

Supply and Demand

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Supply and Demand - Motivation



The previous example describes a **market**, a group of producers and consumers who engage in exchange. Today we'll focus on one kind of market, a *competitive* one.

A **competitive market** is a market of many buyers and sellers of the same good or service in which no buyer or seller's transactions have an impact on the market price.

Does Verizon operate in a competitive market? What about Green Giant (They sell vegetables)?

Supply and Demand Model

There are five key elements to a supply and demand model:

- A *demand curve*
- A *supply curve*
- Factors that cause shifts of either curves
- *Market equilibrium* —price & quantity
- Market equilibrium shifts caused by supply and demand shifts

The Demand Curve

How many pounds of coffee beans do consumers want to buy?

The Demand Curve

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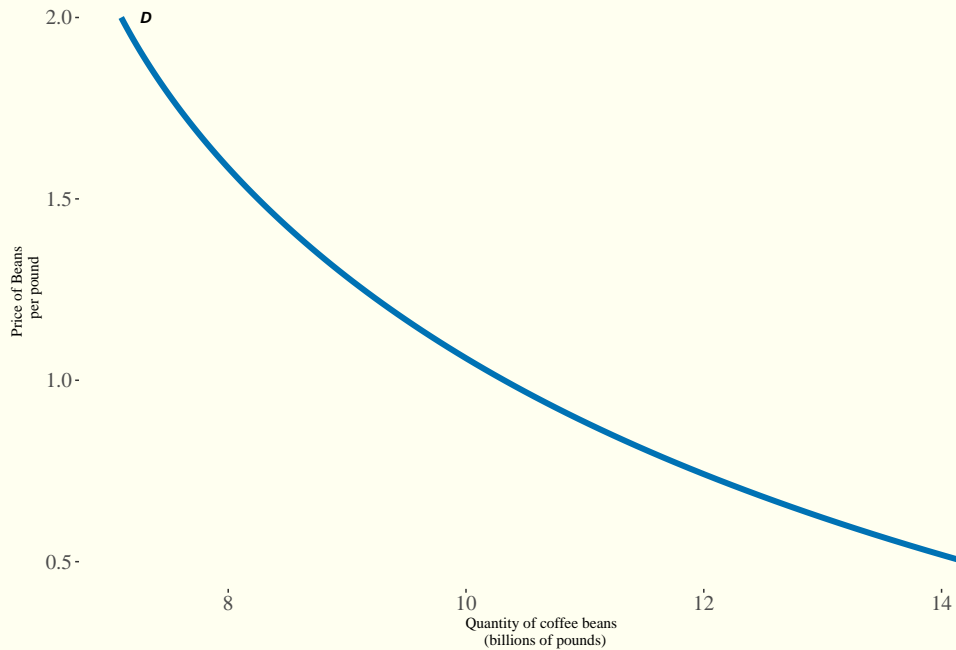
It depends.

Demand Schedule for Coffee Beans

A **demand schedule** shows how much of a good or service consumers will want to buy at a given price.

Price of coffee beans (per pound)	Quantity of Coffee Beans (billions of lbs)
\$2.00	7.1
1.75	7.5
1.50	8.1
1.25	8.9
1.00	10.0
0.75	11.5
0.50	14.2

Demand Curve



Law of Demand

The higher the price for a good or service, *other things equal*, leads people to demand a smaller quantity of that good or service

Shifts of the Demand Curve

The prices of goods rise all the time, yet we observe an accompanied increase in demand. What gives?

Shifts of the Demand Curve

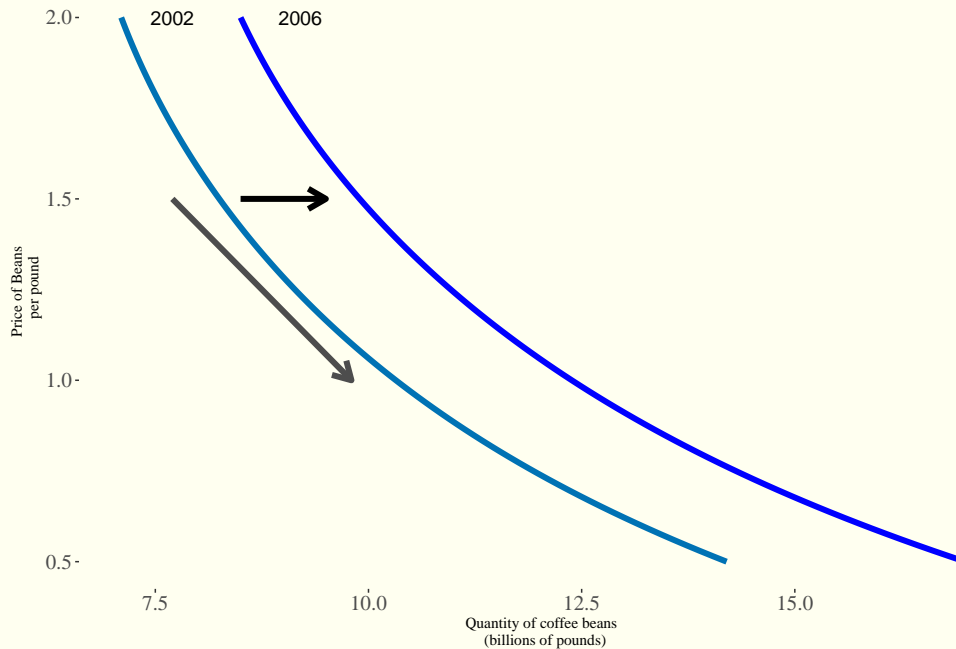
The prices of goods rise all the time, yet we observe an accompanied increase in demand. What gives?

