capital, labor, entrepreneurship .....
- Adam Smith is famous for the theory of ..... invisible hand .....
- The limited nature of a society's resources is called ..... scarcity .....
- The value of the best alternative is an ..... opportunity cost .....
- The demand curve is ..... downward ..... sloping.

The Demand Curve

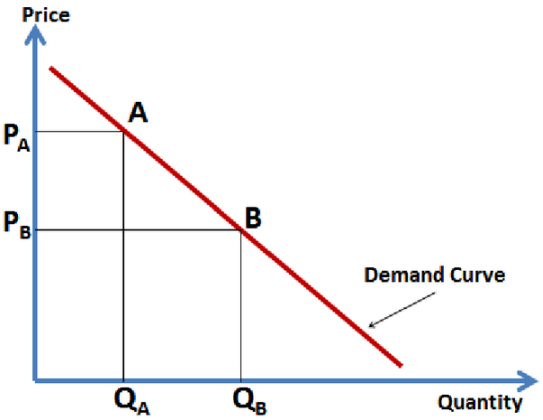
Determinants of Household Demand

A household's decision about the quantity of a particular output to demand depends on:

- The **price** of the product in question.
- The **income** available to the household.
- The household's amount of **accumulated wealth**.
- The **prices of related products** available to the household.
- The household's tastes and **preferences**.
- The household's **expectations** about future income, wealth and prices.



The Demand Curve



Basic Concepts

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

E.g. If the price of ice cream rose to $0.20 per scoop, you would buy less ice cream. If the price of ice cream fell to $0.20 per scoop, you would buy more.

Law of demand: the claim that, other things equal, the quantity demanded of a good falls when the price of the good rises:

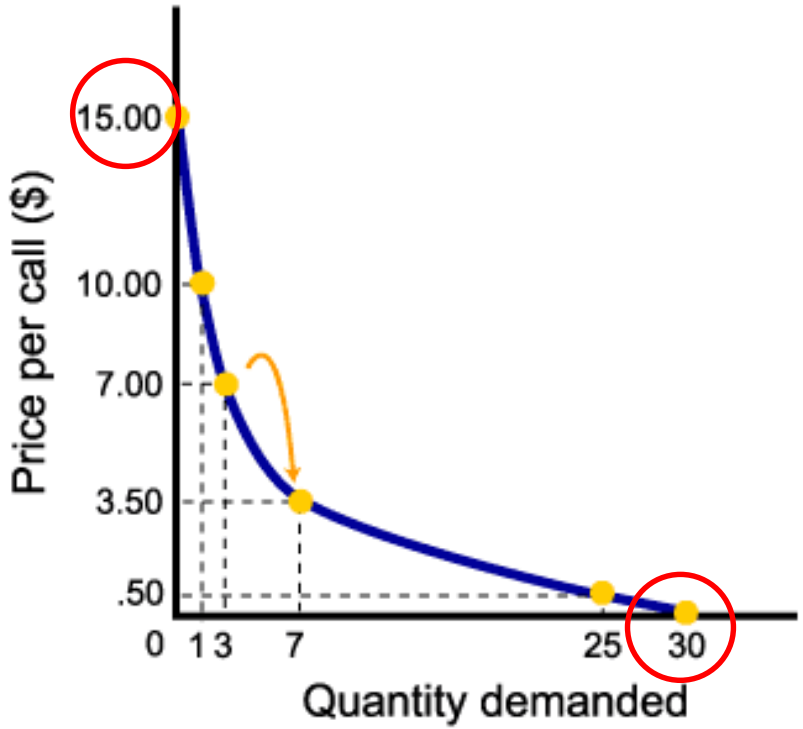
P↑ → Q↓

The Demand Curve

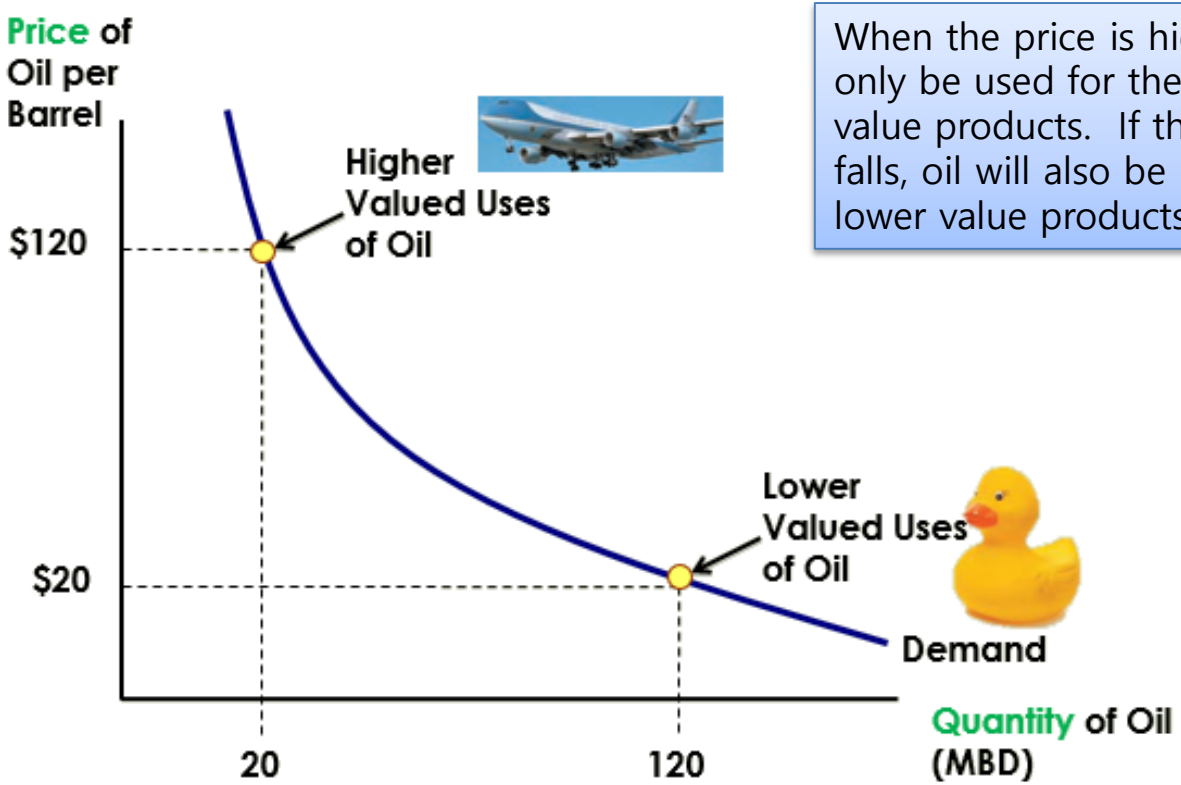
The **law of demand** states that there is a negative or inverse, relationship between price and the quantity of a good demanded and its price

This means that **demand curves slope downward**.

Demand curves intersect the quantity (X)-axis, as a result of time limitations and diminishing marginal utility.
Demand curves intersect the (Y)-axis, as a result of limited incomes and wealth.



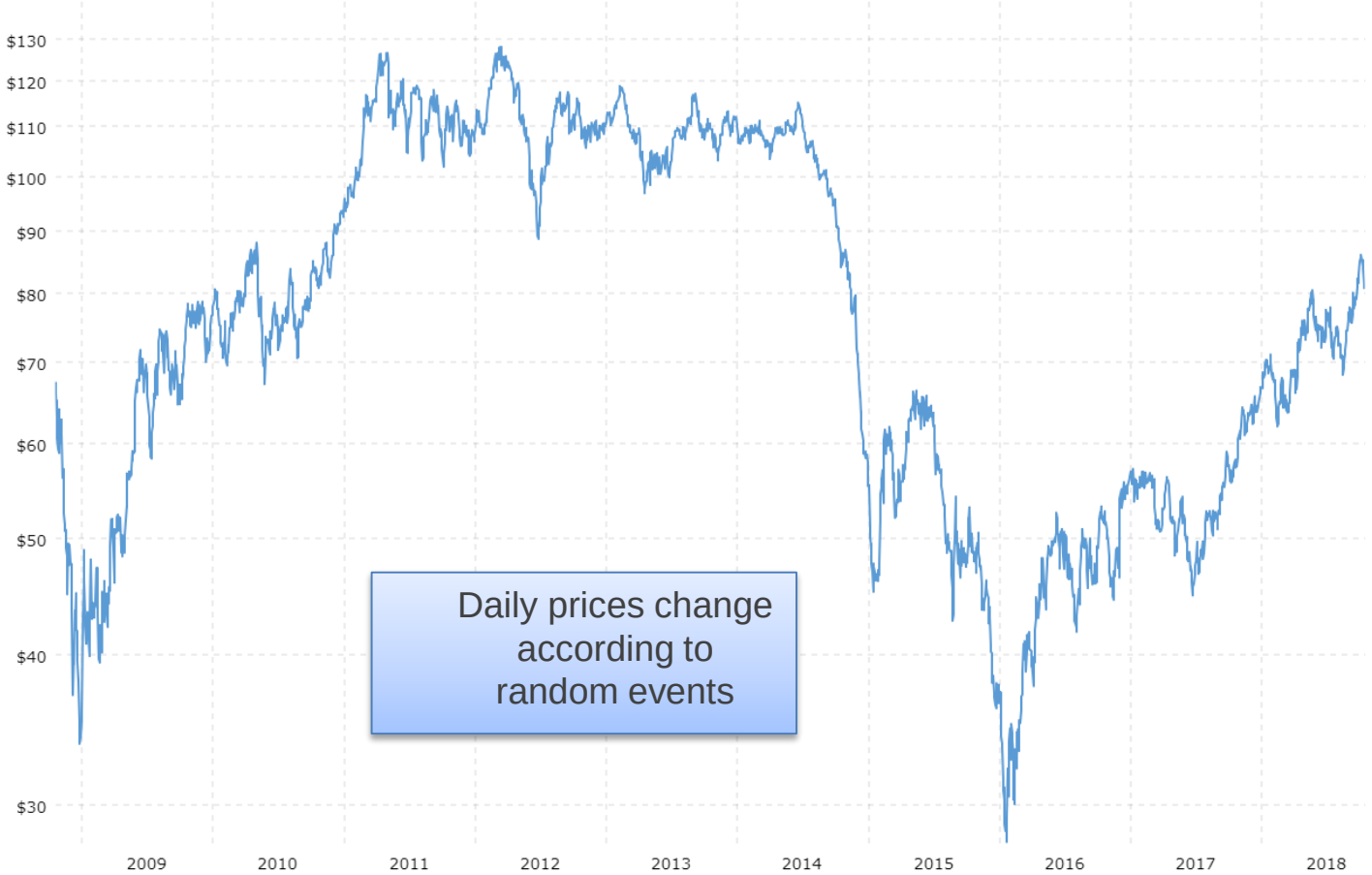
Intuition of the Demand Curve



When the price is high, oil will only be used for the high value products. If the price falls, oil will also be used in lower value products.

