Tuesday, Sept 21, Lecture 6
Market Equilibrium
Demand & Supply-Curve Shifts

Clickers required starting today.
If your clicker LED turns green after you answer a question, your clicker has registered your answer on my computer!

The Midterm 1 Exam has been postponed to Tuesday, Oct 5.

A practice midterm exam will be available on Friday.

Clicker Question

A firm is willing and able to produce and sell a larger quantity of goods at higher prices, because higher prices

a. imply increased demand.
b. justify the use of more expensive inputs.
c. yield greater revenue.
d. reflect higher quality.

Market Equilibrium

- A system is in ***equilibrium*** when there is no tendency for change.
- A competitive market is in ***equilibrium*** at the ***market price*** if ***quantity supplied = quantity demanded***.
  - We will show that in this equilibrium, the price and quantity have no tendency to change.
  - At the market equilibrium, the price is called the ***equilibrium price***, …
  - …and the quantities supplied and demanded are called the ***equilibrium quantity***.

Example: The Market for Milk

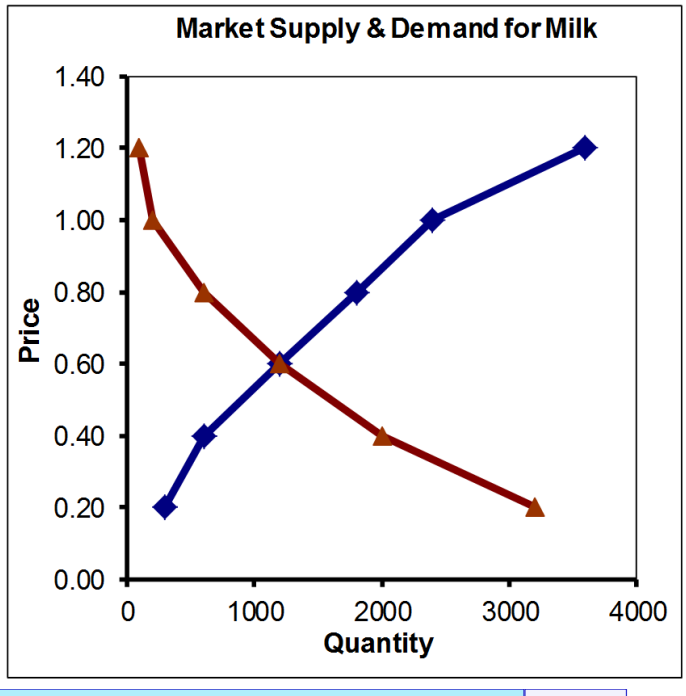
- In the market for milk described previously, market supply and demand are as follows.

Price ($)	Market Supply (Qts/day)	Market Demand (Qts/day)
0.20	300	3200
0.40	600	2000
0.60	1200	1200
0.80	1800	600
1.00	2400	200
1.20	3600	100

- The market equilibrium is described by a $.60 price and a traded quantity of 1200 quarts.

Equilibrium in the Market for Milk on a Graph

P	Q_S	Q_D
0.20	300	3200
0.40	600	2000
0.60	1200	1200
0.80	1800	600
1.00	2400	200
1.20	3600	100



Movement towards Market Equilibrium

- If the price is **above the equilibrium price**,
  - quantity supplied **>** quantity demanded,
  - ➔ ***excess supply.***
  - Sellers cannot sell as much as they want,
  - so they will tend to offer buyers a lower price.
- Therefore, the price will tend to move downwards towards the equilibrium price.

- If the price is **below the equilibrium price**,
  - quantity demanded **>** quantity supplied
  - ➔ ***excess demand***,
  - buyers will not be able to buy all they want to buy,
  - so sellers will be able to increase prices and still sell all they want to sell.

- Therefore, the price will tend to move upwards towards the equilibrium price.