- *Other things are in general not equal*

Demand Schedule for Coffee Beans

Price of coffee beans (per pound)	Quantity of Coffee Beans Demanded	
	in 2002	in 2006
\$2.00	7.1	8.5
1.75	7.5	9.0
1.50	8.1	9.7
1.25	8.9	10.7
1.00	10.0	12.0
0.75	11.5	13.8
0.50	14.2	17.0

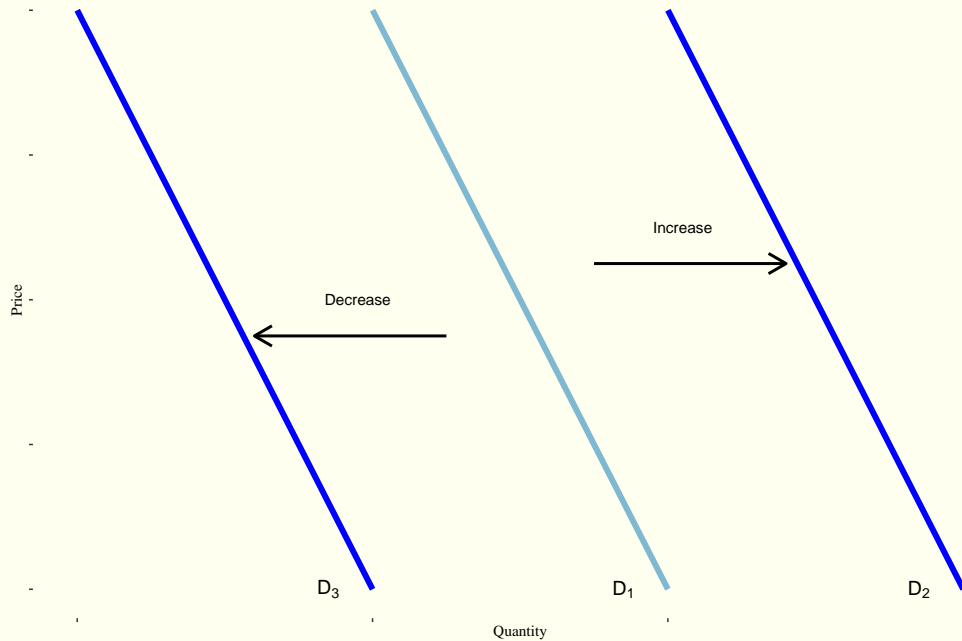
An Increase in Demand



Demand vs. Quantity Demanded

- "Increase in demand" → Shift of demand curve right
- "Decrease in demand: → Shift of demand curve left
- Movements along demand curve → Change in quantity demanded
- *Be careful.* A shift in demand can result in no change of price.

Shifts of the Demand Curve



Factors That Influence The Demand Curve

- 1 Changes in the prices of related goods or services

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- 1 Changes in the prices of related goods or services
- 2 Changes in income
- 3 Changes in taste

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- 1 Changes in the prices of related goods or services
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- 4 Changes in expectation

Factors That Influence The Demand Curve

- 1 Changes in the prices of related goods or services
- 2 Changes in income
- 3 Changes in taste
- 4 Changes in expectation
- 5 Changes in the number of consumers

Changes in the Prices of Related Goods or Services

- An increase in the price of a **substitutes** will lead you to consume more of a good. e.g. coffee and tea
- An increase in the price of a **complement** will lead you to consumer less of a good. e.g. burgers and fries

Changes in Income

Normal goods are purchased more when income rises.

Inferior goods are purchased less frequently when income rises. e.g. bus
vs car

Changes in Taste

It is often difficult to pin down why preferences change.

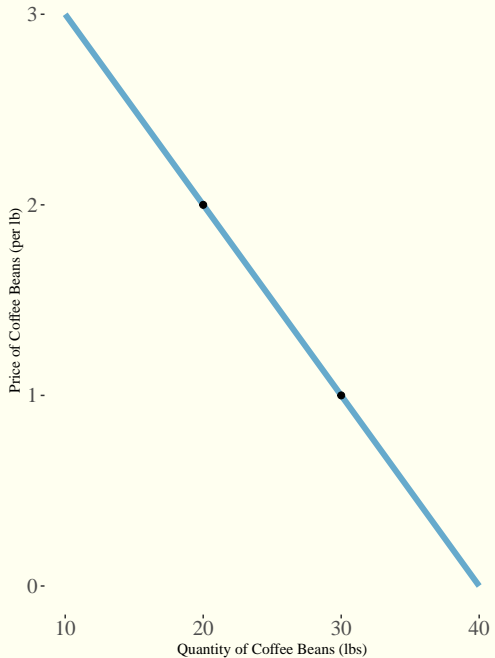
Changes in Expectations

- I might wait to buy the current iPhone until after the new version is released in expectation of a fall in prices.
- If I expect my future income to rise, I might make purchases today in reflection of that. Conversely, if I expect it to fall, my saving behavior would change.