Stochastic Time Series: Brent Crude Oil Prices

10 Year Daily Chart



Types of Goods

Income is the sum of all households wages, salaries, profits, interest payments, rents, and other forms of earnings in a given period of time. It is a flow measure.

Wealth, or net worth, is the total value of what a household owns minus what it owes. It is a stock measure.

Normal Goods are goods for which demand goes up when income is higher and for which demand goes down when income is lower.

Inferior Goods are goods for which demand falls when income rises *(second hand items, cheapest products)*

Substitutes are goods that can serve as replacements for one another; when the price of one increases, demand for the other goes up. Perfect substitutes are identical products. *E.g. cell phone calls v.s. Viber, Coca Cola v.s. Pepsi, beer v.s. wine*

Complements are goods that "go together"; a decrease in the price of one results in an increase in demand for the other, and vice versa, *e.g. coffe and sugar, left and right shoe*

Inferior, Substitute or Complementary? – Let's practice!

Public transport

Inferior good

Butter and margarine

Substitutes

Car and bicycle

Substitutes

Rice, potatoes, instant soup

Inferior goods

Razors and razor blades

Complements

Popcorn and movie

Complements

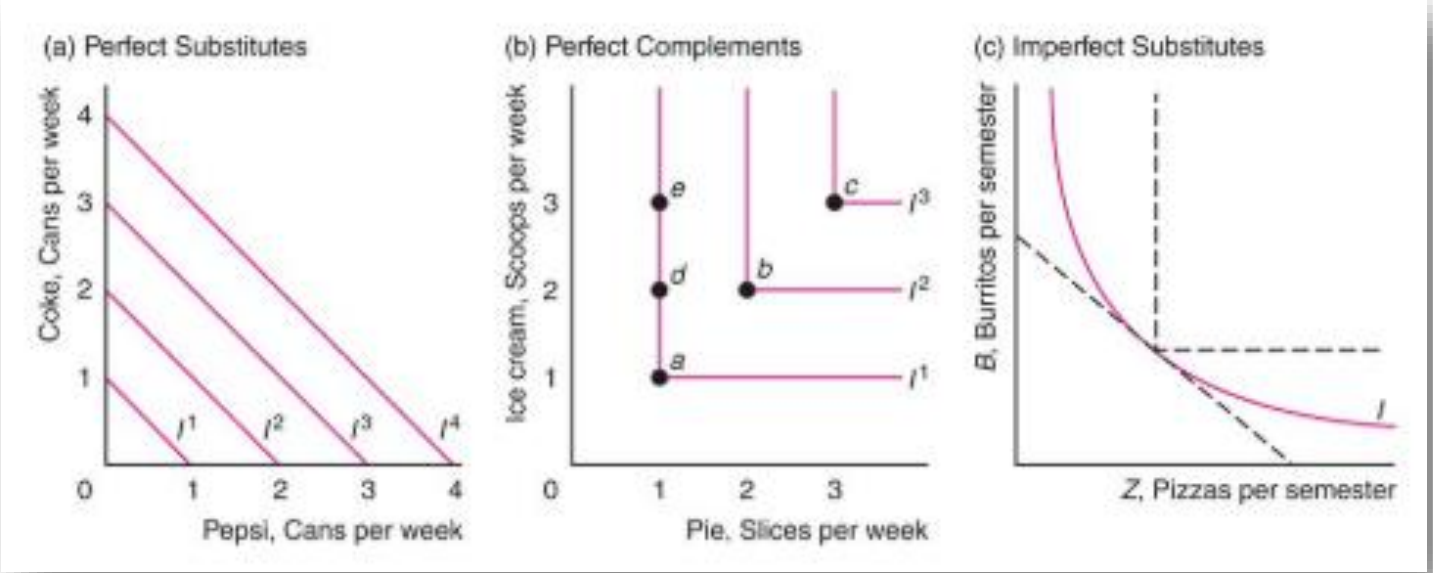
Kindle and printed goods

Substitutes

Fast food

Inferior good

Substitutes and Complements

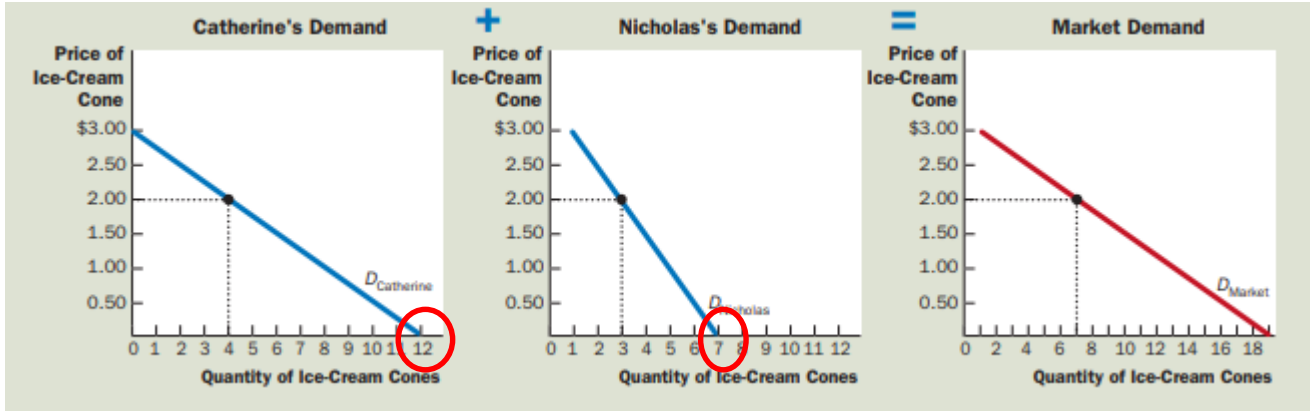


Market Demand versus Individual Demand

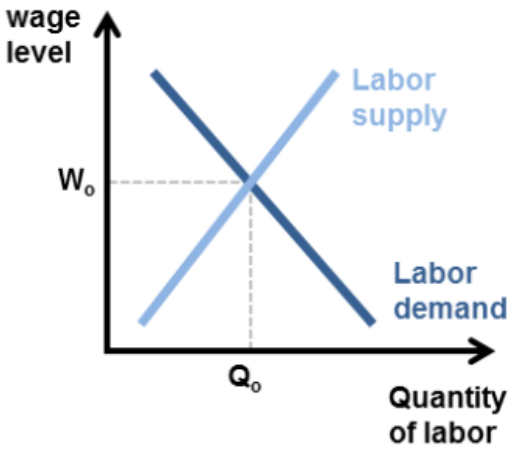
Price of Ice-Cream Cone	Catherine		Nicholas		Market
$0.00	12	+	7	=	19 cones
0.50	10		6		16
1.00	8		5		13
1.50	6		4		10
2.00	4		3		7
2.50	2		2		4
3.00	0		1		1

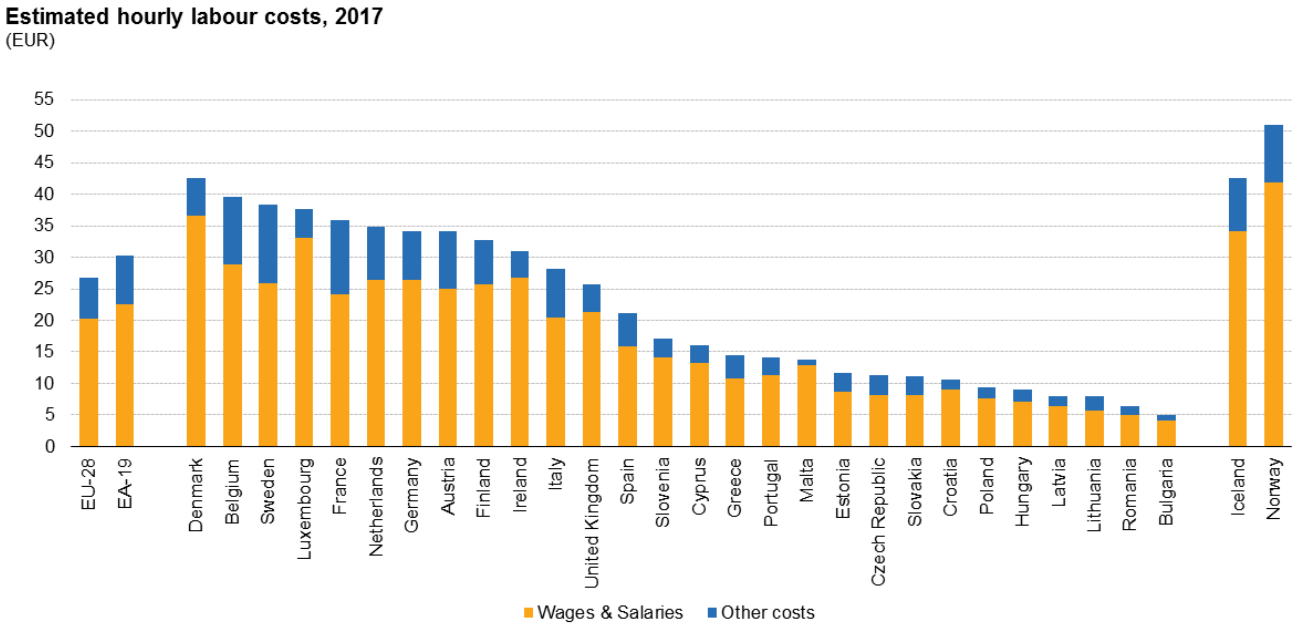
Market demand: the sum of all the individual demands.

