

Supply and Demand

ECO 120: Global Macroeconomics

Goals

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Unit Goals

Define demand and identify what influences demand

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Predict how prices and quantities are determined by supply and demand.

Use these skills to make predictions about changes in price and quantity.

Learning Objectives

LO 2: Use the supply and demand model to predict price and quantity outcomes for markets for products and services.

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Reading and Exercises

2 / 32

Textbook: Demand, Module 5

Textbook: Supply and Equilibrium, Module 6

Textbook: Changes and Equilibrium, Module 7

Canvas Quiz due Wed 11:59 PM.

Multiple-choice, 10 questions, unlimited attempts allowed,
only best score counts

Homework/In-class Exercise due Friday 11:59 PM. We
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Demand

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The **quantity demanded** of a good or service is the amount consumers are willing and able to buy in a given time period at a particular price.

Law of demand: All other things remaining equal, the higher (lower) the price of the good, the smaller (higher) is the quantity demanded.

Demand

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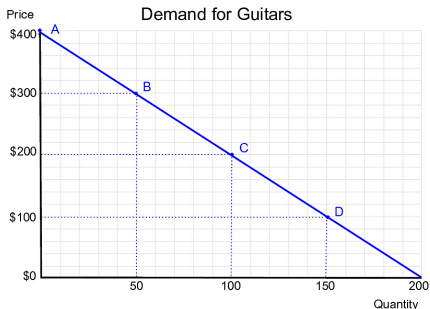
Law of demand: All other things remaining equal, the higher (lower) the price of the good, the smaller (higher) is the quantity demanded.

Demand

Demand Schedule For Guitars

Point	Price	Q_D
A	\$400	0
B	\$300	50
C	\$200	100
D	\$100	150

Demand Curve for Guitars



Law of demand makes the demand curve **downward sloping**.

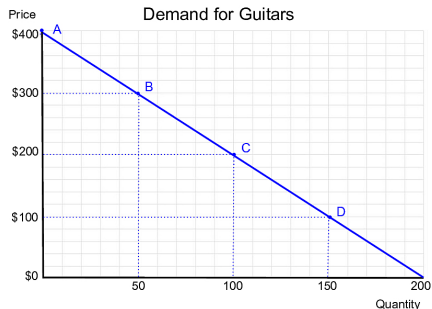
Change in quantity demanded: when there is a **change in price** causing a **movement** from one point on the demand curve to another point.

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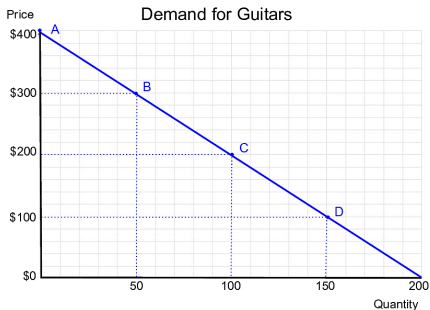
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Income and Substitution effects

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The demand curve is downward sloping because of the income and substitution effect.

Substitution effect: when the price of a good rises, people may buy substitute goods instead.

Income effect: When the price of a good rises, the real purchasing power of your income decreases. When the real value of your income decreases, you buy less of everything.

Close to correct. More on the income effect later.

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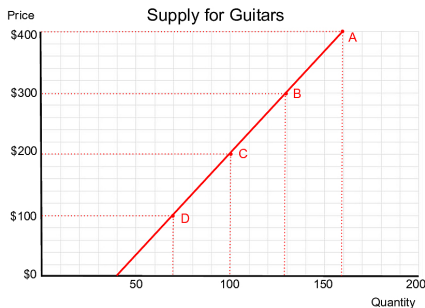
Supply

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Supply Schedule For Guitars

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Supply Curve for Guitars



Law of supply makes the supply curve **upward sloping**.

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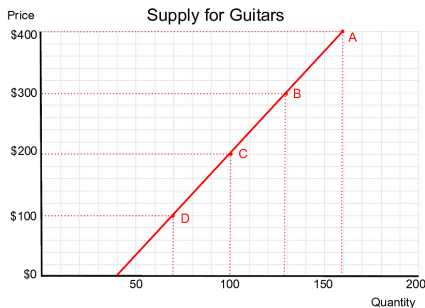
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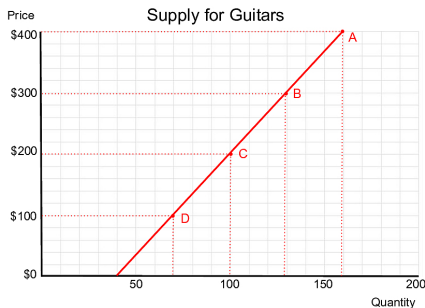
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Equilibrium

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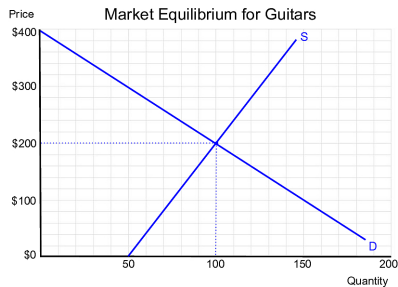
Equilibrium Definition

The **equilibrium price** is the price where the quantity supplied is equal to the quantity demanded.

The **equilibrium quantity** is the corresponding quantity.

This is the price and quantity that will prevail in an unregulated market.

Graphical Equilibrium



Equilibrium

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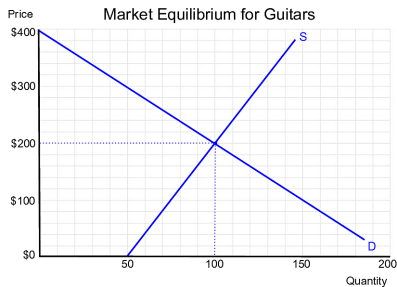
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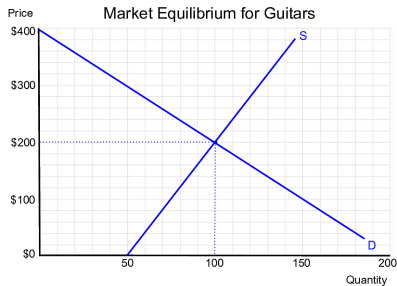
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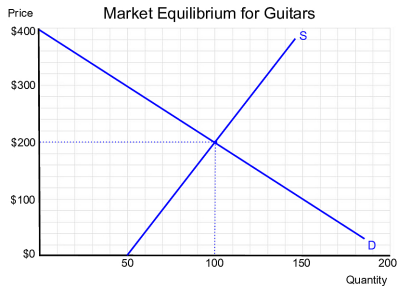
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Surplus

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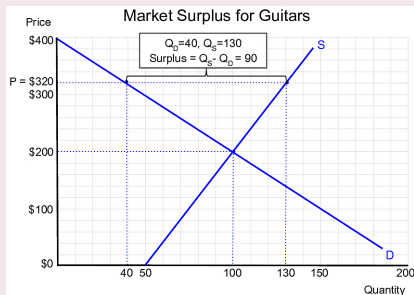
Surplus Definition

When the prevailing price is **above** equilibrium price, quantity supplied exceeds quantity demanded