Clicker Question

Which of the following prices leads to excess demand?

a. $ .40

b. $ .60

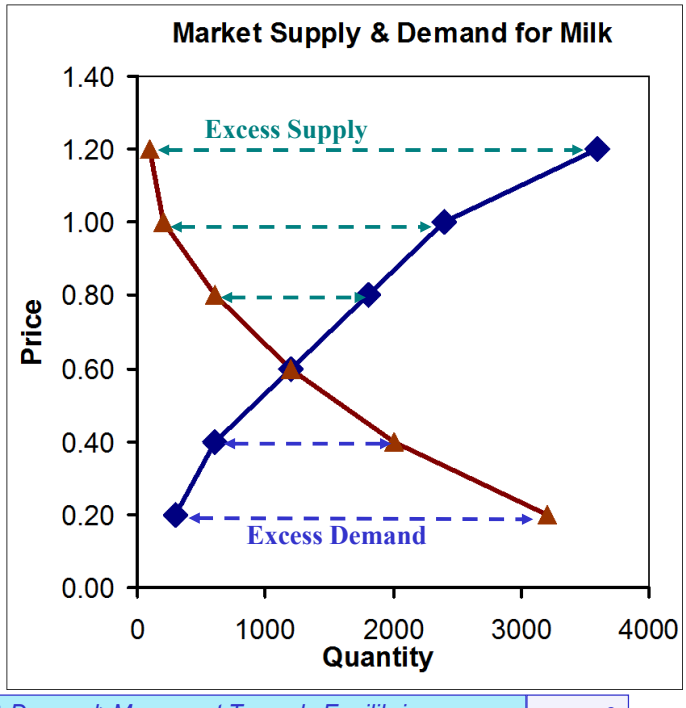
c. $ .80

d. $1.00

Price ($)	Market Supply (Qts/day)	Market Demand (Qts/day)
0.20	300	3200
0.40	600	2000
0.60	1200	1200
0.80	1800	600
1.00	2400	200
1.20	3600	100

Movement Towards Equilibrium in the Market for Milk

P	Q_S	Q_D
0.20	300	3200
0.40	600	2000
0.60	1200	1200
0.80	1800	600
1.00	2400	200
1.20	3600	100



The Effect of Price Changes

Suppose the price is at $**4**...

...so that a buyer is at point **A** on his demand curve.

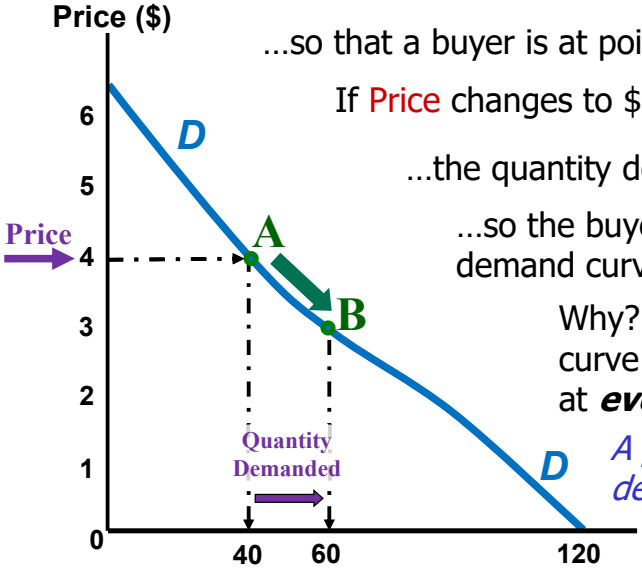
If Price changes to $**3**...

...the quantity demanded changes from 40 to 60,

...so the buyer moves ***ALONG*** his original demand curve to point **B**.

Why? Because the ***same*** demand curve yields the quantity demanded at ***every reasonable price***.

A price change doesn't change the demand curve.



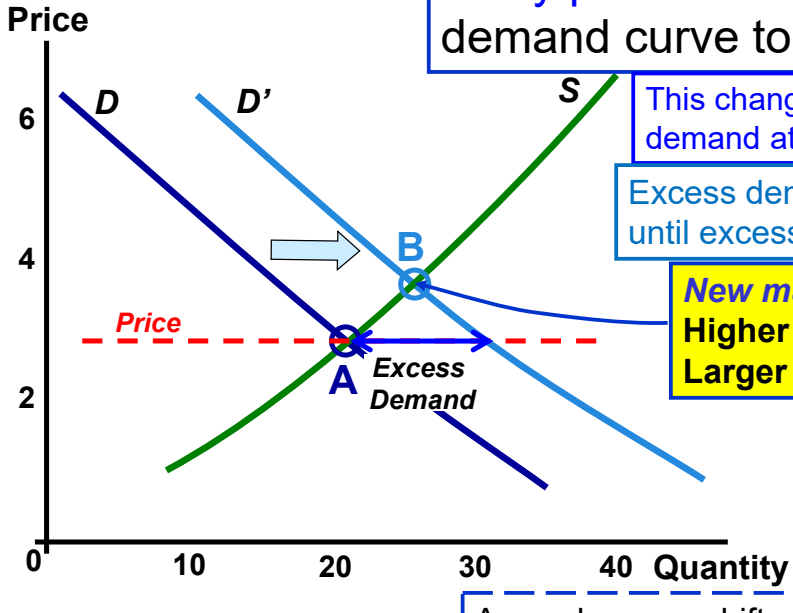
Likewise, if price changes, a seller will MOVE ALONG her original ***supply curve***, because the same supply curve yields the quantity supplied at every reasonable price. *A price change doesn't change the supply curve.*