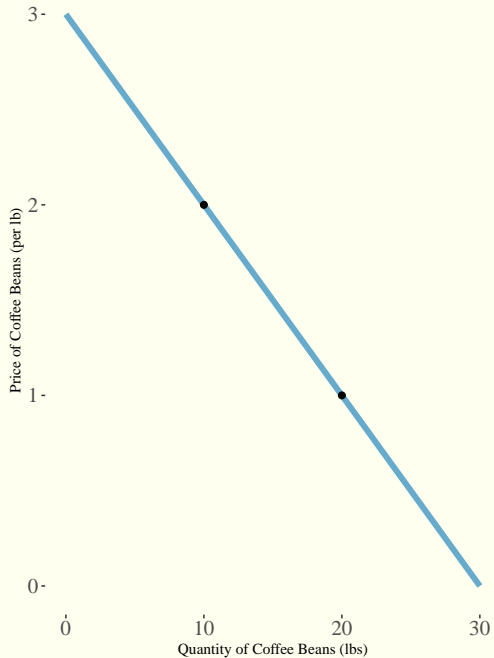
Changes in the Number of Consumers

Even if nothing else had happened we know now that coffee demand was going to go up.

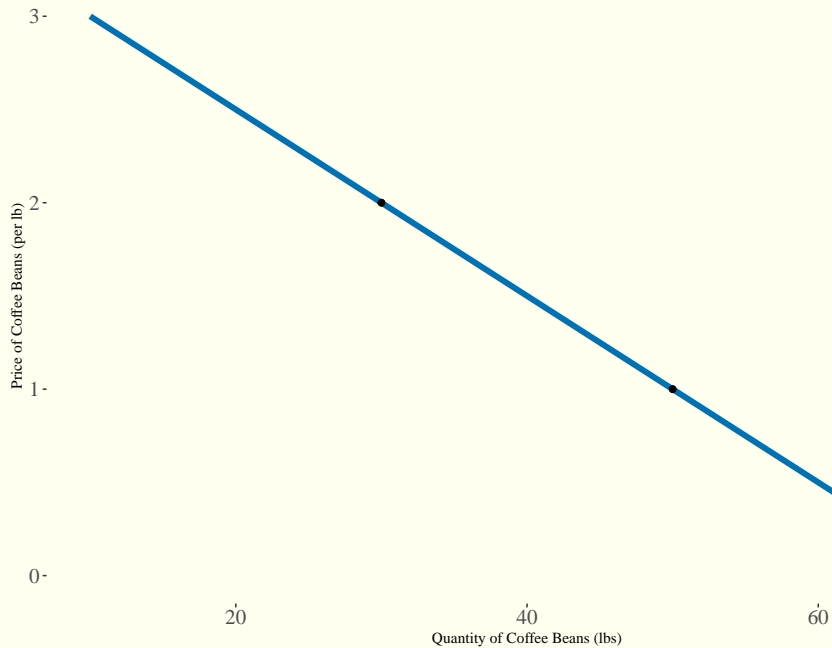
Darla's Individual Demand Curve



Dino's Individual Demand Curve



Market Demand Curve



Applying the Concepts: How Do We Curb People's Desire to Commute by Car?

1.) Decrease the Price of Substitutes

- Subsidize bus and rail service

2.) Raise the Price of Complements

- Tax the price of parking
- Shorter time limit on meters

3.) Price it Directly

- Congestion Pricing

The Supply Curve

So, how much coffee will producers sell?

Similar to the story of demand, the quantity producers are willing to produce and sell —the quantity supplied —depends on the price they are offered.

Supply Schedule and the Supply Curve

A **supply schedule** shows how much of a good or service producers will supply at different prices, and a **supply curve** is a graphical representation of a supply schedule.

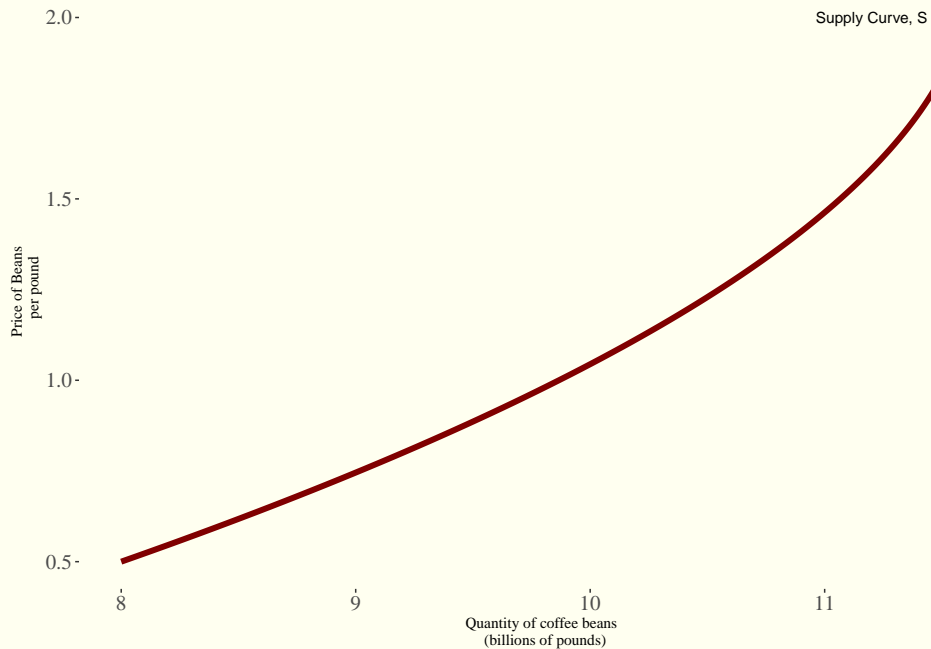
Law of Supply

Other things equal, the higher the price being offered, the more of any good or service producers are willing to sell.