Difference is the surplus

In an unregulated market, market forces will push price lower toward equilibrium

Graphical Surplus



Surplus

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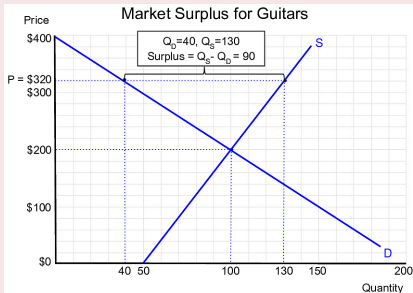
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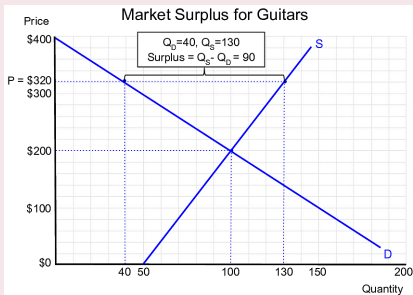
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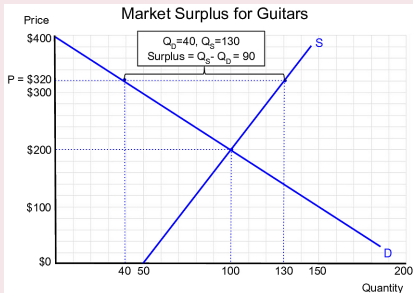
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Shortage

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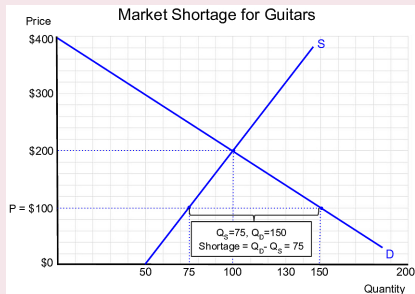
Shortage Definition

When the prevailing price is **below** equilibrium price, quantity demanded exceeds quantity supplied

Difference is the shortage

In an unregulated market, market forces will push equilibrium price higher

Graphical Shortage



Shortage

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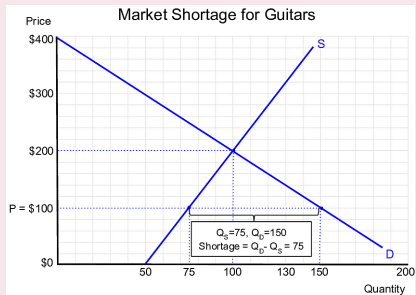
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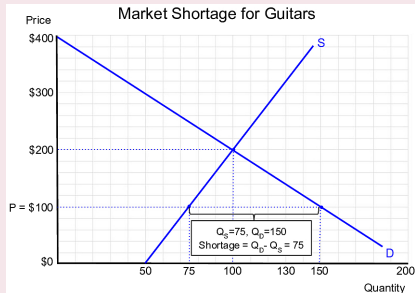
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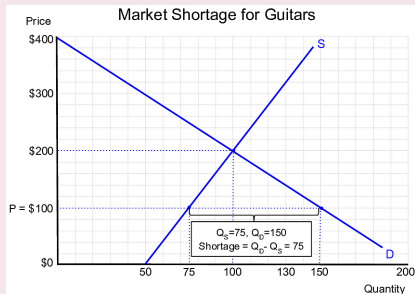
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Demand Curve Shifts

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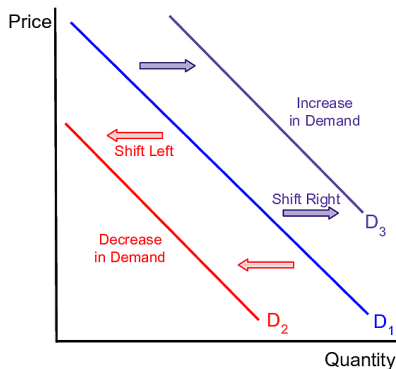
Shifts in Whole Demand Curve

When something *besides the price of the good* affects demand, we say there is a *change or shift in demand*.

Something that **increases** demand shifts the demand curve to the **right**

Something that **decreases** demand shifts the demand curve to the **left**

Shifts in Demand



Demand Curve Shifts

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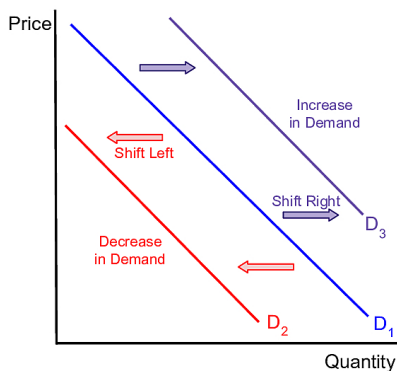
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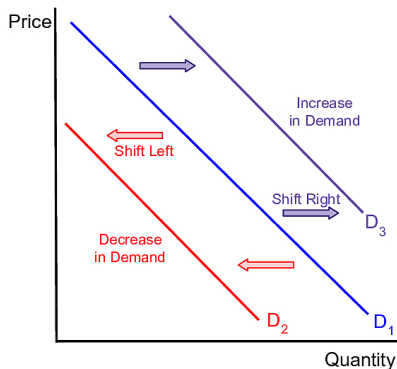
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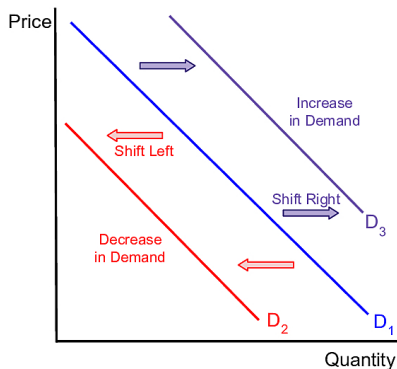
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Shifts in Demand



Substitute Goods

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Price of Substitute Goods

Substitutes: a substitute good is a good that can be consumed instead of another good.

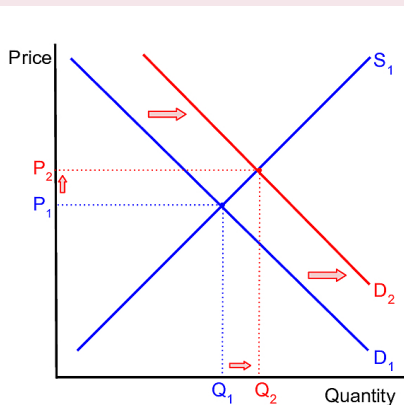
Examples: hamburgers and hot dogs, iPhones and Samsung smartphones, E-books and print books

If the price of a **substitute increases**, this will **increase demand** for a good

Eqm price increases, quantity increases

Price of Samsung phones increase

Market for iPhones



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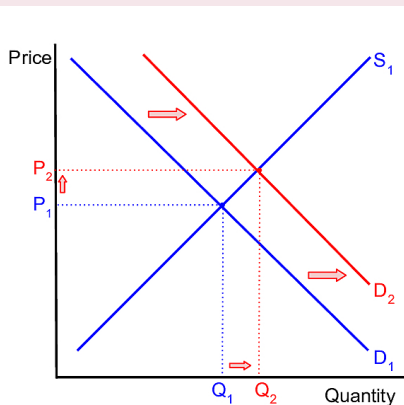
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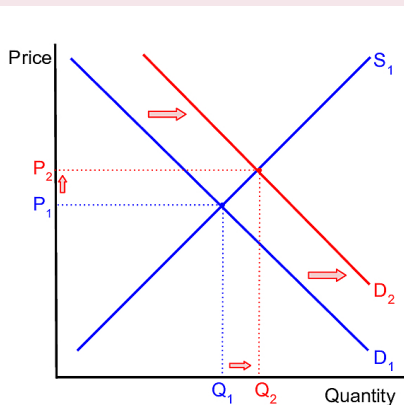
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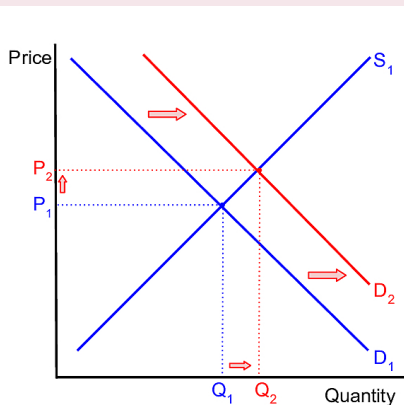
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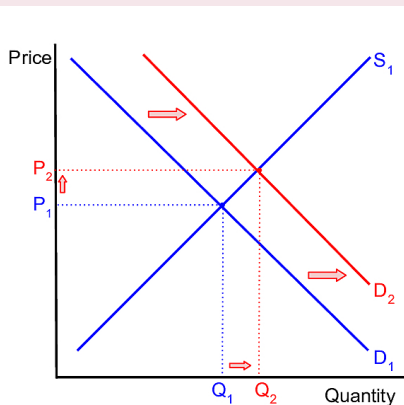
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Complement Goods