Demand-Curve Shifts

- ***Changes*** in some demand-related factors affect the quantities demanded **at every price**:
  - Consumer preferences
  - Income of consumers
  - Prices of **other** consumer goods
  - Consumer expectations about the future
- Such changes affect demand in general,…
- …and they often change the **position** of the entire demand curve.
- But those demand-related factors usually do **NOT** affect the position of the **supply curve**.

Demand-Curve Shifts

A greater quantity demanded at every price would cause the demand curve to shift to the right.



This change would lead to excess demand at the *original price*.

Excess demand causes price to rise until excess demand disappears.

New market equilibrium:
Higher price
Larger quantity

A demand-curve shift to the ***left*** would create excess supply, and the price would fall.

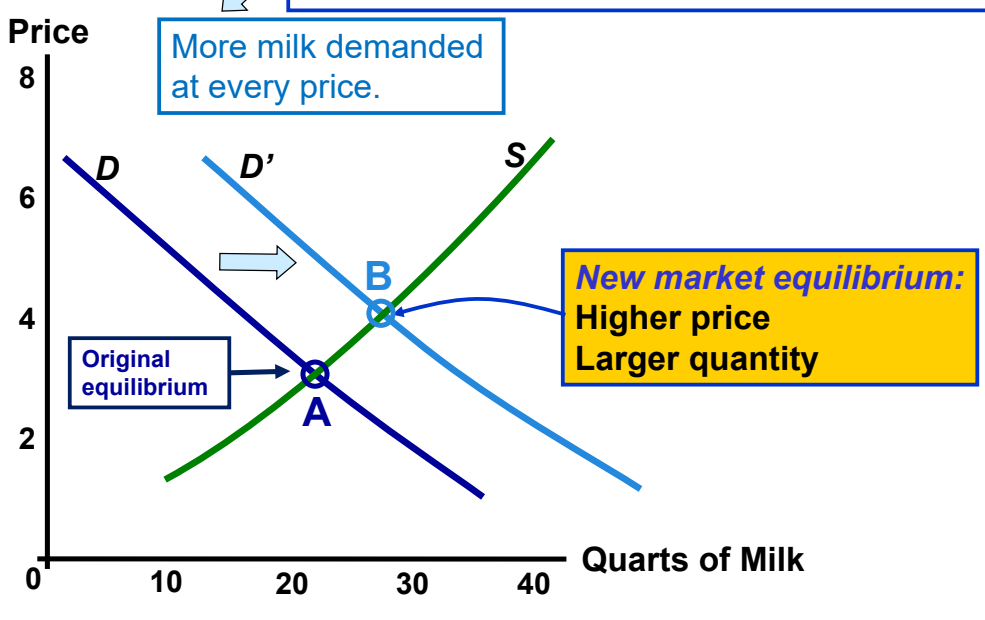
A supply-curve shift would have similar effects.

Changes in Consumer Preferences

- Consumer preferences change for many reasons.
  - New information
  - Fashion
  - Experience
- These changes can shift demand.