We add the individual quantities → horizontal axis



Example - Market Demand for Labour

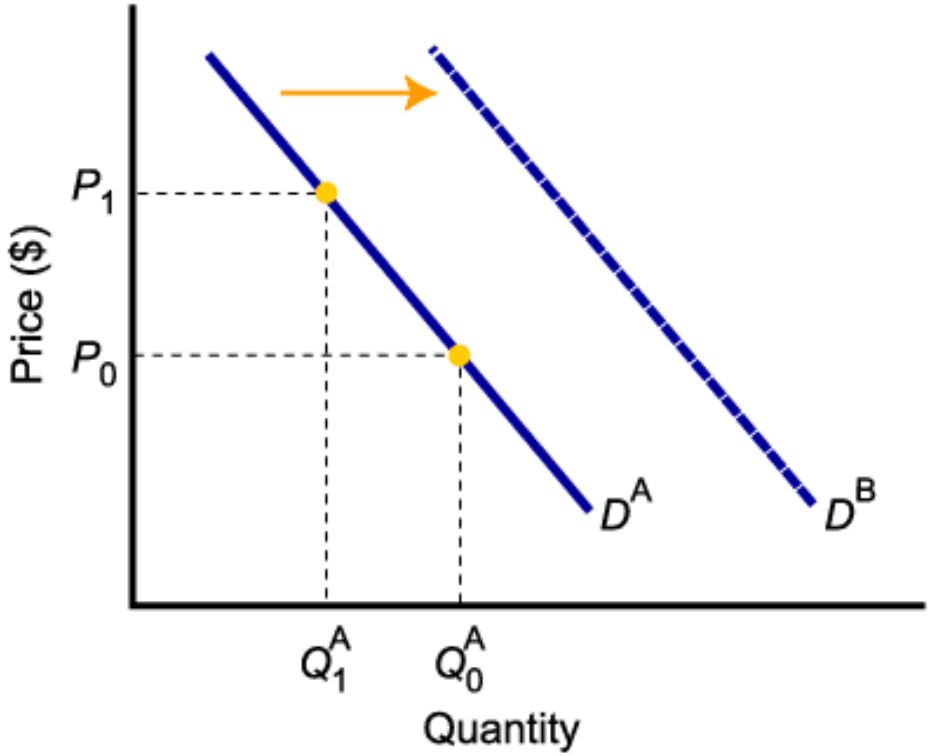




Note: whole economy (excluding agriculture and public administration); in enterprises with 10 or more employees. Provisional data.

Source: Eurostat (online data code: lc_lci_lev)

The Change in Demand

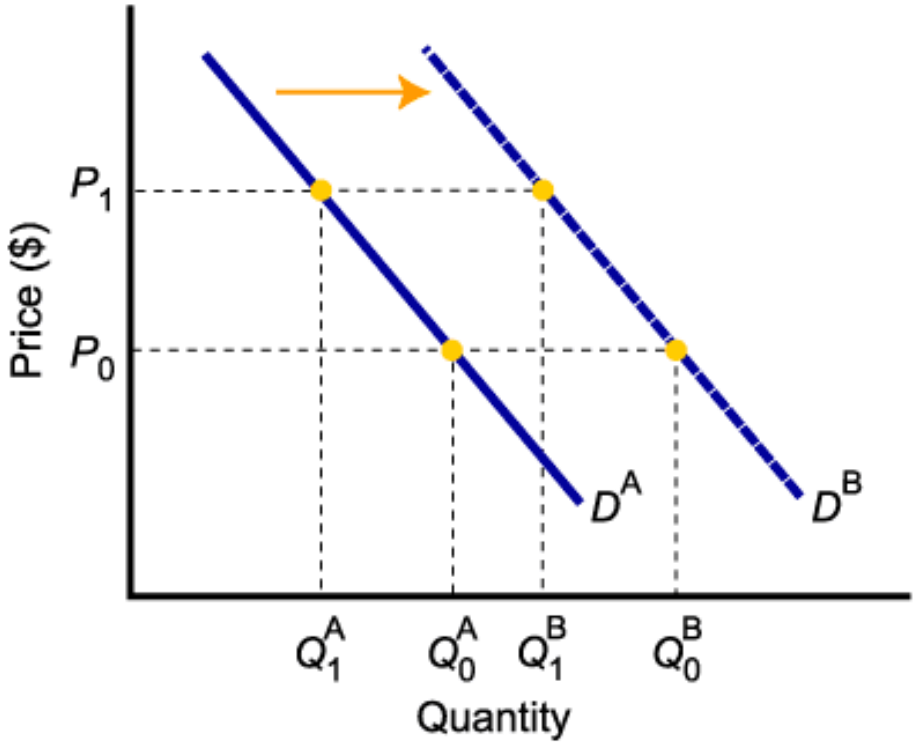


A change in demand is not the same as a change in quantity demanded.

In this example, **a higher price causes lower quantity demanded**.

Changes in determinants of demand, other than price, cause a change in demand, or a shift of the entire demand curve, from D^A to D^B.

The Change in Demand



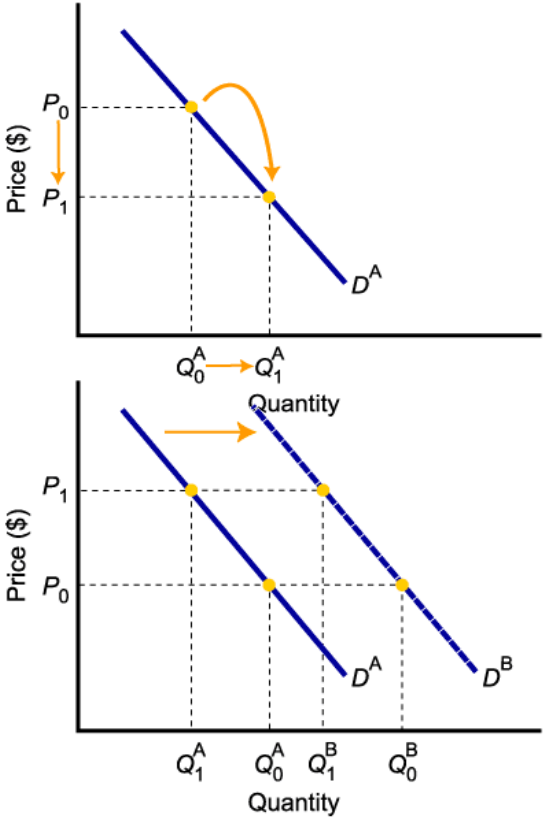
When **demand shifts to the right**, demand increases. This causes quantity demanded to be greater than it was prior to the shift, for each and every price level.

The Change in Demand

Variable	A Change in This Variable . . .
Price of the good itself	Represents a movement along the demand curve
Income	Shifts the demand curve
Prices of related goods	Shifts the demand curve
Tastes	Shifts the demand curve
Expectations	Shifts the demand curve
Number of buyers	Shifts the demand curve

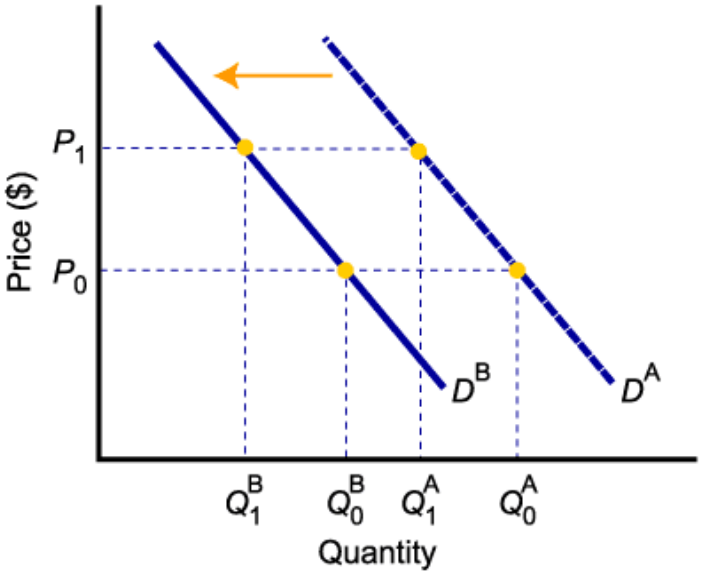
When demand shifts to the right, demand increases. This causes quantity demanded to be greater than it was prior to the shift, for each and every price level.

Change in <u>income, preferences, or prices</u> of other goods or services leads to change in demand → (**Shift of curve**).

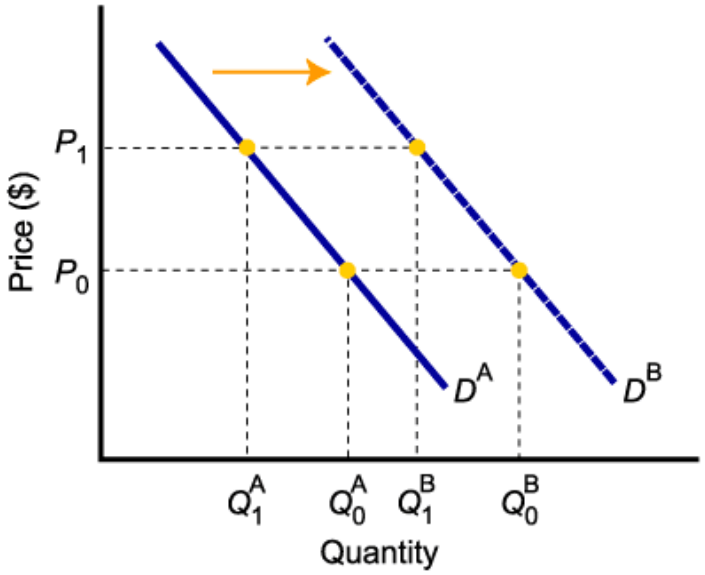


The Impact of a Change in Income

Higher income decreases the demand for an inferior good

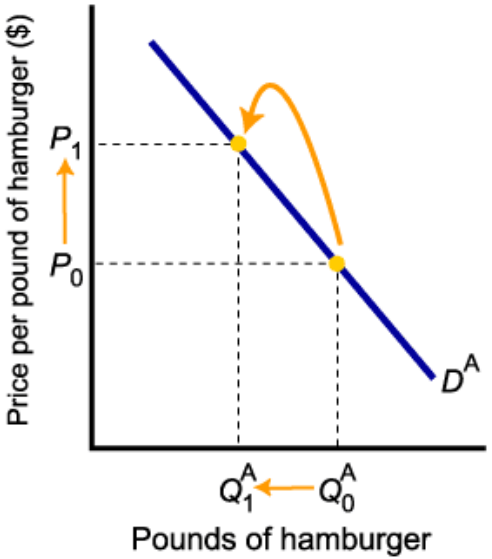


Higher income increases the demand for a normal good

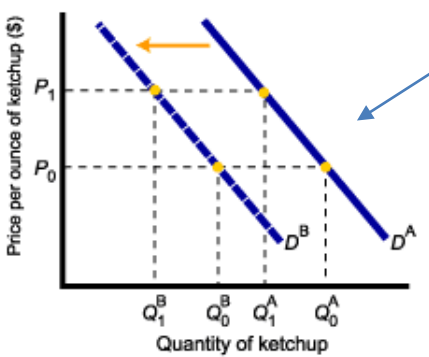


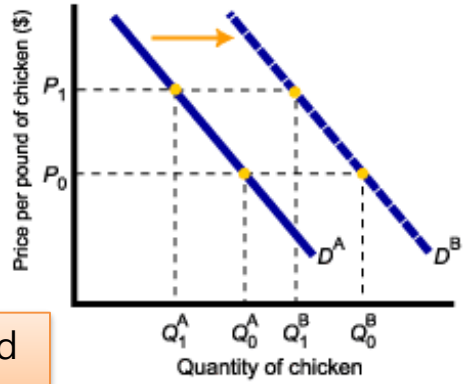
The Impact of a Change in the Price of Related Goods