Supply Schedule for Coffee Beans

Price of Coffee Beans (per pound)	Quantity of Coffee Beans Supplied (billions of lbs)
\$2.00	11.6
1.75	11.5
1.50	11.2
1.25	10.7
1.00	10.0
0.75	9.1
0.50	8.0

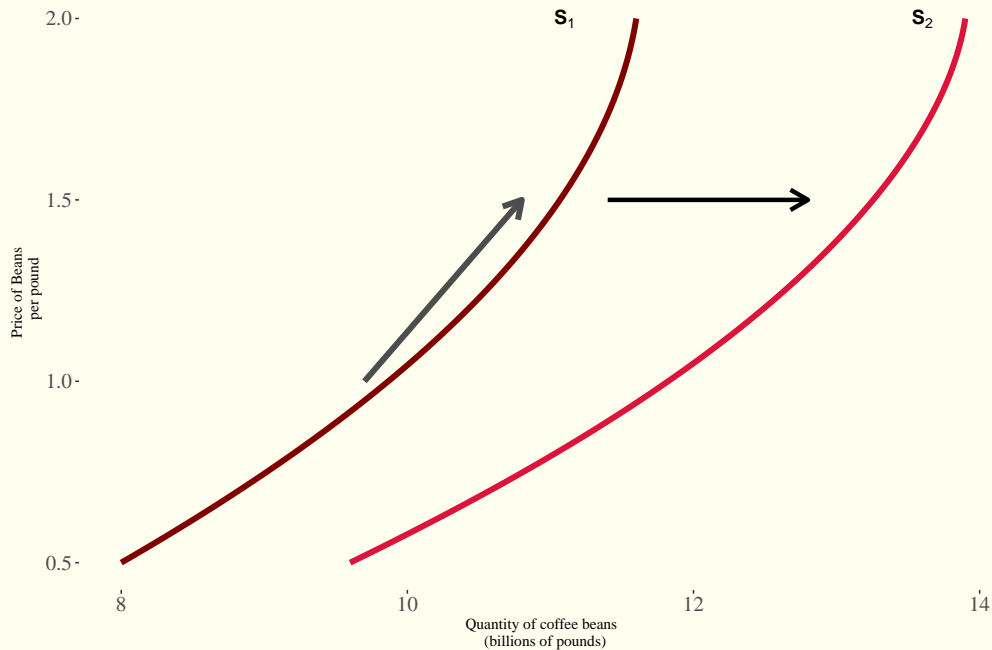
Supply Curve



Supply Schedule for Coffee Beans

Price of coffee beans (per pound)	Quantity of Coffee Beans Demanded	
	Before Entry	After Entry
\$2.00	11.6	13.9
1.75	11.5	13.8
1.50	11.2	13.4
1.25	10.7	12.8
1.00	10.0	12.0
0.75	9.1	10.9
0.50	8.0	9.6

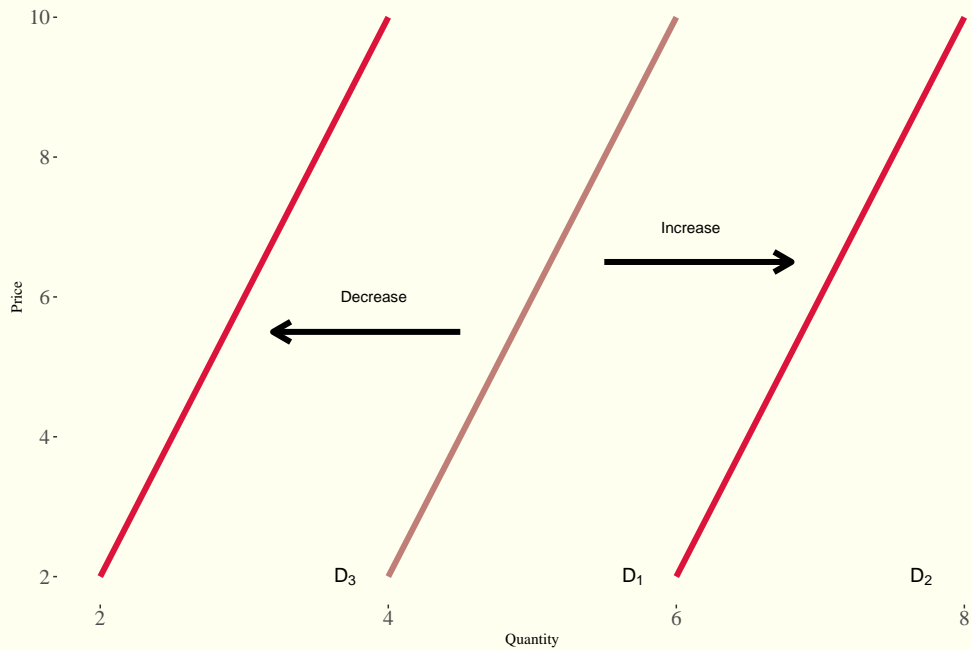
An Increase in Supply



Shifts of the Supply Curve

- A **shift of the supply curve** is a change in the quantity supplied of a good or service at any given price.
- A movement along the supply curve is a change in the quantity supplied that is the result of a change in that good's price.

Shifts of the Supply Curve



Factors that Influence Supply

- Changes in input prices
- Changes in the prices of related goods or services
- Changes in technology
- Changes in expectation
- Changes in the number of producers

Changes in Input Prices

Labor is a critical input and often most costly element in the production of goods. Consider how a \$15 federal minimum wage increase might affect production of particular goods. Difficult to say. Now, consider geographically disparate markets. Los Angeles? Charlotte? Des Moines? Fayetteville? Near Fayetteville?