13 / 32

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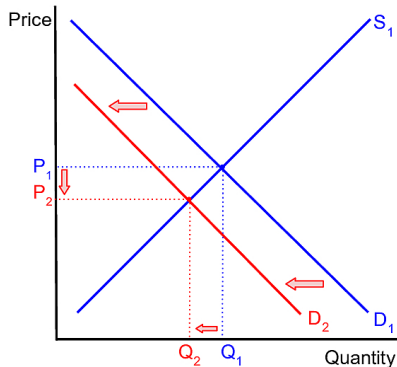
Examples: peanut butter and jelly, iPads and Ebooks, smartphones and apps

If the price of a **complement increases**, this will **decrease demand** for a good

Eqm price decreases, quantity decreases

Price of Samsung phones increase

Market for Andriod Apps



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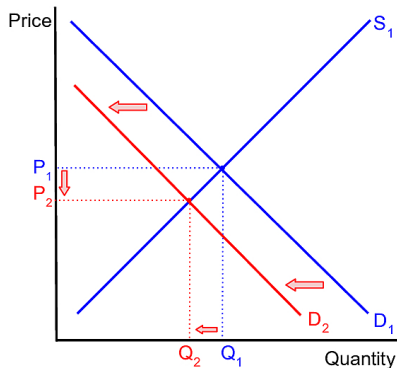
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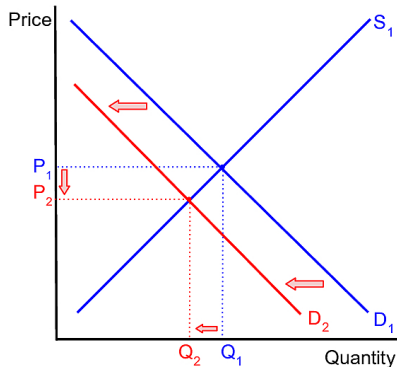
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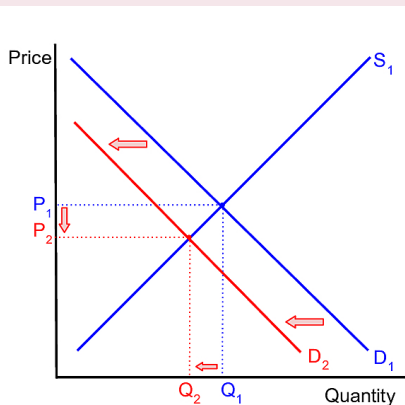
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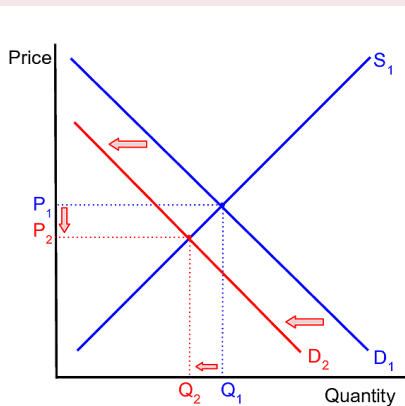
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Changes in Income

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Normal good: a good whose demand increases when consumers' incomes increase.

Inferior good: a good whose demand decreases when consumers' incomes increase.

Can you think of examples of an inferior good?

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Changes in Income: Normal Goods

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Income Effect on Normal Goods

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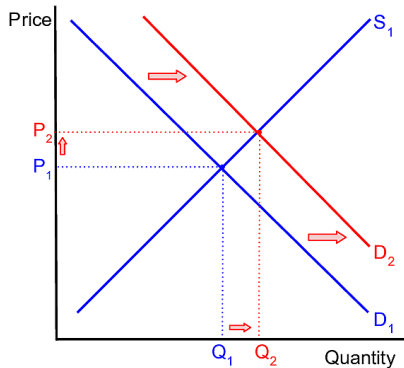
Examples: Most things, computers, automobiles, restaurant meals

If **income increases**, this will **increase demand** for a normal good

Eqm price increases, quantity increases

Increase in Income

Market for Automobiles



Changes in Income: Normal Goods

15 / 32

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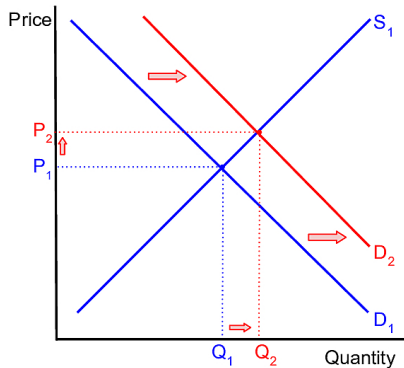
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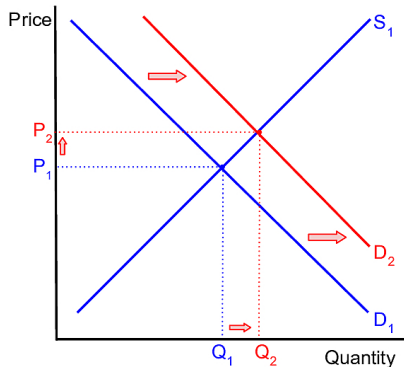
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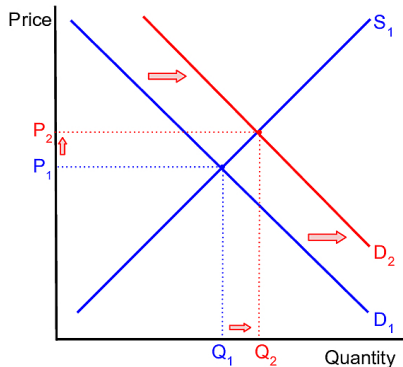
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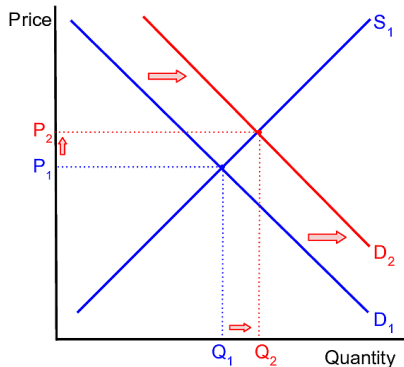
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Changes in Income: Inferior Goods

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Income Effect on Inferior Goods

Inferior good: a good whose demand **decreases** when consumers' incomes increase.