- Price of hamburger rises
- Quantity of hamburger demanded falls



Demand for complement good (ketchup) shifts left

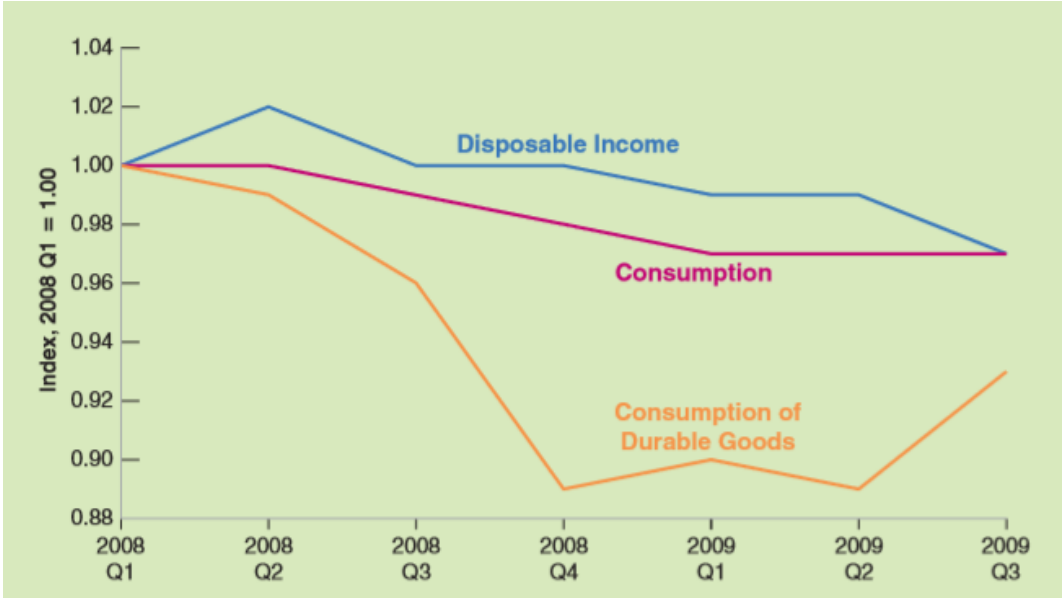




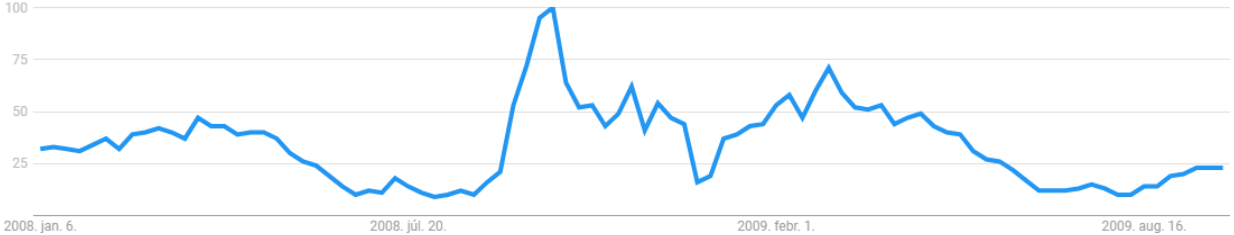
Demand for substitute good (chicken) shifts right

Effects of the Financial Crisis of 2008 on Consumption in the USA

- Disposable income did not initially move much;
- Consumption fell by more than disposable income;
- Consumption of durables dropped sharply;
- Expectations for the worth: the Lehman Brothers' bankrupcy



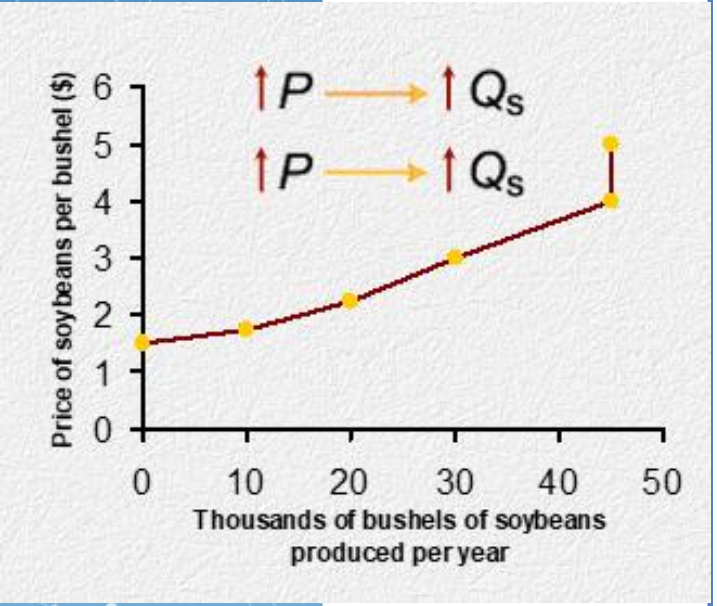
Google Trends series on „Great Depression" globally



Section II

III. The Supply Curve
IV. Equilibrium Practices

The Supply Curve



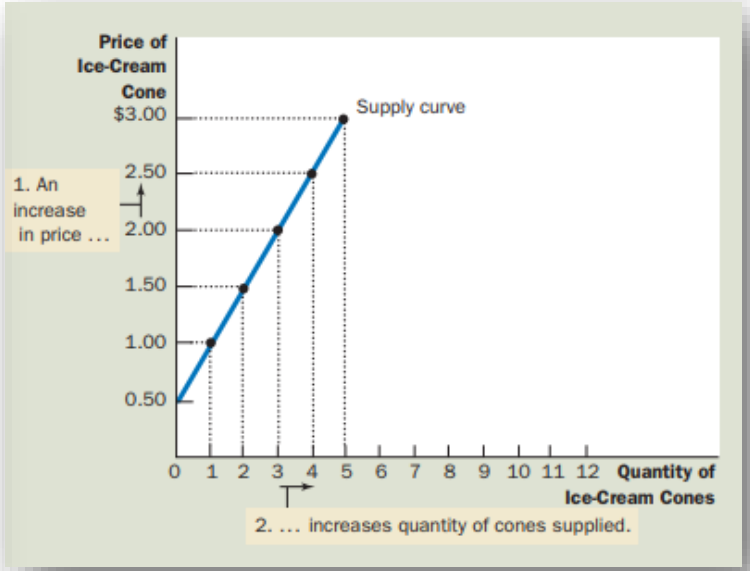
- Supply represents the <u>behavior of sellers</u>.
- A **Supply Curve** shows the quantity supplied at different prices.
- **Quantity supplied** the amount of a good that sellers are willing and able to sell.

- *When the price of ice cream is high, selling ice cream is profitable, and so the quantity supplied is large. Sellers of ice cream work long hours, buy many ice-cream machines, and hire many workers.*
- *When the price of ice cream is low, the business is less profitable, and so sellers produce less ice cream.*

- **Law of supply:** the claim that, other things equal, the quantity supplied of a good rises when the price of the good rises.
- The curve relating price and quantity supplied is called the **Supply curve** → it slopes upward because, other things equal, a higher price means a greater quantity supplied.

The Supply Curve

Price of Ice-Cream Cone	Quantity of Cones Supplied
$0.00	0 cones
0.50	0
1.00	1
1.50	2
2.00	3
2.50	4
3.00	5



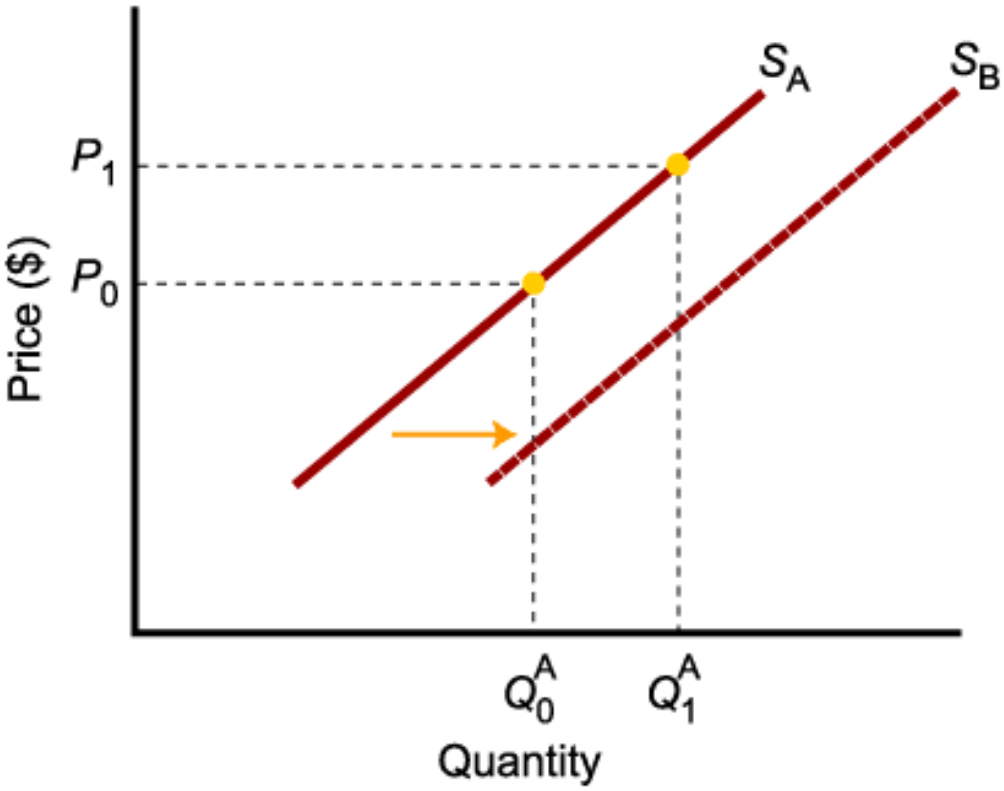
This supply curve illustrates how the quantity supplied of the good changes as its price varies. Because a higher price increases the quantity supplied, **the supply curve slopes upward**.