Example: Preference for Milk

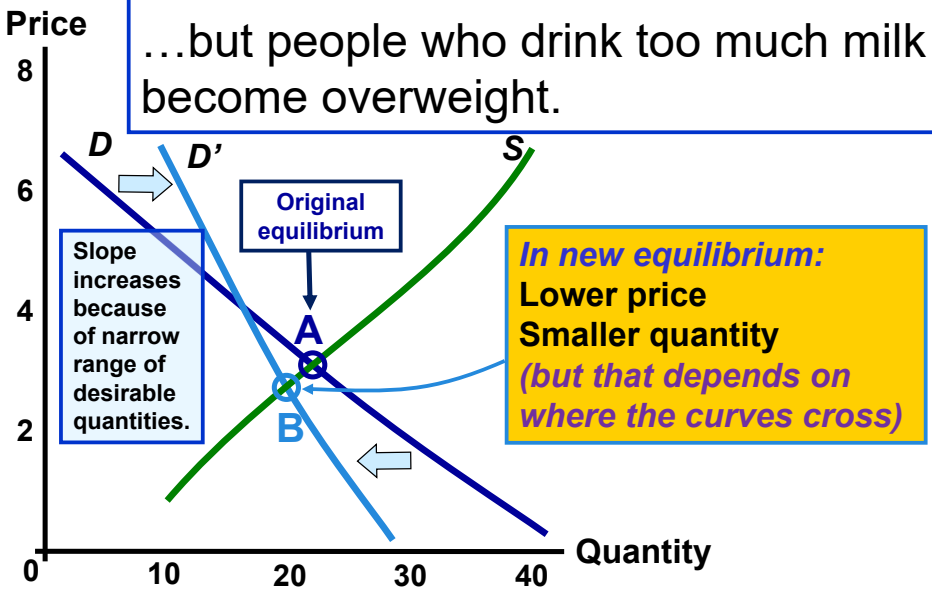
New evidence emerges that milk cures baldness in men.



Example 2: Preference for Milk

New evidence shows that milk improves the complexion,

…but people who drink too much milk become overweight.



Clicker Question

Suppose a medical study demonstrates that red wine is good for the heart. Then the **price** of red wine would _____ and the **quantity** of red wine consumed would _____ .

a. price rise; quantity rise
b. price rise; quantity fall
c. price fall; quantity rise
d. price fall; quantity fall

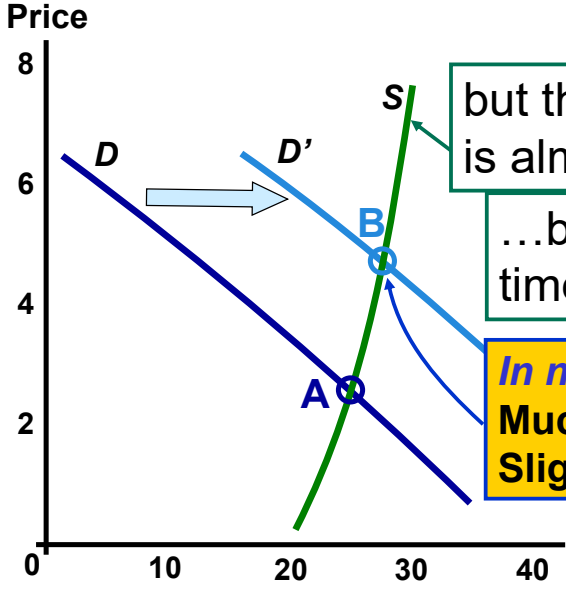
Income and Demand

- Demand is affected by a person's income.
  - ***Normal*** goods: demand increases as income rises.
  - ***Inferior*** goods: demand increases as income falls.

Example: Large Houses and Income in Washington DC

Government salaries increase.

Large houses are normal goods,…



but the supply curve is almost vertical,…

…because it takes a long time to supply more houses.

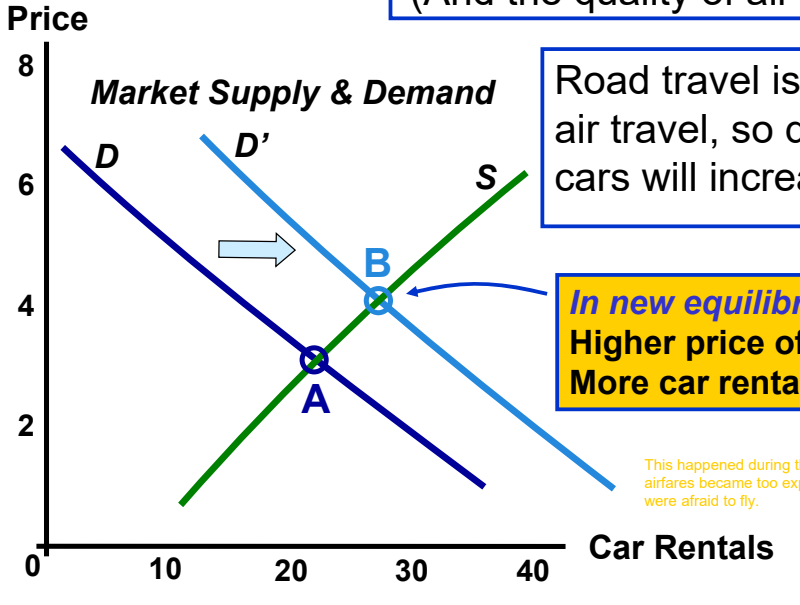
In new equilibrium:
Much higher prices
Slightly larger quantity