Changes in the Prices of Related Goods or Services

Oil refineries produce many products including gasoline and heating oil.

- Because it is a **substitute in production**, a rise in the price of heating oil will reduce the supply of gasoline.
- **Complements in production** will augment the supply of the complementary good.

Changes in Technology

In economics, a **technology** is a process that turns inputs into outputs.

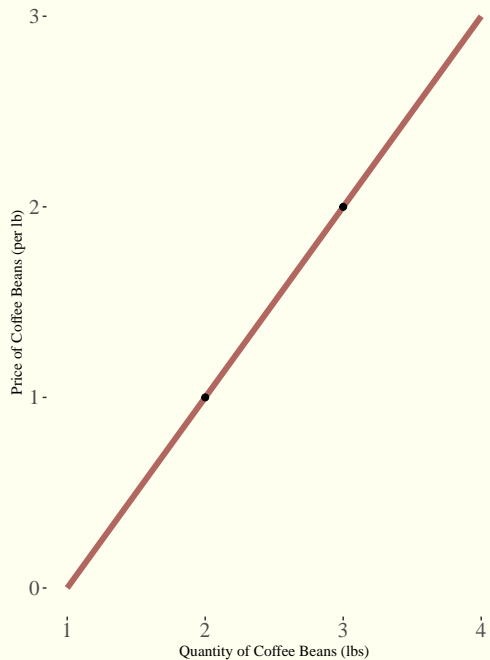
e.g. Production of crops that are resistant to droughts or other predators changes the production technology of these crops as yield will rise from their resistance.

Changes in Expectations

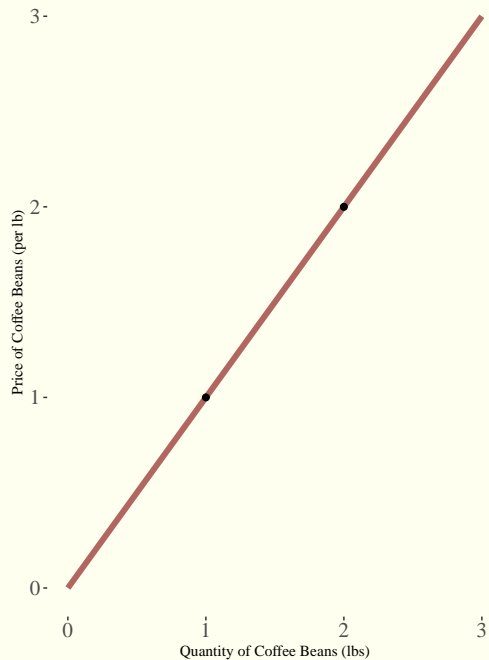
Changes in the expected future price changes producers willingness to sell goods today.

- Storing oil products is built into producers' business strategy
- In many markets, there are futures markets dedicated to hedging against these concerns

Fig's Individual Supply Curve



Bien's Individual Supply Curve



Market Supply Curve



Shift of Supply or Movement Along Curve?

- a. More homeowners put their houses up for sale during a real estate boom that causes house prices to go up.

Shift of Supply or Movement Along Curve?

- b. Many strawberry farmers open temporary roadside stands during harvest season, even though prices are usually low at that time.

Shift of Supply or Movement Along Curve?

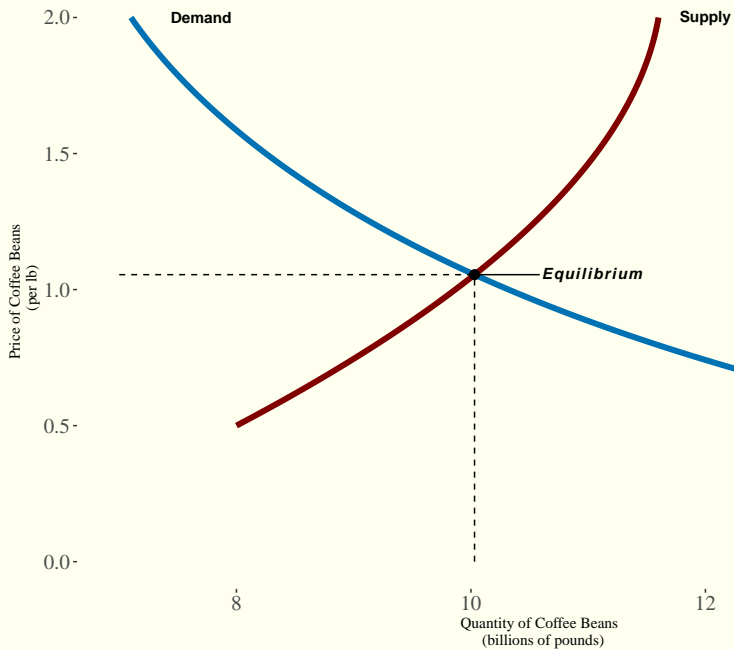
- c. Immediately after the school year begins, fast-food chains must raise wages, which represent the price of labor, to attract workers.

Supply, Demand, and Equilibrium

The price that matches the quantity supplied and quantity demanded is the **equilibrium price**

The equilibrium price can be alternatively called the **market clearing** price.