Shifts in The Supply Curve

Determinants of supply

1. The **price of the good or service**.
2. The **cost of producing** the good, which in turn depends on:
   - The price of required ***inputs*** (labor, capital, and land),
   - The ***technologies*** that can be used to produce the product,
3. The **prices of related products**.

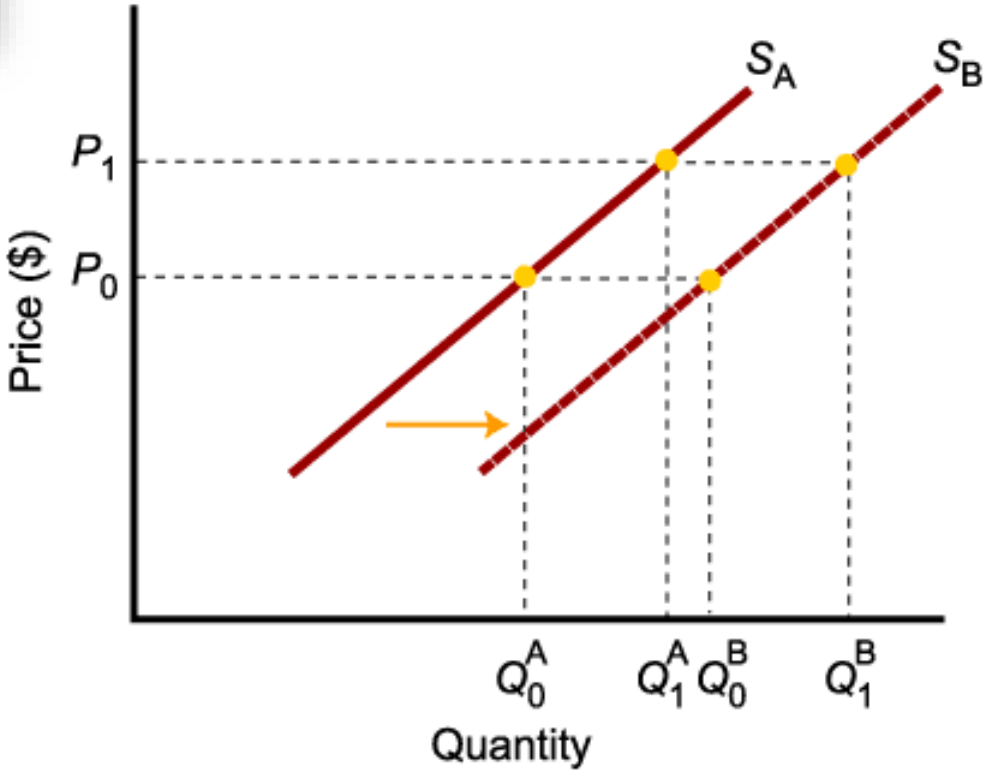
- In this example, a higher price causes higher quantity supplied and a move along the demand curve.
- Changes in determinants of supply, other than price, cause an increase in supply, or a shift of the entire supply curve, from S_A to S_B.



Variable	A Change in This Variable . . .
Price of the good itself	Represents a movement along the supply curve
Input prices	Shifts the supply curve
Technology	Shifts the supply curve
Expectations	Shifts the supply curve
Number of sellers	Shifts the supply curve

Shifts in The Supply Curve

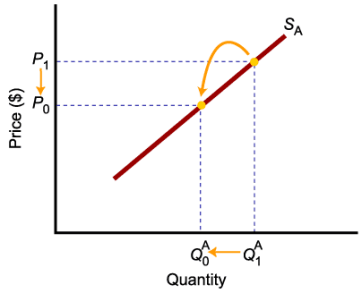
- When supply **shifts to the right**, supply increases.
- This causes quantity supplied to be greater than it was prior to the shift, for each and every price level.



Shifts in The Supply Curve

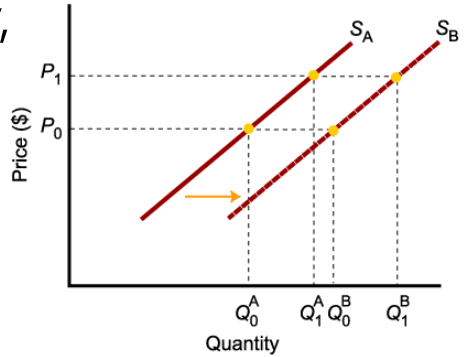
Change in price of a good or service
leads to

Change in *quantity supplied*
(**Movement along the curve**).



Change in costs, input prices, technology,
or prices of related goods and services
leads to

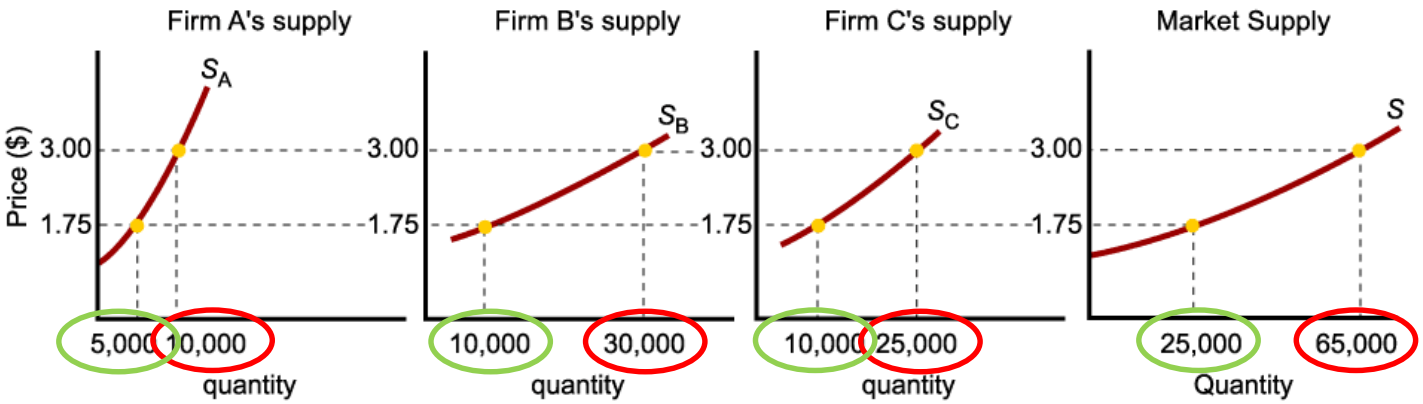
Change in supply
(**Shift of curve**).



From Individual Supply to Market Supply

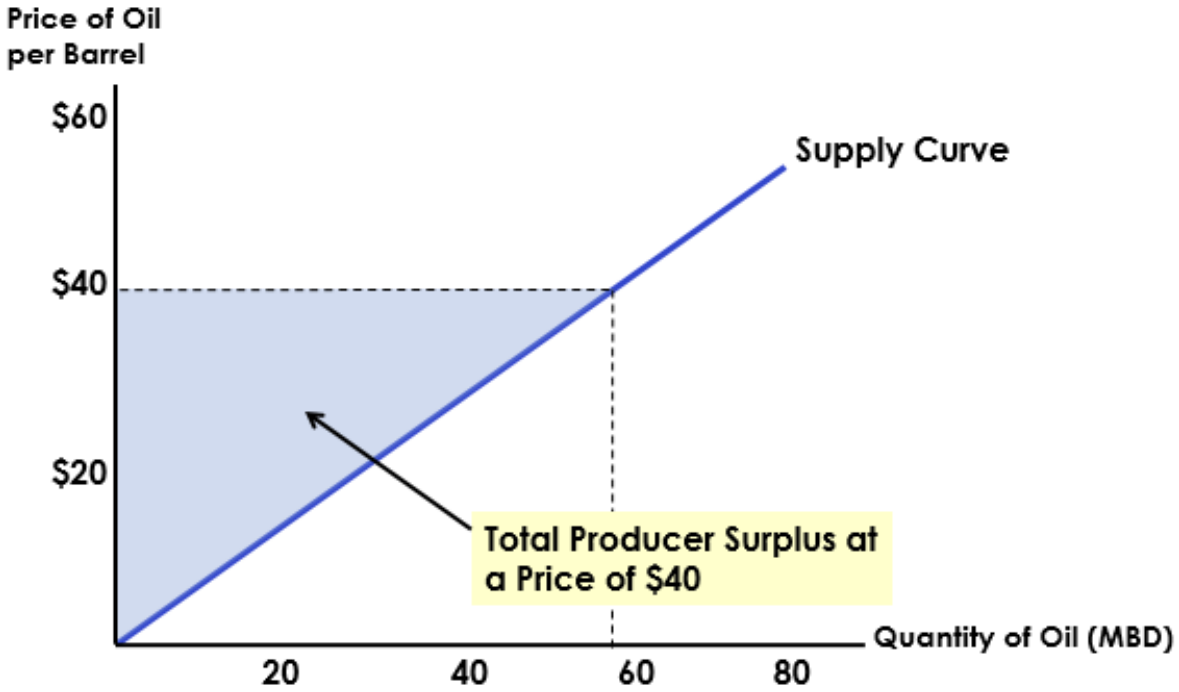
Market supply is the sum of all the quantities of a good or service supplied per period by all the firms selling in the market for that good or service.