Substitutes

- Two goods are substitutes if you can use one of them instead of the other.
  - Demand for a good (chicken) ***increases*** when the price of a substitute (hamburger) rises,…
  - because consumers want to buy less of the substitute,
  - so they consume more of the first good instead.
  - It's true at every price of the first good, so it's demand curve shifts to the right.

Example: Car rentals and Airfares

Suppose airfares are rising sharply. (And the quality of air travel is falling.)



Road travel is a substitute for air travel, so demand for rental cars will increase.

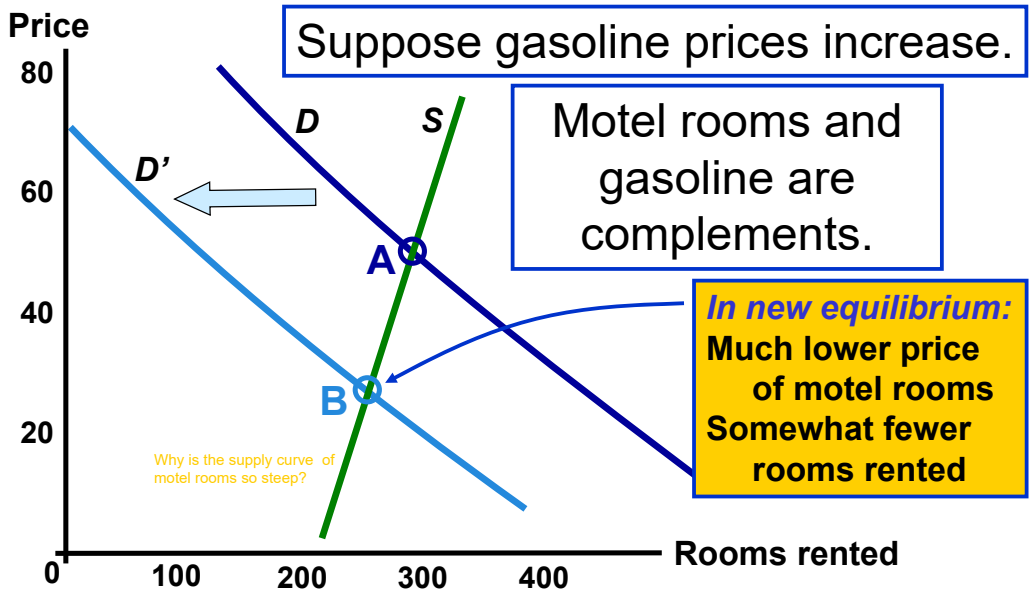
In new equilibrium:
Higher price of car rentals
More car rentals

This happened during the pandemic, not because airfares became too expensive, but because people were afraid to fly.

Complements

- Two goods are complements in demand if you normally use both of them together.
  - Demand for a good ***decreases*** when the price of a complement rises,…
  - because if the complement is too expensive, the first good is less useful.