Market Equilibrium



Equilibrium

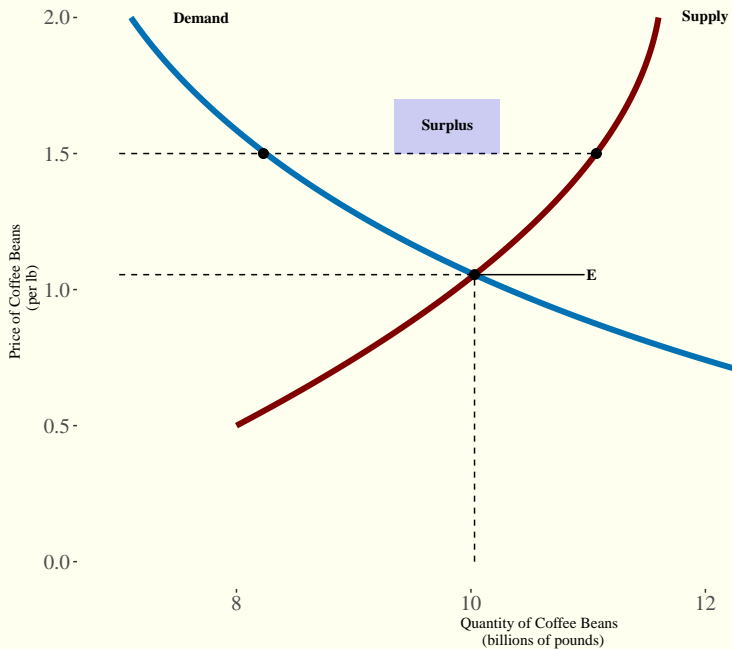
The previous graph indicates that at \$1 and 10B lbs the market will clear. How?

Why do all sales and purchases in a market take place at the same price?

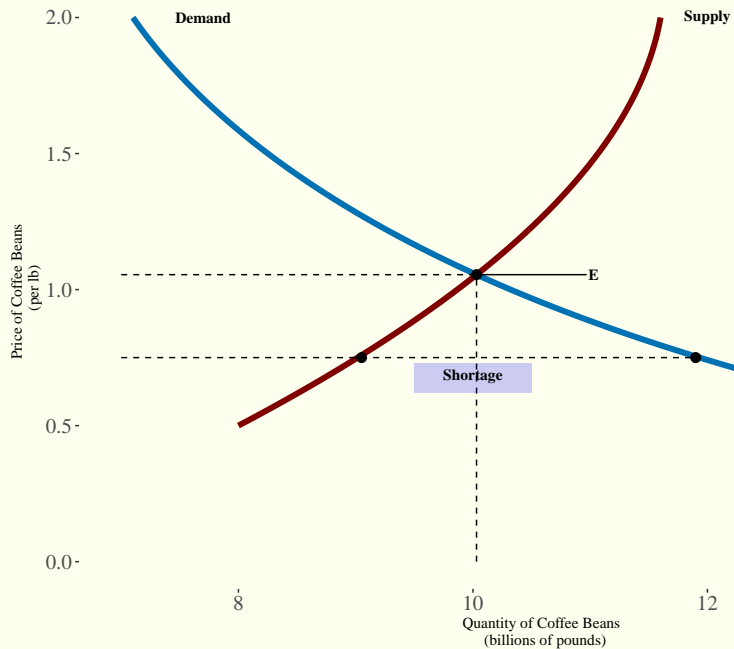
Why does the market price fall if it is above the equilibrium price?

Why does the market price rise if it is below the equilibrium price?