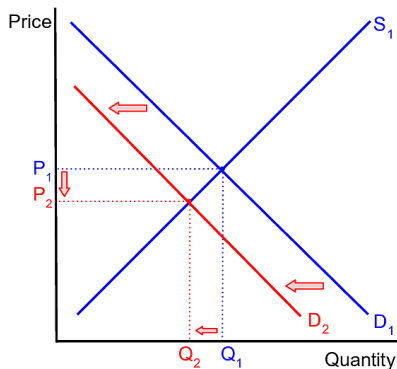
Examples: Used clothing,
Ramen noodles

If **income increases**, this will **decrease demand** for an inferior good

Eqm price decreases, quantity decreases

Increase in Income

Market for Used Clothing



Changes in Income: Inferior Goods

16 / 32

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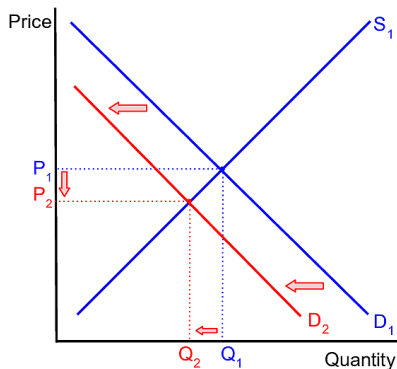
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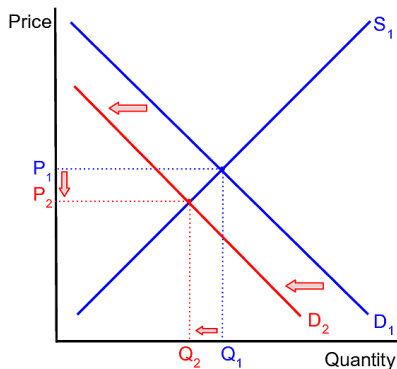
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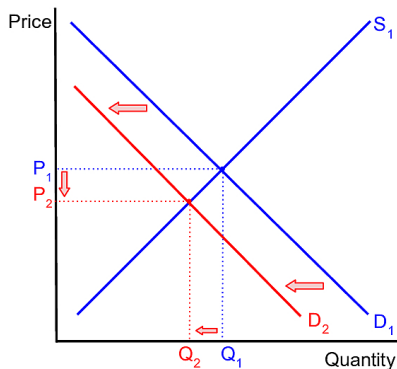
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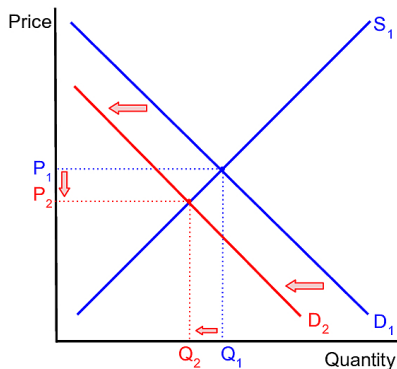
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Consumers Expect Price Increase

17 / 32

Expectation of Price Increase

If consumers expect a price will increase in the future, demand will increase in the present

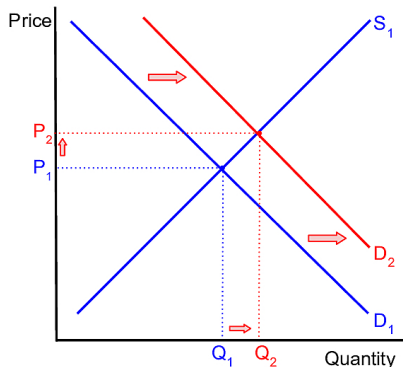
The expectation can be well-informed or even unfounded speculation

Results in higher price, higher quantity

Self-fulfilling expectations are possible!

Expectation of a Price Increase

Market for Gasoline on 9/11/2001



Consumers Expect Price Increase

17 / 32

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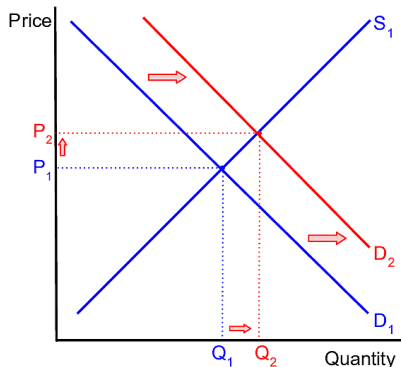
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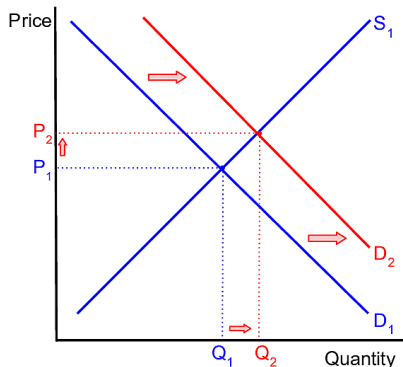
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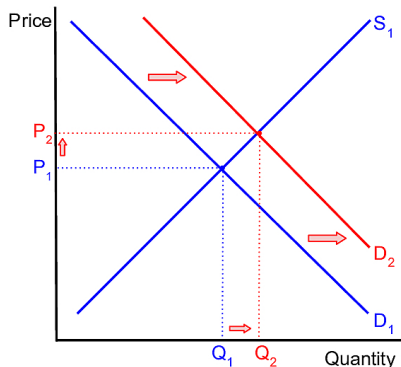
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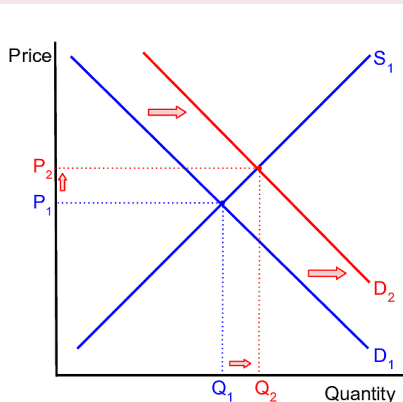
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Consumers Expect Increase in Income

18 / 32

Expectation of Increase in Income

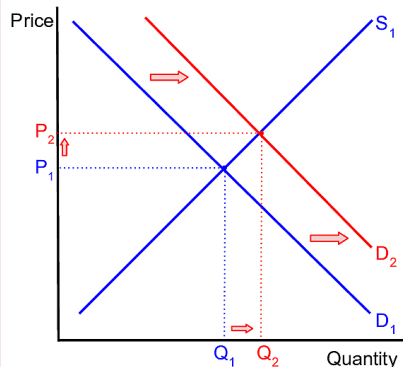
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Why consumer confidence is so important for macroeconomy

Expectation of Higher Income

Market for Automobiles (Normal Good)



Consumers Expect Increase in Income

18 / 32

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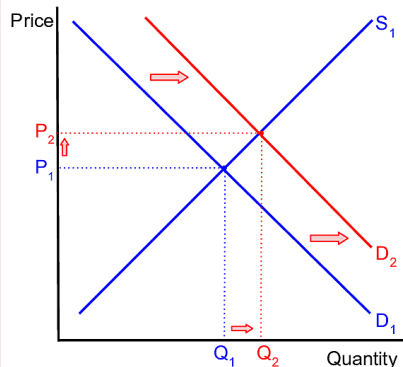
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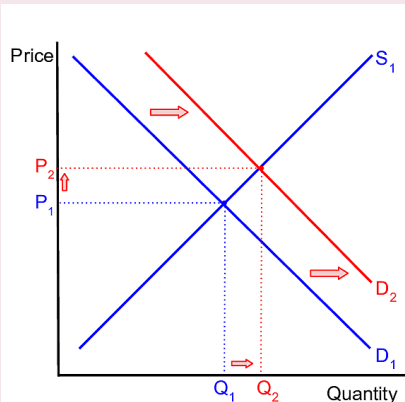
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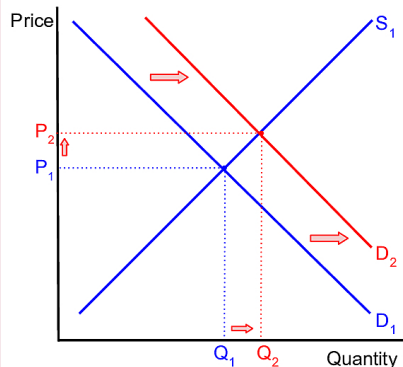
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Supply Curve Shifts

19/ 32

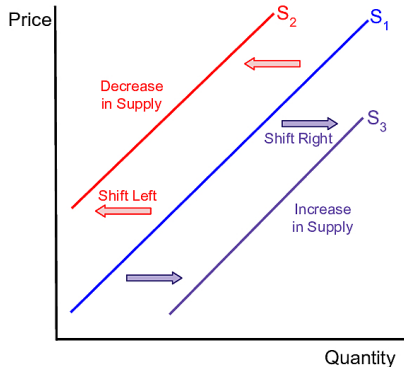
Shifts in Whole Supply Curve

When something *besides the price of the good* affects supply, there is a *change or shift in supply*.