Market supply is the horizontal summation of individual firms' supply curves.



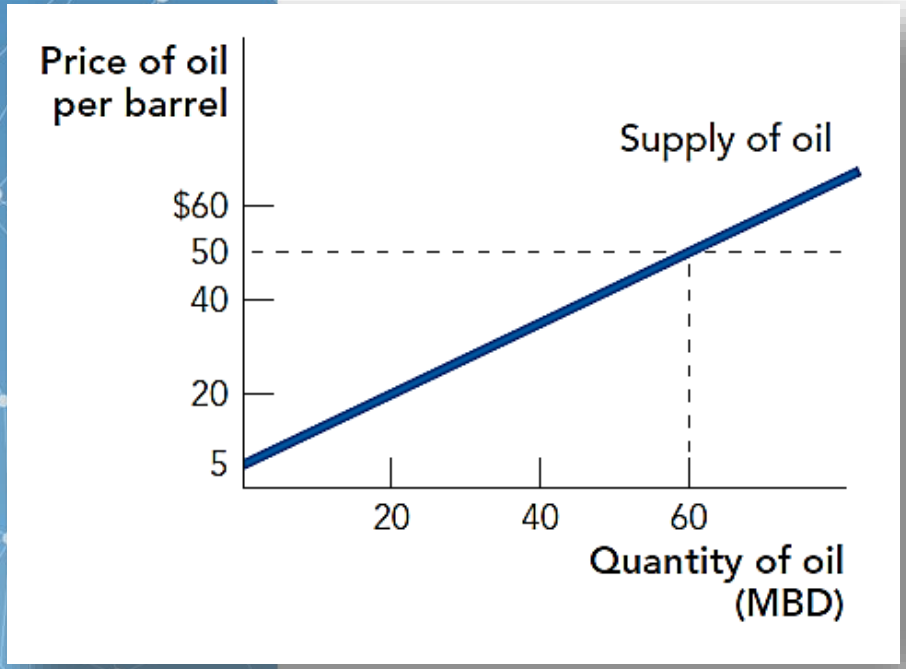
Producer Surplus

Producer surplus is the area above the supply curve and below the price



Surplus Calculation – Exercise 1

Using the following diagram, calculate the total producer surplus if the price of oil is $50 per barrel.

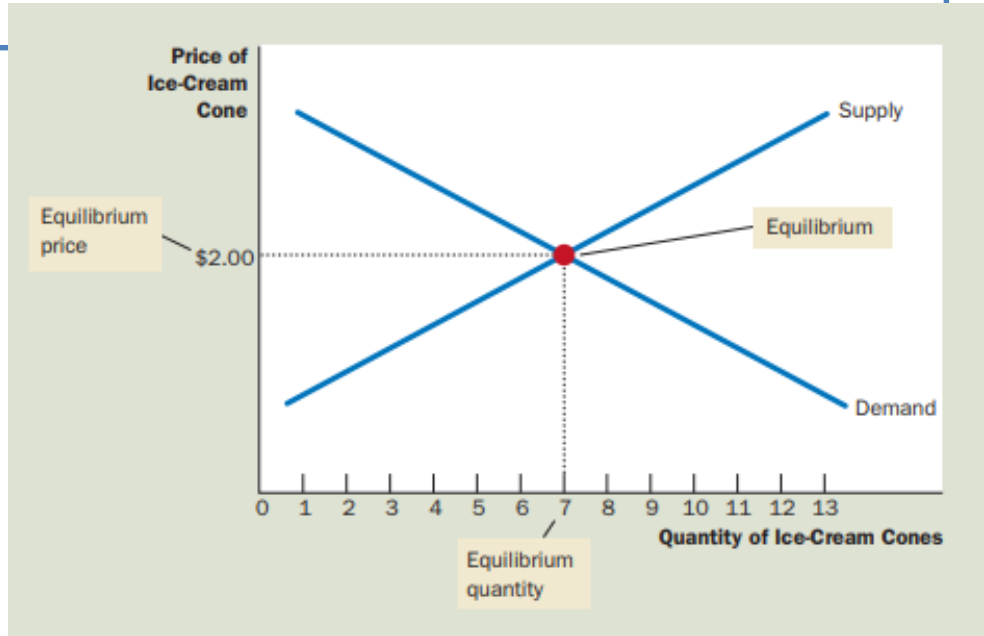


1. Area of triangle: (base x hight) / 2
2. (60 x 45) / 2 = **1350**

Market Equilibrium

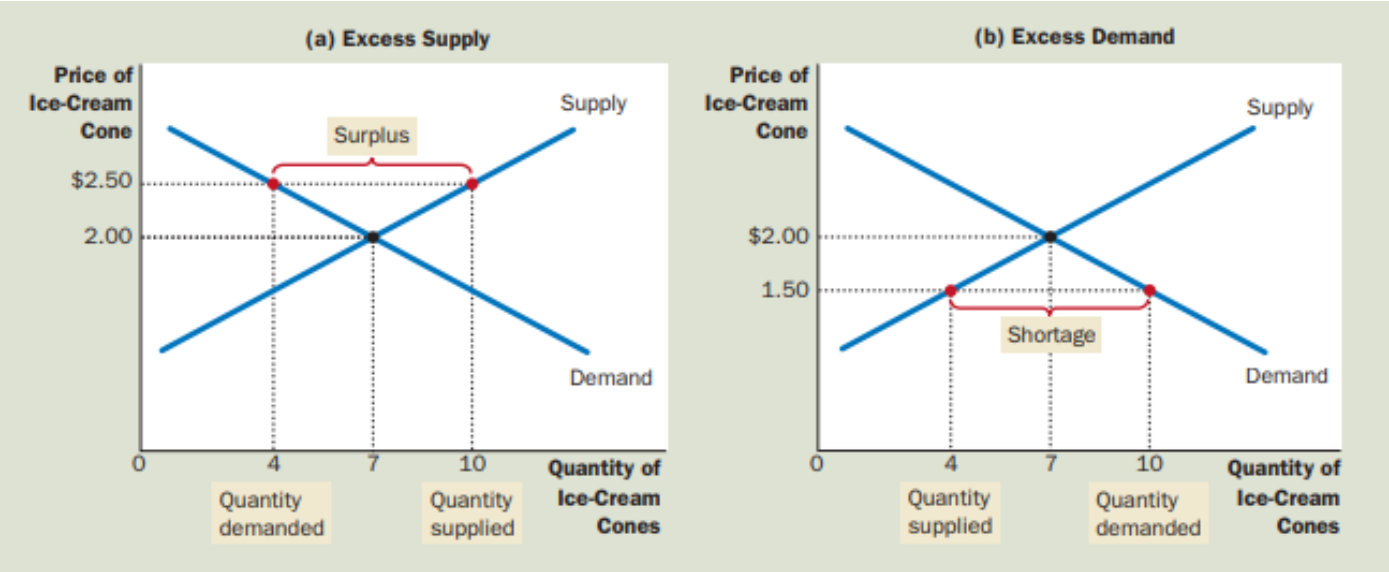
- Only in equilibrium is quantity supplied equal to quantity demanded.
- **Equilibrium price**: the price that balances quantity supplied and quantity demanded
- **Equilibrium quantity**: the quantity supplied and the quantity demanded at the equilibrium price

Here the equilibrium price is $2.00: At this price, 7 ice cream cones are supplied, and 7 ice-cream cones are demanded.



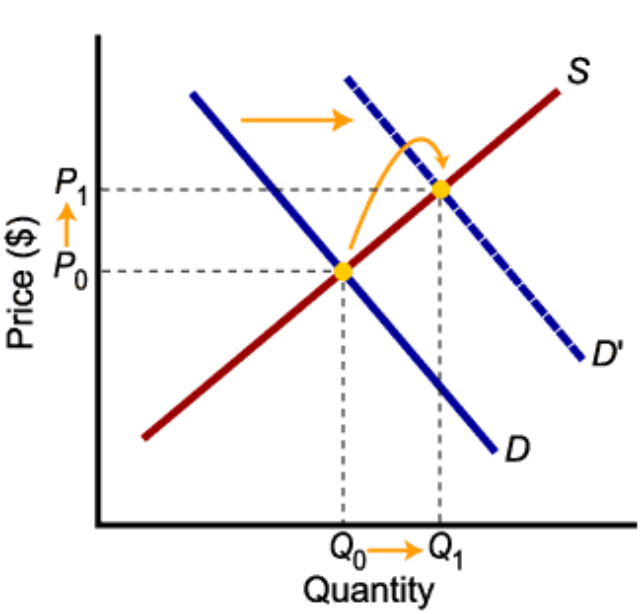
Market Disequilibria

- **Surplus** → the market price of $2.50 is above the equilibrium price, the quantity supplied (10 cones) exceeds the quantity demanded (4 cones) → *suppliers try to increase sales by decreasing the price.*
- **Shortage** → the market price of $1.50 is below the equilibrium price –> the quantity demanded (10 cones) > quantity desired (4 cones) → *suppliers will increase the price (too many customers)*

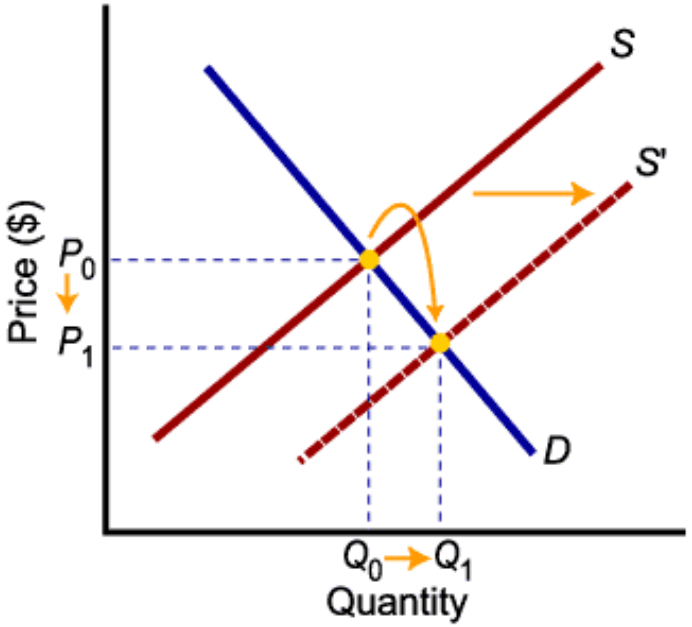


Increases in Demand and Supply

Higher demand leads to higher equilibrium price and higher equilibrium quantity.