Price Above Equilibrium

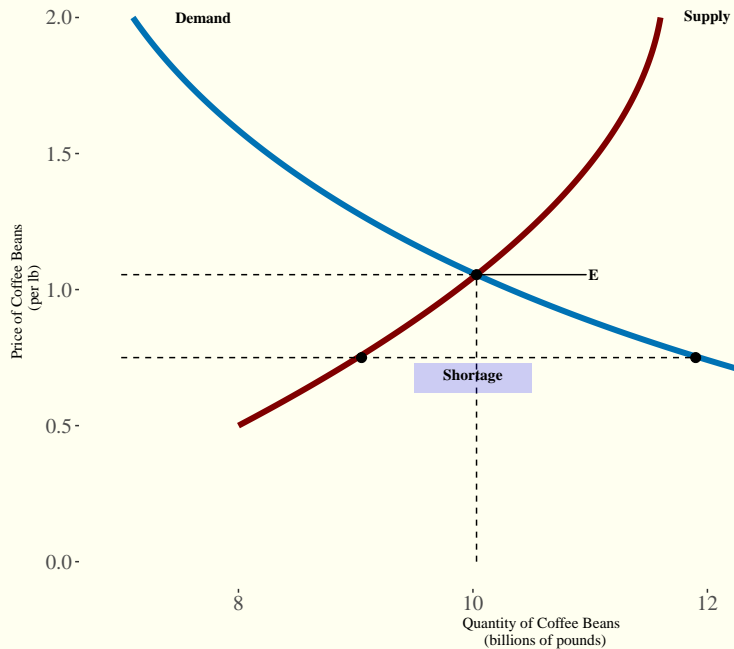


Price Below Equilibrium



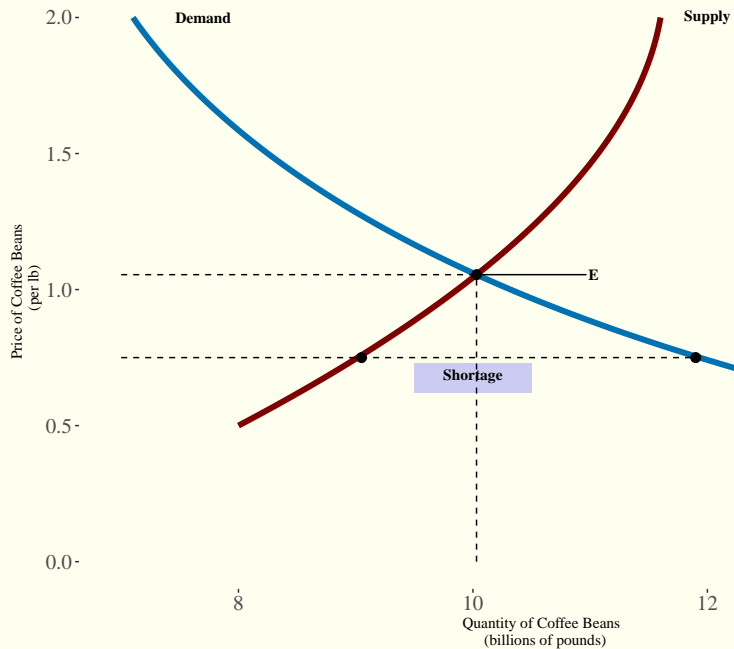
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Price Below Equilibrium



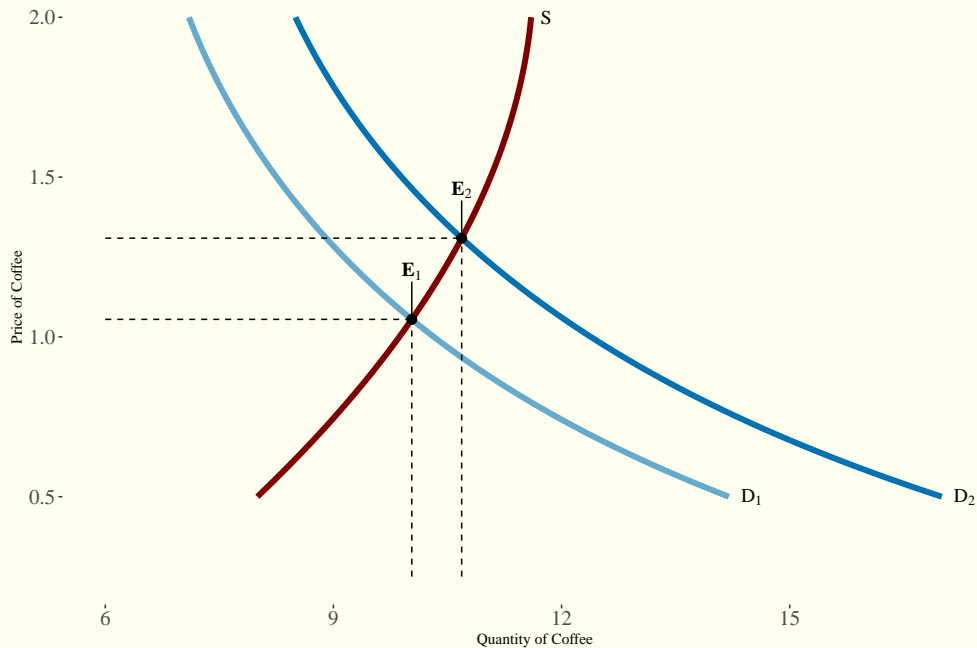
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Price Below Equilibrium



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Equilibrium & Demand Shifts



Demand Curve Shifts - General Takeaway

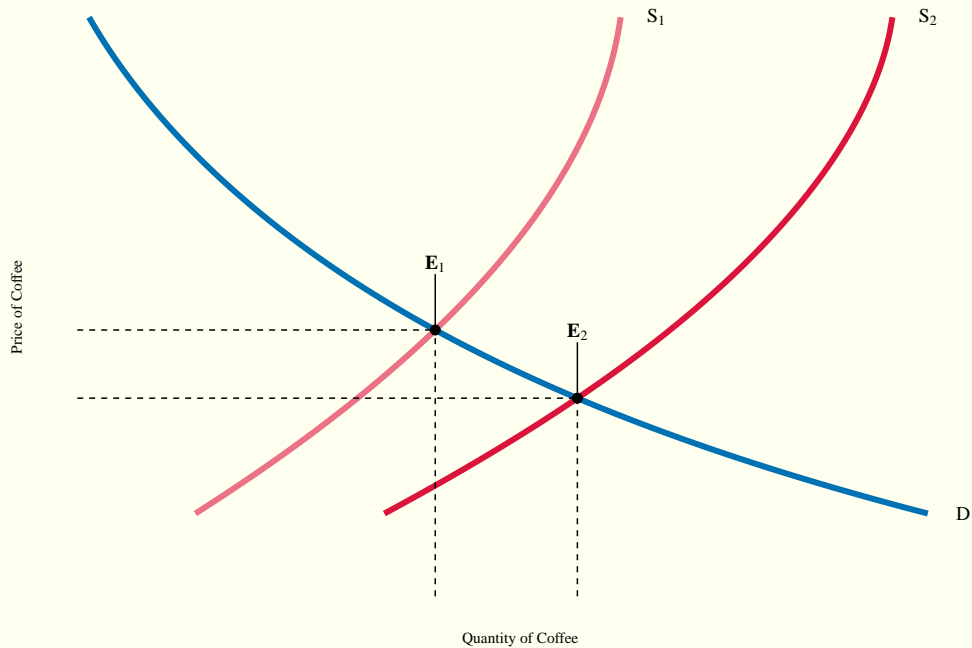
When demand for a good or service increases, the equilibrium price and the equilibrium quantity of the good or service both rise.