Something that **increases** supply shifts the supply curve to the **right**

Something that **decreases** supply shifts the supply curve to the **left**

Shifts in Supply



Supply Curve Shifts

19 / 32

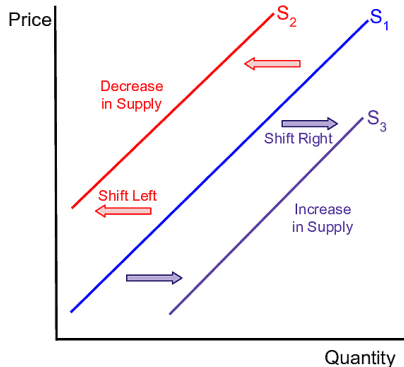
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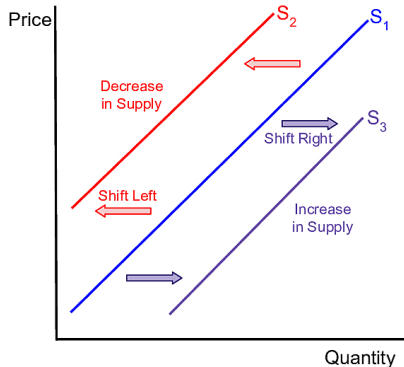
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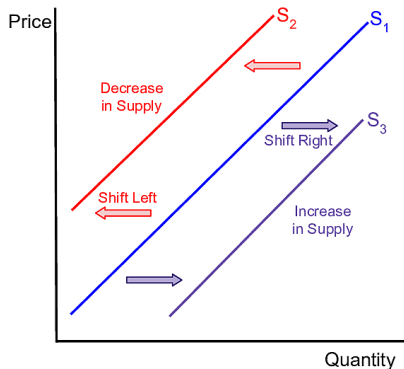
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Improvements in Technology

20 / 32

Improvements in Technology

Improvements in technology can make it possible to produce more

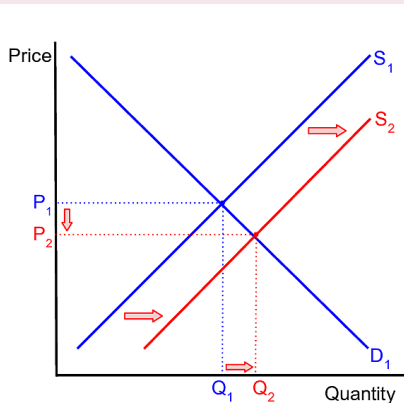
Improvements in technology can make production easier or less costly

Shift supply to the right

Eqm quantity increases, price decreases

Improvement in Technology

Market for Computers



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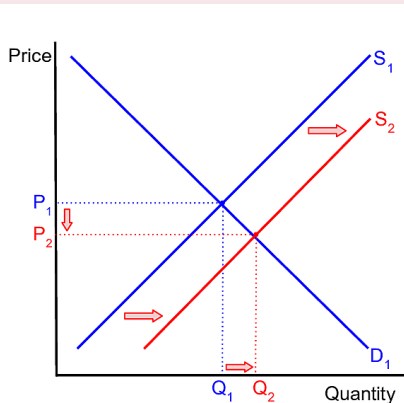
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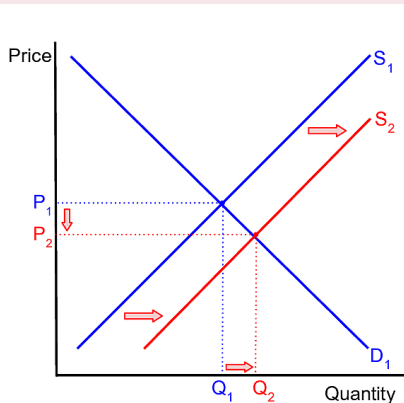
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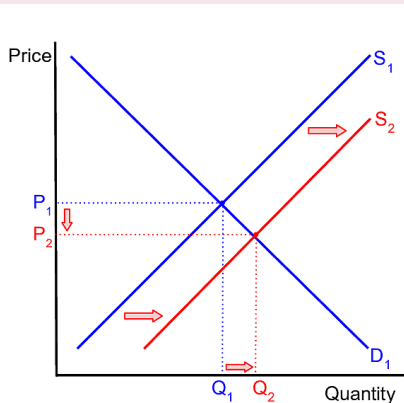
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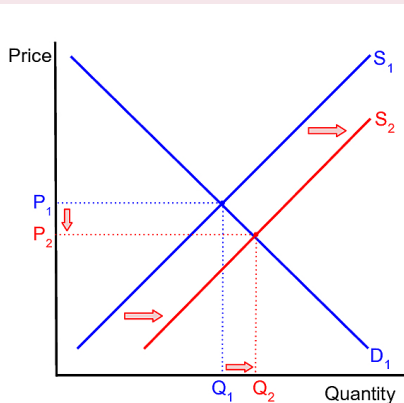
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Increase in Production Costs

21 / 32

Increase in Production Costs

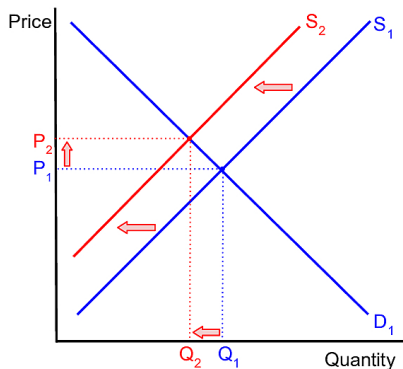
Any increase in production costs causes supply to shift to the left

For example: Increase in price of lumber for construction of new housing

Eqm quantity decreases, price increases

Increase in Production Costs: Lumber Used in Construction

Market for New Housing



Increase in Production Costs

21 / 32

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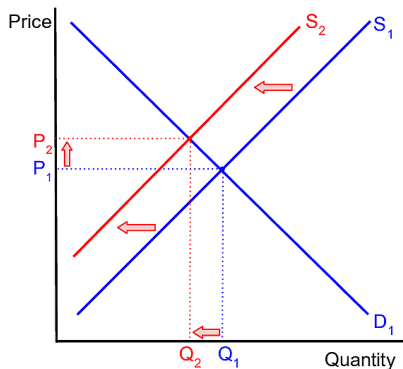
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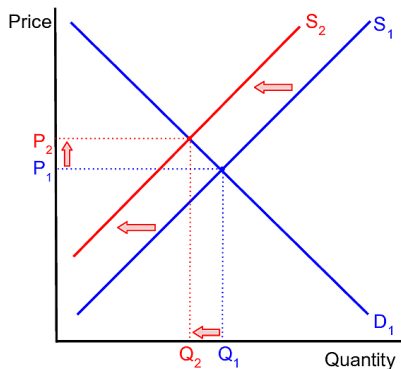
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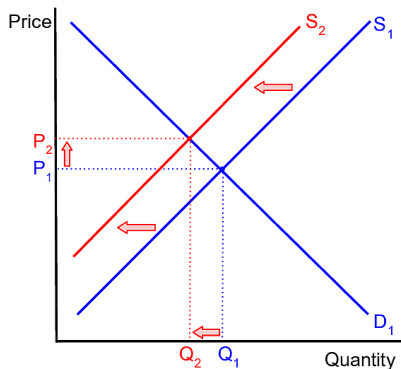
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Producers Expect Higher Prices in Future