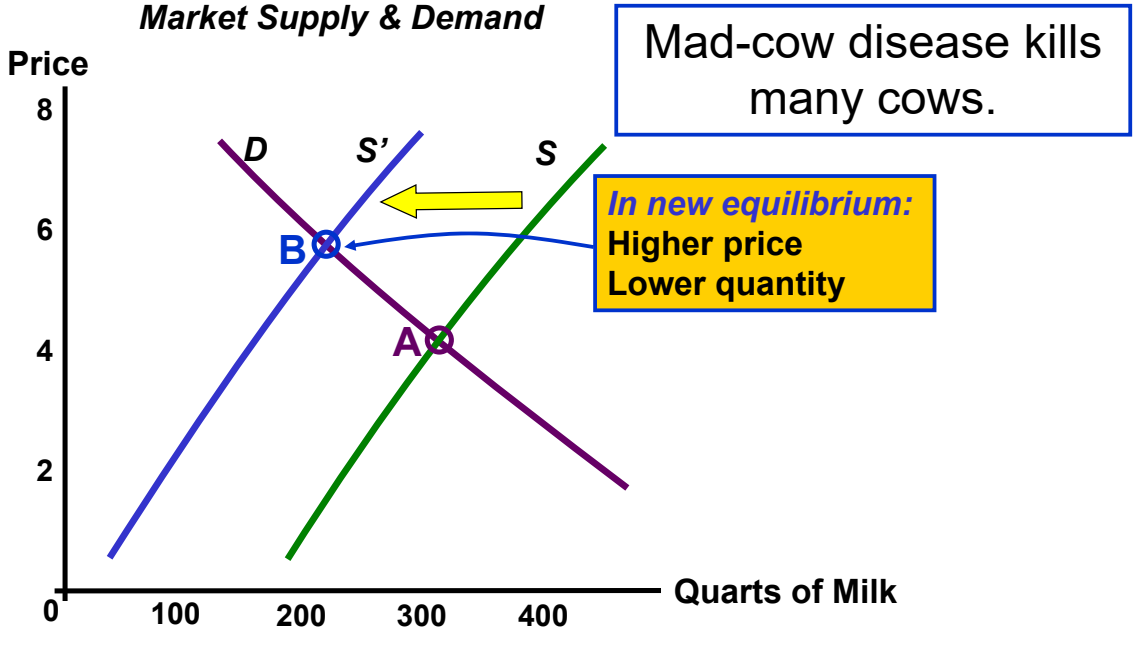
Example: Motel Rooms and Gasoline Prices



Supply-Curve Changes

- Changes in some supply-related factors will affect the quantities supplied at every price:
  - Prices of Inputs
  - Technology
  - Economic Environment
    - taxes
    - government regulations
    - weather
- Changes in these factors affect supply in general,…
- …and they can shift the entire supply curve.
- But they usually do **NOT** affect the position of the ***demand curve***.

Example: Supply of Milk and Mad Cows



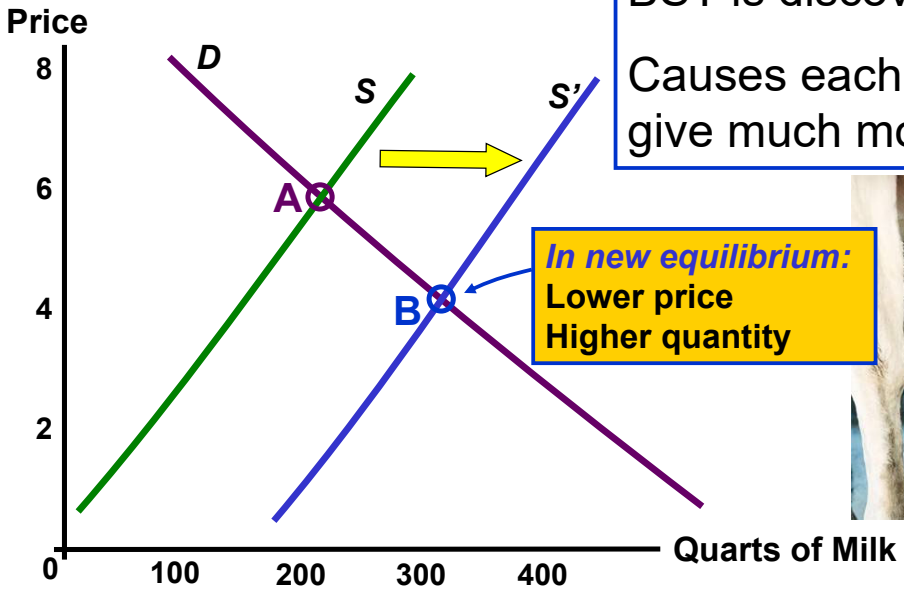
Will the demand for milk be affected?

Can both supply and demand be affected for entirely different reasons?

Example: Supply of Milk and Hormones

BST is discovered.

Causes each cow to give much more milk.



In new equilibrium:
Lower price
Higher quantity

Clicker Question

If household incomes increase, then

a. the demand curve for diamonds should shift to the right.

b. the demand curve for diamonds should move down.

c. the supply curve for diamonds should shift to the right.

d. ***BOTH*** a. and c. are correct.

End of Lecture 6