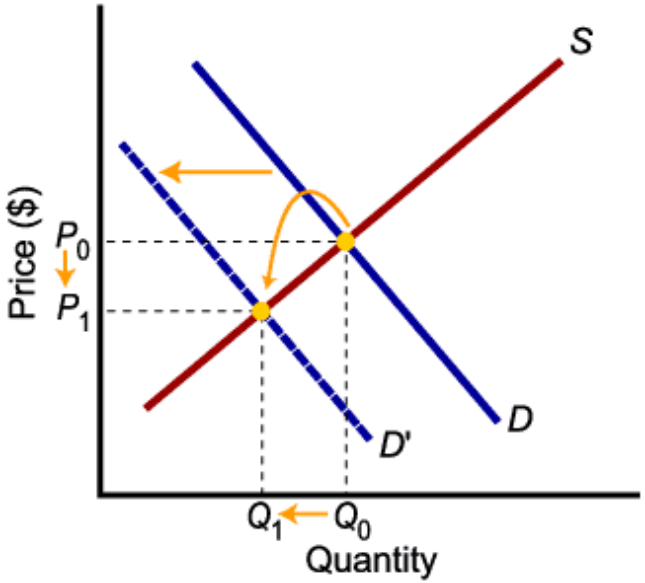


Higher supply leads to lower equilibrium price and higher equilibrium quantity.

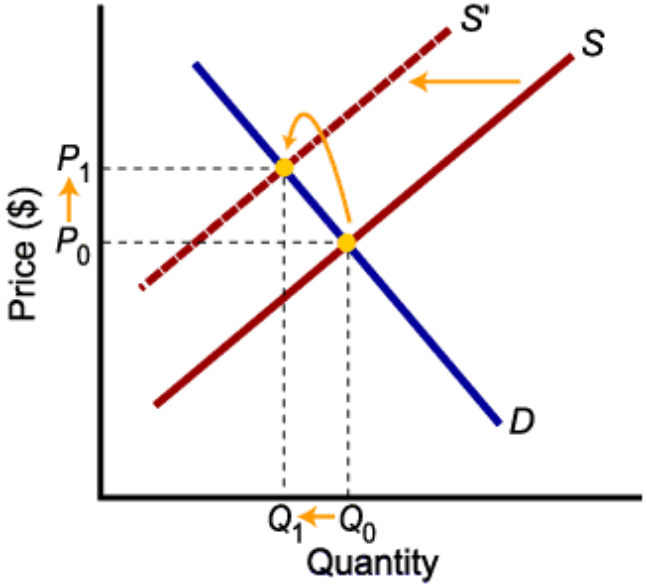


Decreases in Demand and Supply

Lower demand leads to lower price and lower quantity exchanged.



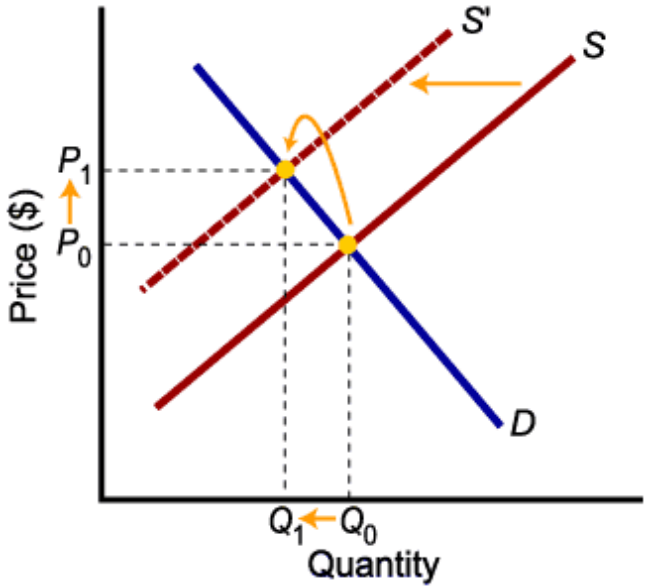
Lower supply leads to higher price and lower quantity exchanged.



Supply and Demand Curve – Exercise 2

Using supply and demand diagrams, show the effect of the following events on the market for sweatshirts.

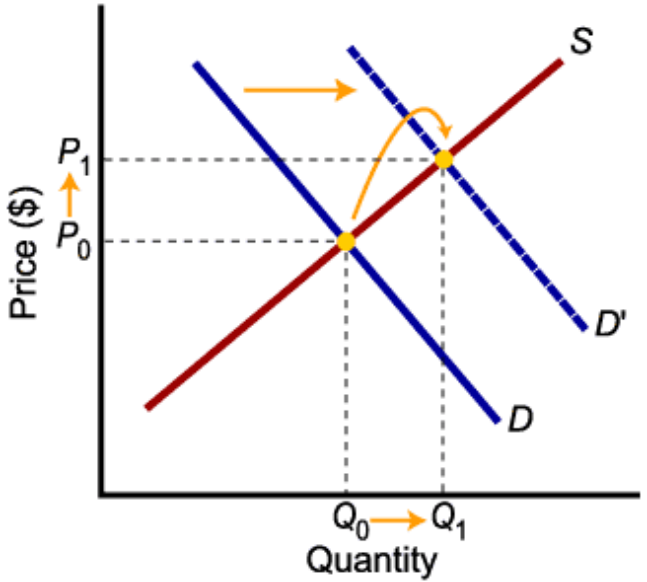
a) A drought in Egypt damages the cotton crop



Supply and Demand Curve – Exercise 3

Using supply and demand diagrams, show the effect of the following events on the market for sweatshirts.

b) The price of leather jackets falls.



A Change in Market Equilibrium Due to a Shift in Demand
Exercise 4

Suppose that one summer the weather is very hot. How does this event affect the market for ice cream?

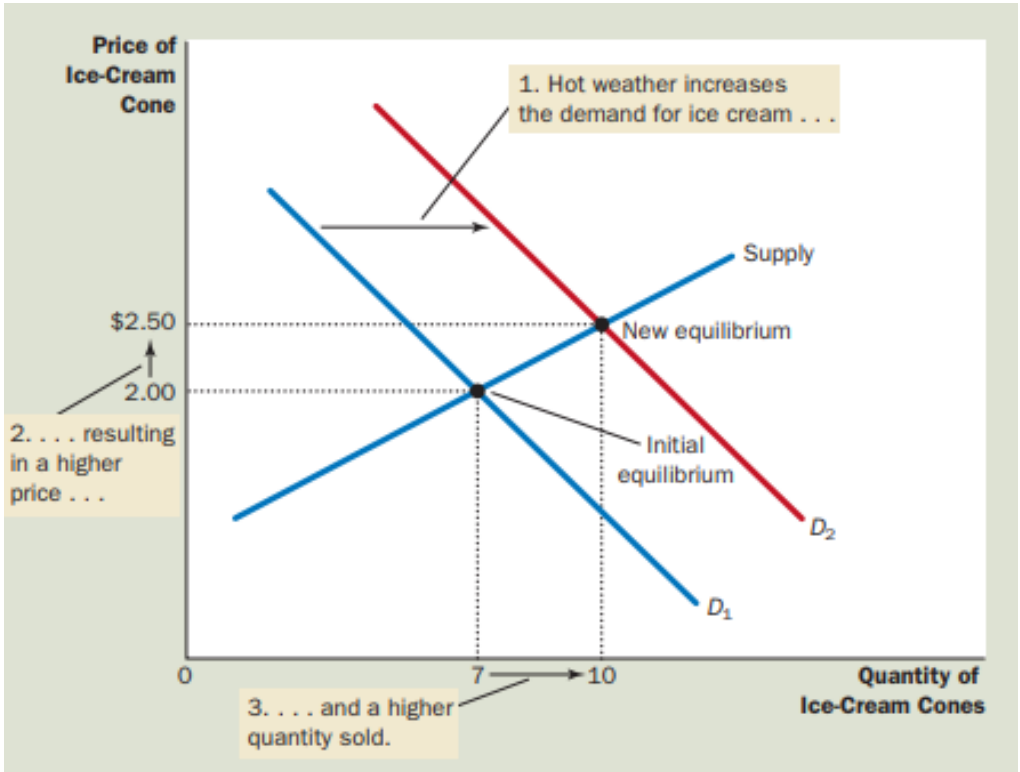
1) The hot weather affects the demand curve by changing people's taste for ice cream → weather changes the amount of ice cream → supply curve is unchanged because the weather does not directly affect the firms that sell ice cream.

2) Hot weather makes people want to eat more ice cream → the demand curve shifts to the right → from D1 to D2 → the quantity of ice cream demanded is higher at every price.

3) The increase in demand raises the equilibrium price from $2.00 to $2.50 and the equilibrium quantity from 7 to 10 cones → the hot weather increases the price of ice cream and the quantity of ice cream sold.

A Change in Market Equilibrium Due to a Shift in Demand – Exercise 4

Suppose that one summer the weather is very hot. How does this event affect the market for ice cream?



A Change in Market Equilibrium Due to a Shift in Supply – Exercise 5

Suppose that during another summer, a hurricane destroys part of the sugarcane crop and drives up the price of sugar. How does this event affect the market for ice cream?