22 / 32

Producer Expectations

If producers expect an increase in prices, may hold back production or sales until prices are higher

Easier for goods than can be stored or warehoused

For example: Agriculture producers expects an increase in price of grain

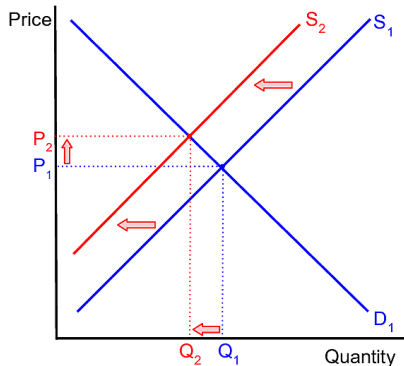
Store grain to sell later, supplying less today, supply shifts left

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Expectation of Higher Price

Market for Grain



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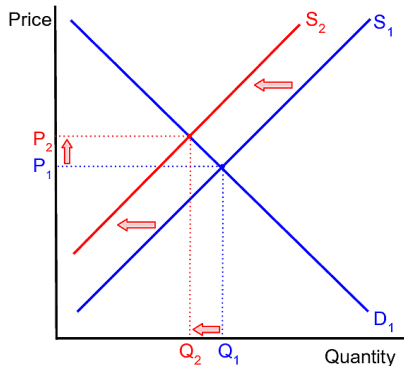
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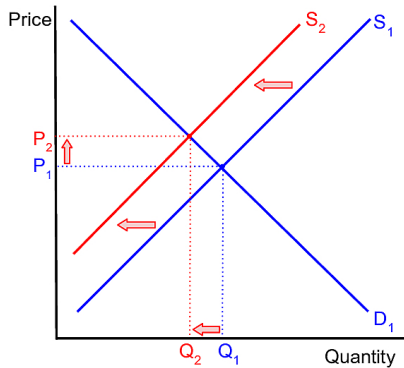
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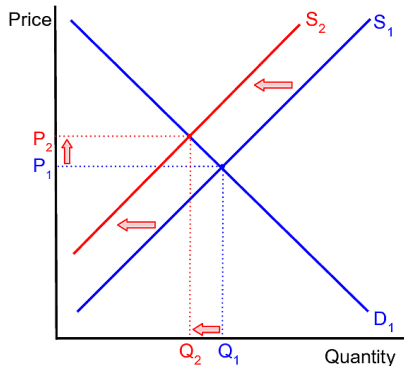
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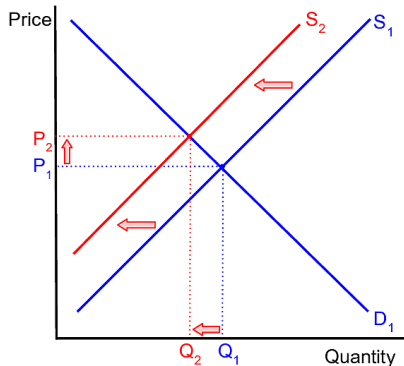
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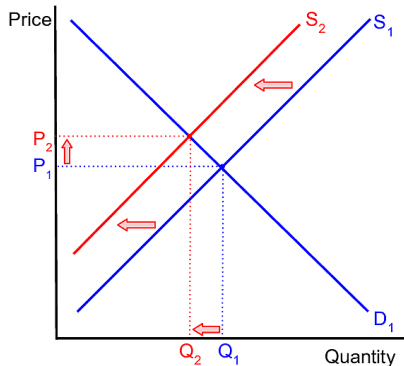
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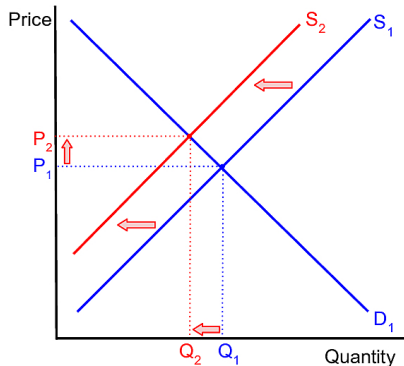
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Subsidy on Ethanol Production

23 / 32

Scenario

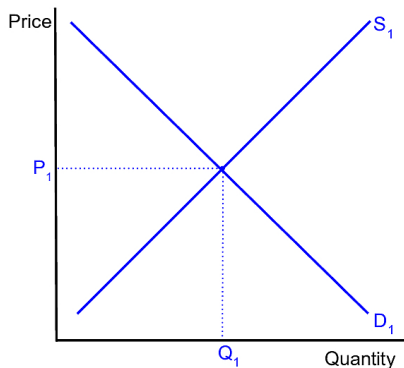
Suppose the government increases the subsidy to gasoline producers for blending ethanol into gasoline.

Impact

Supply for gasoline with ethanol increases
Eqm quantity increases, price decreases

Supply and Demand

Market for Gasoline with Ethanol



Subsidy on Ethanol Production

23 / 32

Scenario

Suppose the government increases the subsidy to gasoline producers for blending ethanol into gasoline.

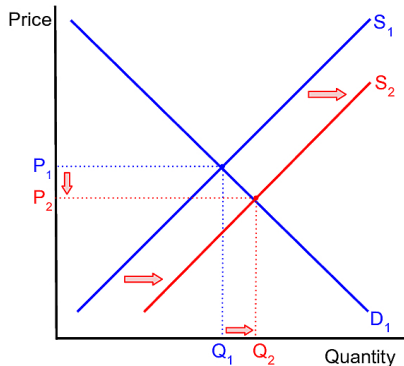
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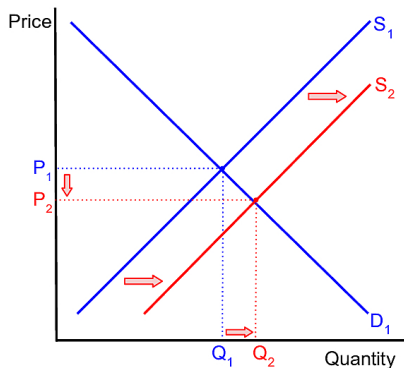
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Supply and Demand

Market for Gasoline with Ethanol



Taxes on Goods and Services

24 / 32

Scenario

Suppose the government increases the taxes on cigarettes.