Demand Curve Shifts - General Takeaway

When demand for a good or service increases, the equilibrium price and the equilibrium quantity of the good or service both rise.

When demand for a good or service decreases, the equilibrium price and the equilibrium quantity for the good or service both fall.

Equilibrium & Supply Shifts



Supply Shifts - General Takeaways

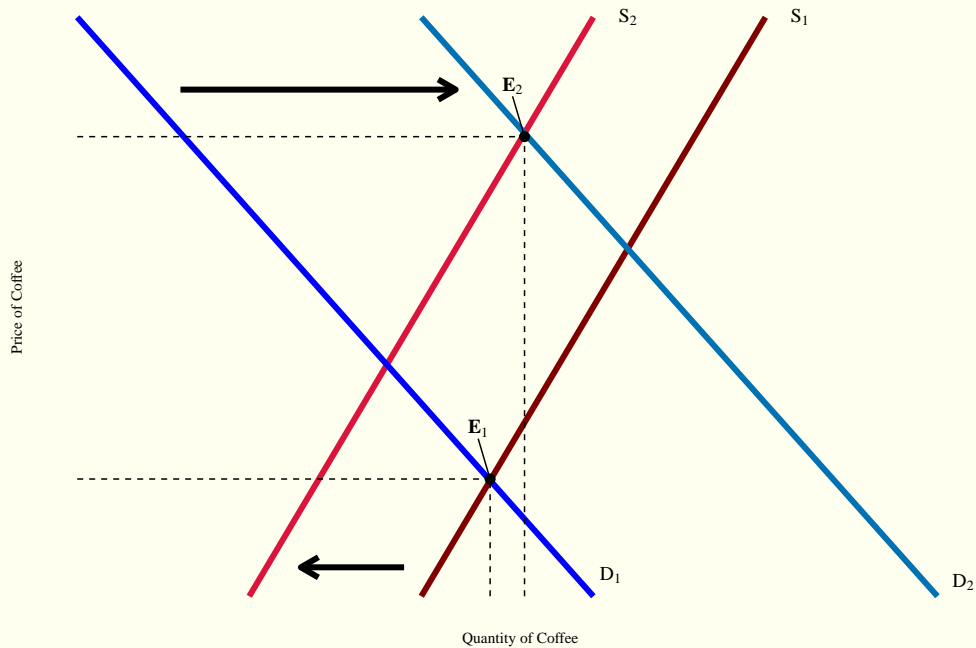
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Supply Shifts - General Takeaways

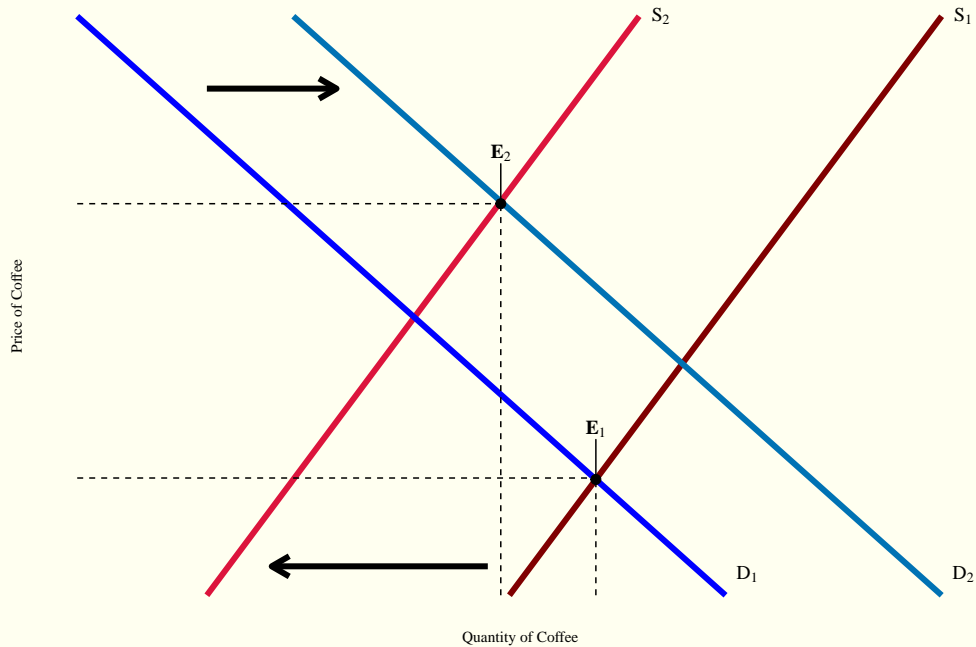
An increase in supply leads to an increase in equilibrium quantity and a decrease in equilibrium price

A decrease in supply leads to a decrease in equilibrium quantity and an increase in equilibrium price

Price Rises, Quantity Rises



Price Rises, Quantity Falls



Simultaneous Curve Shifts - General Takeaways

- When D and S shift in opposite directions, the effect on the quantity is ambiguous

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- $D\uparrow, S\uparrow \Rightarrow Q\uparrow$
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Key Takeaways

- The supply and demand model illustrates how a competitive market works
- A movement along a curve is different than a shift of one
- Competitive markets move towards equilibrium
- Shifts of curves and their effect on price and quantity