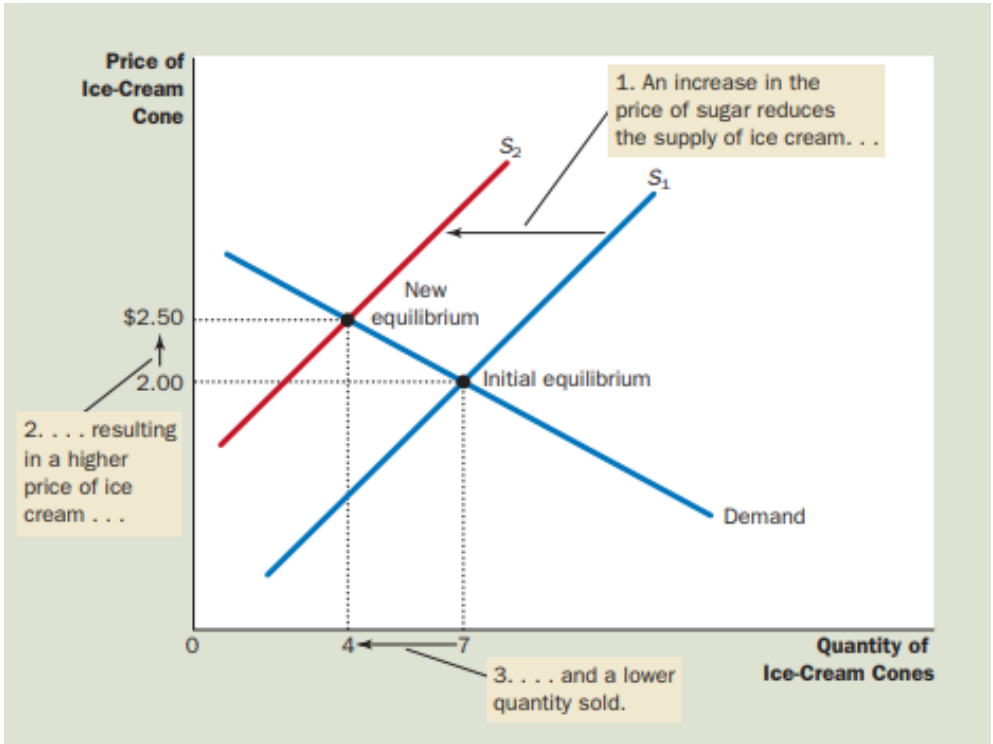
1) The change in the price of sugar, an input into making ice cream, affects the supply curve. By raising the costs of production, it reduces the amount of ice cream →the demand curve does not change because the higher cost of inputs does not directly affect the amount of ice cream.

2) The supply curve shifts to the left → the total amount that firms are willing and able to sell is reduced → a shift in the supply curve from S1 to S2.

3) The shift in the supply curve raises the equilibrium price from $2.00 to $2.50 and lowers the equilibrium quantity from 7 to 4 cones → the price of ice cream rises and the quantity of ice cream sold falls.

A Change in Market Equilibrium Due to a Shift in Supply – Exercise 5

Suppose that during another summer, a hurricane destroys part of the sugarcane crop and drives up the price of sugar. How does this event affect the market for ice cream?



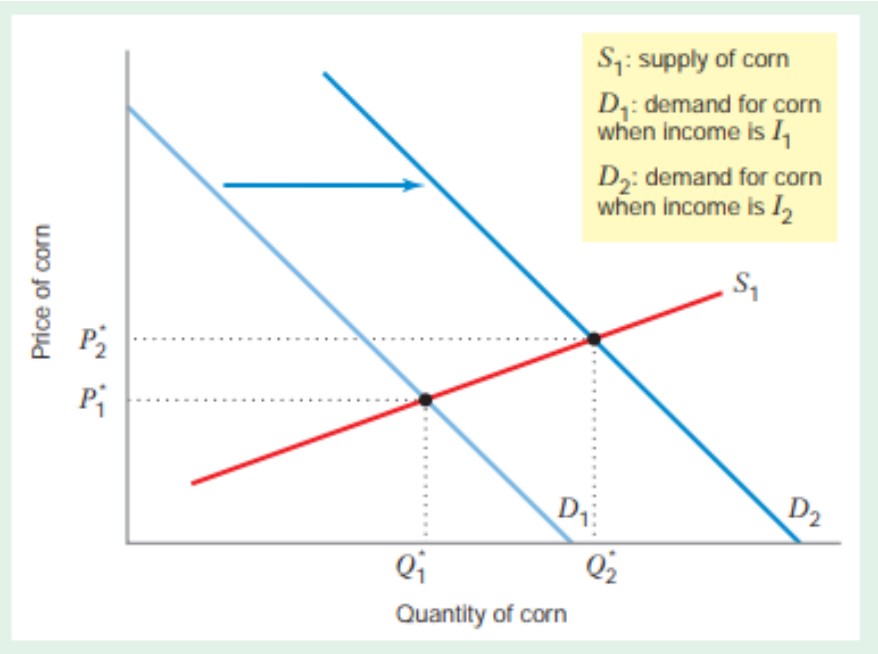
Comparative Statics – Exercise 6

(a) Suppose that income rises from I_1 to I_2. On a clearly labeled graph, illustrate how the change in this exogenous variable affects the market of corn production.

When income rises from I_1 to I_2, the demand curve shifts from D_1 to D_2.

The equilibrium market price will rise from P^*_1 to P^*_2. The equilibrium market quantity will rise from Q^*_1 to Q^*_2.

The location of the supply curve, S_1, is unaffected because Q^s does not depend on I.



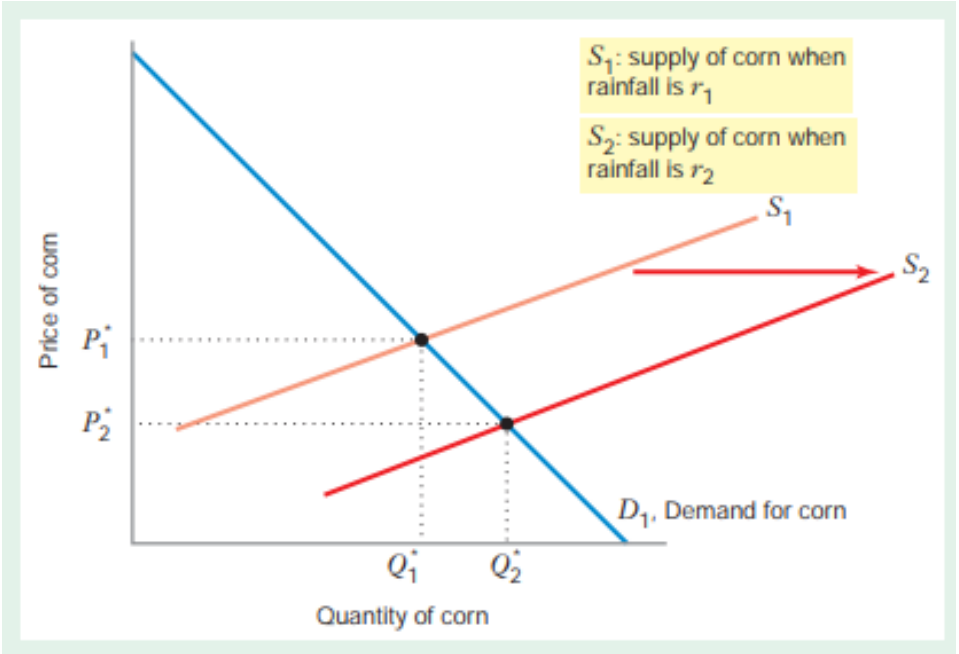
Comparative Statics – Exercise 6

b) Suppose that income remains at I_1 but that the amount of rainfall increases from r_1 to r_2. On a second clearly labeled graph, illustrate how the change in this exogenous variable affects each of the endogenous variables.

When rainfall increases from r_1 to r_2, the supply curve shifts from S_1 to S_2

The equilibrium market price will fall from P^*_1 to P^*_2. The equilibrium market quantity will rise from Q^*_1 to Q^*_2.

The location of the supply curve, D_1, is unaffected because Q^D does not depend on r.



Supply and Demand in Practice – Exercise 7

If the demand and supply curve for computers are:

$$\mathbf{Q^D = 100 - 6P,\ Q^S = 28 + 3P}$$

Where P is the price of computers, **what is the quantity** of computers bought and sold at equilibrium?

1) *Equilibrium*: where supply meets or equals, demand → $\mathbf{Q^D = Q^S}$

2) $100 - 6P = 28 + 3P \ / \ +6P$

3) $100 = 28 + 9P \ / \ -28$

4) $72 = 9P \ / \ :9$

5) $\mathbf{8 = P}$

6) $\mathbf{Q^S} = 28 + 3*8 = 28 + 24 = \mathbf{52}$

Supply and Demand in Practice – Exercise 8

Given the following data:

WIDGETS **P = 80 - Q** (Demand)

P = 20 + 2Q (Supply)

Given the above demand and supply equations for widgets, **find the equilibrium price and quantity.**

1) 80 - Q = 20 + 2Q

2) 60 = 3Q

3) **Q = 20** → equilibrium quantity

4) P = 80 - Q

5) P = 80 - 20

6) **P = 60** → equilibrium price

Supply and Demand in Practice – Exercise 9

Given the following data:

WIDGETS **P = 80 - Q** (Demand)

P = 20 + 2Q (Supply)

Now suppliers must pay a **tax of $6 per unit**. Find the new equilibrium price and quantity.

1) Now suppliers do not get the full price when they make a sale - they get $6 less: P - 6 = 20 + 2Q (Supply)

2) P = 26 + 2Q

3) 80 - Q = 26 + 2Q

4) 54 = 3Q

5) **Q = 18**

6) P = 80 – Q → P = 80 – 18 → **P = 62** → equilibrium price without tax **$56** (62-6) → new equilibrium price

Supply and Demand in Practice – Exercise 10

Demand and supply in a market are described by the equations:

$$Q^D = 66-3P$$
$$Q^S = -4+2P$$

Solve algebraically to **find equilibrium P and Q**.

1) $66-3P = -4+2P$

2) $-3P-2P = -4-66$

3) $-5P = -70$

4) $5P = 70$

5) $\mathbf{P^* = 14}$

6) $Q^D = Q^S = 66-3P = 66-3(14) = 66-42 = \mathbf{24 = Q^*}$

Supply and Demand in Practice – Exercise 11

Demand and supply in a market are described by the equations:

$$Q^D = 110-5P$$

$$Q^S = 6P$$

a) Find the inverse demand and supply functions!

1) $Q^D = 110-5P \rightarrow 5P = 110-Q^D \rightarrow P = (110-Q^d)/5$

2) $Q^S = 6P \rightarrow P = Q^S/6$

b) Find the equilibrium price and quantity!

1) $Q^D = 110-5P$ & $Q^S = 6P \rightarrow$ At equilibrium $Q^D = Q^S$

2) $110-5P = 6P \rightarrow 11P = 110 \rightarrow$ **$P = 10$**

3) Solve for $Q^* \rightarrow Q^D = Q^S = 6P = 6(10) =$ **$60 = Q^*$**

Thank you for your attention!

Mankiw: Principles of Microeconomics
Chapter 4; pp. 65-88