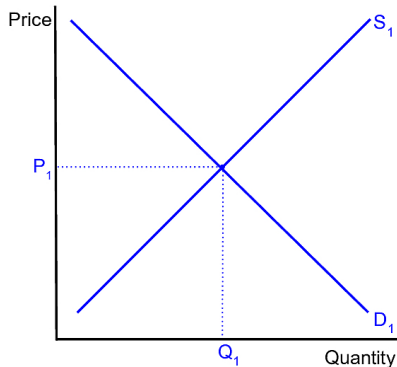
Impact

Demand for cigarettes decreases

Eqm quantity decreases, price decreases

Supply and Demand

Market for Cigarettes



Taxes on Goods and Services

24 / 32

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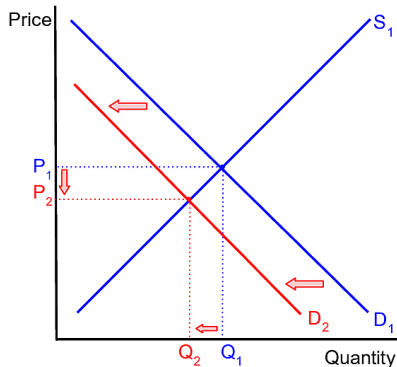
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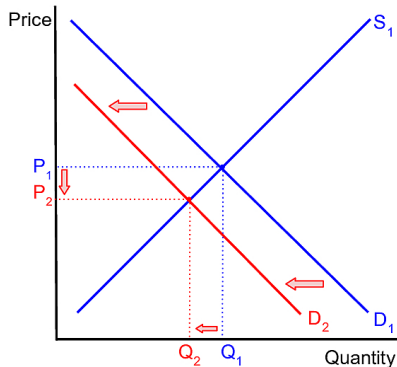
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Supply and Demand

Market for Cigarettes



Changes in Opinions and Preferences: Peloton

25 / 32

Scenario

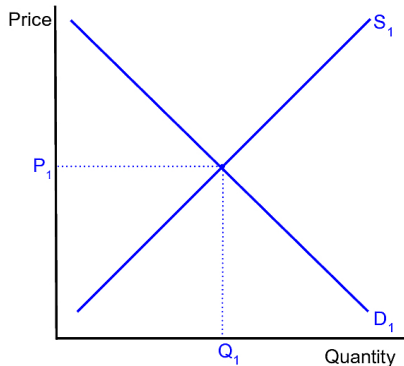
Suppose Mr. Big dies while working out on his Peloton bike, and this leads people to think that Peloton bikes are dangerous.

Impact

Demand for Peloton bikes decreases
Eqm quantity decreases, price decreases

Supply and Demand

Market for Peloton Bikes



Changes in Opinions and Preferences: Peloton

25 / 32

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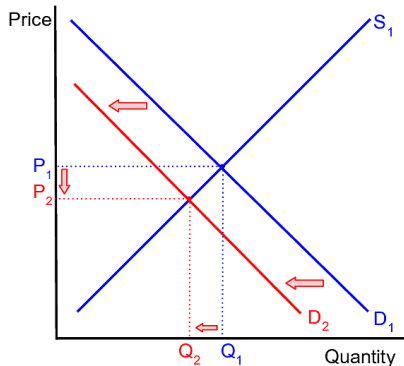
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price decreases

Supply and Demand

Market for Peloton Bikes



Changes in Opinions and Preferences: Peloton

25 / 32

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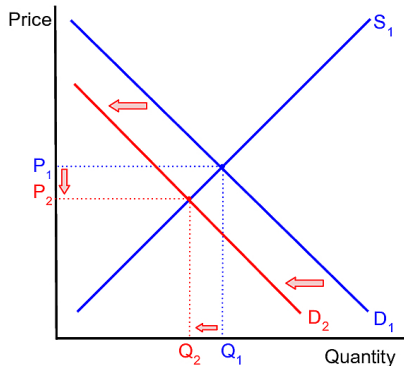
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Supply and Demand

Market for Peloton Bikes



Changes in Preferences: Christmas Trees

26 / 32

Scenario

After a difficult year in 2020, more people decided to celebrate the holiday season with real Christmas trees.

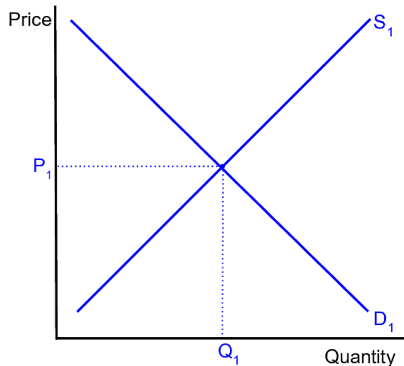
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Demand for Christmas trees increases

Eqm quantity increases, price increases

Supply and Demand

Market for Christmas Trees



Changes in Preferences: Christmas Trees

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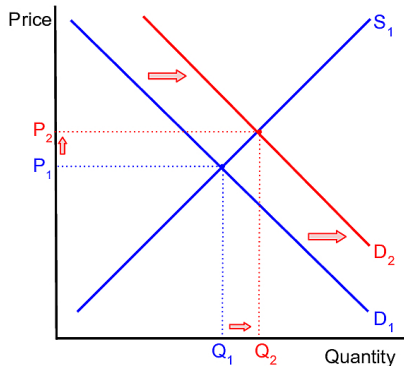
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Supply and Demand

Market for Christmas Trees



Changes in Preferences: Christmas Trees

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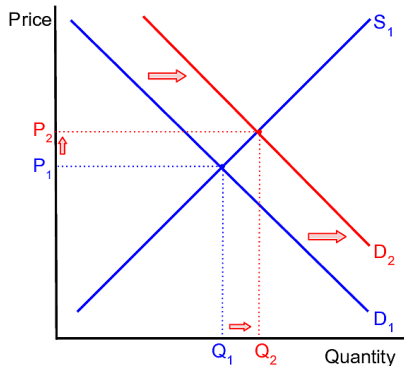
Impact

Demand for Christmas trees increases

Eqm quantity increases, price increases

Supply and Demand

Market for Christmas Trees



Changes in Supply and Demand: Christmas Trees

27 / 32

Scenario

During a very difficult recession in 2009-2010, many Christmas tree farmers did not invest in planting new trees. It takes about 10-11 years for trees to grow to typical room height.

Also, after a difficult year in 2020, more people decided to celebrate the holiday season with real Christmas trees.

Impact

Demand increases

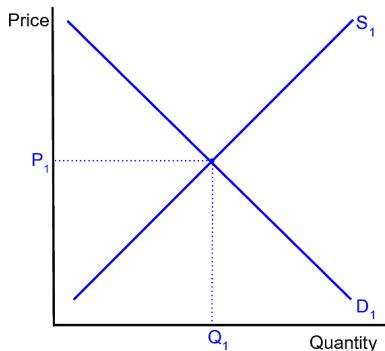
Supply also decreases

Equilibrium price increases

Change in equilibrium quantity is indeterminate

Supply and Demand

Market for Christmas Trees



Changes in Supply and Demand: Christmas Trees

27 / 32

Scenario

During a very difficult recession in 2009-2010, many Christmas tree farmers did not invest in planting new trees. It takes about 10-11 years for trees to grow to typical room height.

Also, after a difficult year in 2020, more people decided to celebrate the holiday season with real Christmas trees.

Impact

Demand increases

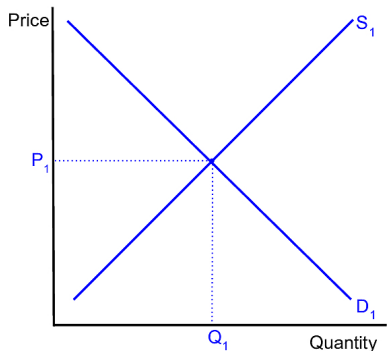
Supply also decreases

Equilibrium price increases

Change in equilibrium quantity is indeterminate

Supply and Demand

Market for Christmas Trees



Changes in Supply and Demand: Christmas Trees

27 / 32

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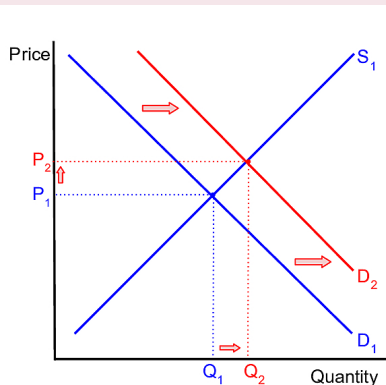
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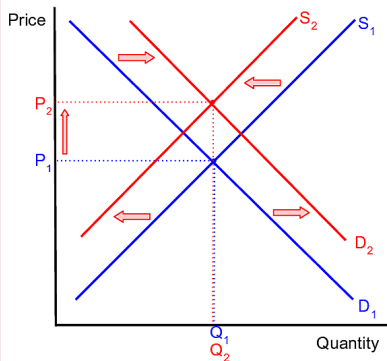
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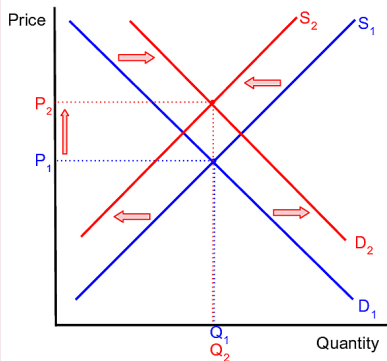
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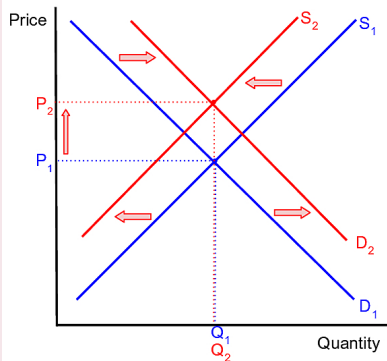
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Market for Christmas Trees



Changes in Supply and Demand: New Homes

28 / 32

Scenario

Suppose that global supply chain problems cause a decrease in availability for construction materials

Suppose also that the country is in a recession and people have lower incomes

Impact on Market for Homes

Demand for new homes decreases

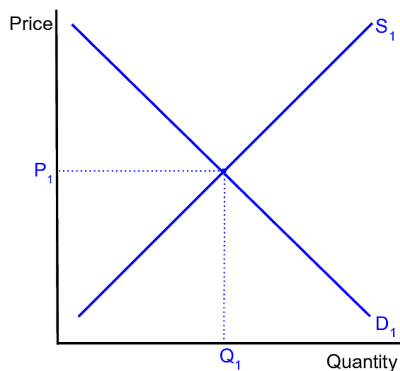
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Change in equilibrium price is indeterminate

Supply and Demand

Market for New Homes



Changes in Supply and Demand: New Homes

28 / 32

Scenario

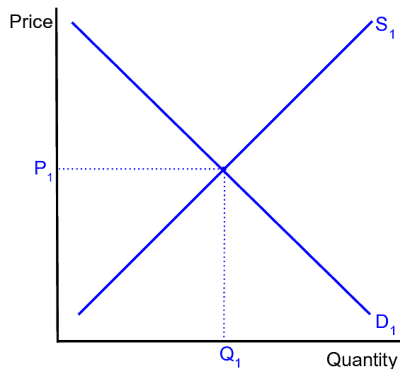
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Impact on Market for Homes

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Supply and Demand

Market for New Homes



Changes in Supply and Demand: New Homes

28 / 32

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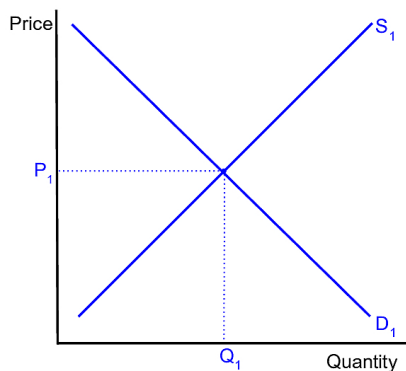
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Changes in Supply and Demand: New Homes

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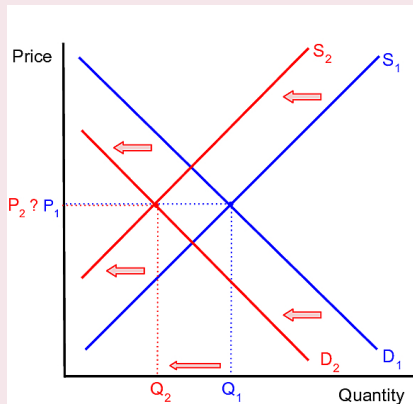
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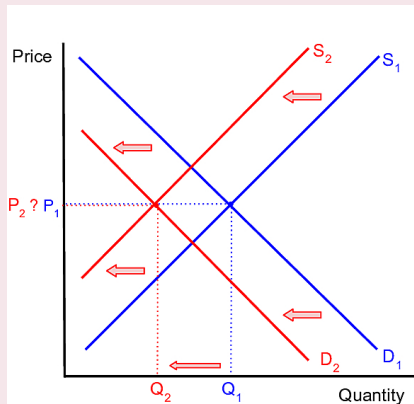
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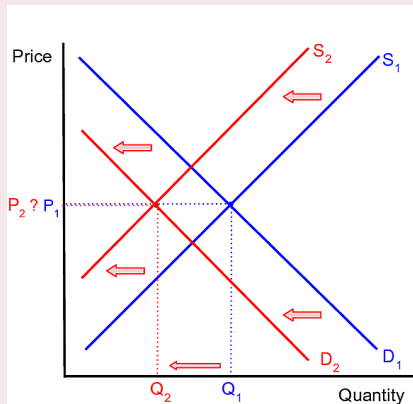
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Scholar Spotlight: Claudia Sahn

29 / 32

The Effect of Hurricane Matthew on Consumer Spending, *FEDS Notes* December 2016.

(with A. Aladangady, S. Aron-Dine, W. Dunn, L. Feiveson, and P. Lengermann)

Consumer Spending & Hurricanes

Daily detailed expenditure data

Demand for food rises before hurricane, falls during, rises afterwards (small positive net effect)

Demand decreases for restaurants & clothing, rebound does not make up for loss

Following a hurricane, what would be the impact on the market for clothing?



Dr. Claudia Sahn

Founder and Independent Economist
Sahn Consulting and Stay-At-Home Macro
Formerly: Federal Reserve Board of
Governors (2007-2019)

Scholar Spotlight: Sheida Teimouri

30 / 32

Housing Prices and Import Competition (with Joachim Zietz)

Working paper, April 2023.

Trade Liberalization with China

New trade agreement with China in October 2000 led to more imports of Chinese goods

Less demand for similar U.S. produced items led to less employment in some industries

Less employment → less income → less demand for housing

Housing prices fell 6-8% in *heavily trade-exposed counties*



Dr. Sheida Teimouri

Associate Professor of Economics
University of Wisconsin-La Crosse

Scholar Spotlight: Zsuzsanna Csereklyei

31 / 32

The effect of wind and solar power generation on wholesale electricity prices in Australia, *Energy Policy* August 2019.
(with Songze Qu and Tihomir Ancev)

Wind, Solar, and Electricity Markets

Clean energy production and electricity prices have been rising together in Australia.

Estimated the impact: Increases in wind and solar energy production have led to decreases in electricity prices.

Increasing natural gas prices has led to increases in electricity prices.



Dr. Zsuzsanna Csereklyei

Senior Lecturer
School of Economics, Finance and Marketing
RMIT University, Melbourne, Australia

Reading and Exercises

32 / 32

Textbook: Demand, Module 5

Textbook: Supply and Equilibrium, Module 6

Textbook: Changes and Equilibrium, Module 7

Canvas Quiz due Wed 11:59 PM.

Multiple-choice, 10 questions, unlimited attempts allowed, only best score counts

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