

## Microeconomics versus Macroeconomics

Microeconomics – study of individual behavior

- Billions of individuals have millions/billions of demand curves shifting around in their heads
- Millions of firms have supply curves for the products they sell

Macroeconomics – study of aggregate behavior

- There is only one demand curve because in macro we ‘combine’ all demand curves into one
- There is only one supply curve because in macro we ‘combine’ all supply curves into one

## The Demand Curve

A **Demand Curve** shows the quantity of a good that consumers will purchase at alternative prices, holding all else constant.

**Quantity Demanded** ( $Q_D$ ) is the amount of a good consumers

A **movement along** a demand curve is the change in

The **Law of Demand** is the economic principle that says that

How do we test this theory?

We collect data by asking questions like: How many Big Macs will you buy per week when the price is  $P = \$10.10$ ? How many Big Macs will you buy per week when the price is  $P = \$0.10$ ?

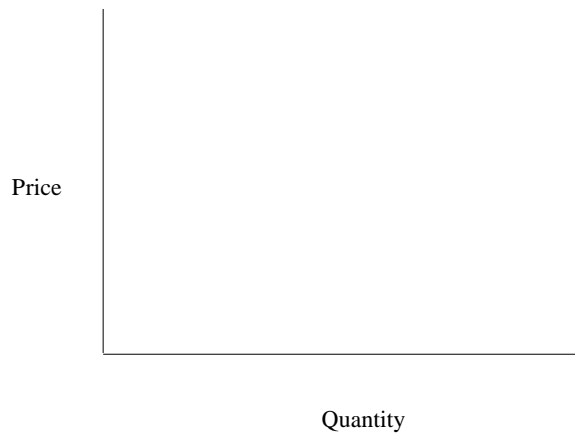
## The Demand Curve

Individual	$P_0 = 10.10$	$P_1 = 0.10$
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
Total		

## The Demand Curve

According to our data,

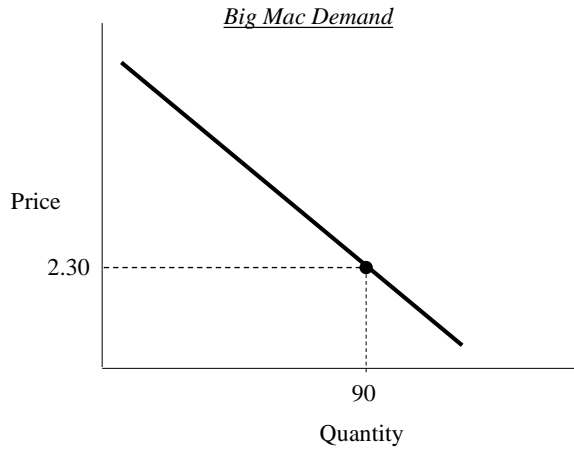
When  $P_0 = \$0.10$ ,  $Q_D = 112$



## The Demand Curve

A **shift** of a demand curve is a change in the location of the demand curve

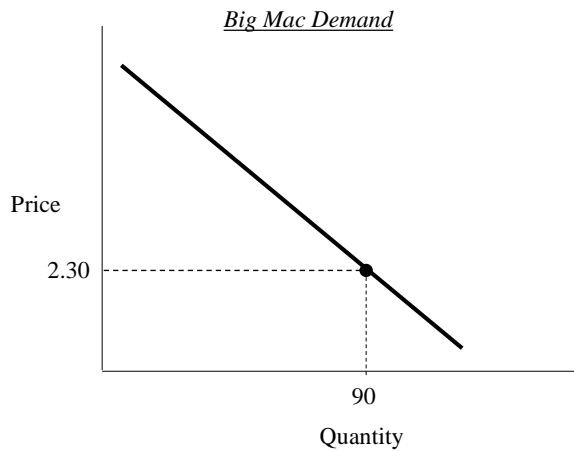
If demand of a good increases when income increases, the good is a



## The Demand Curve

A **shift** of a demand curve is a change in the location of the demand curve

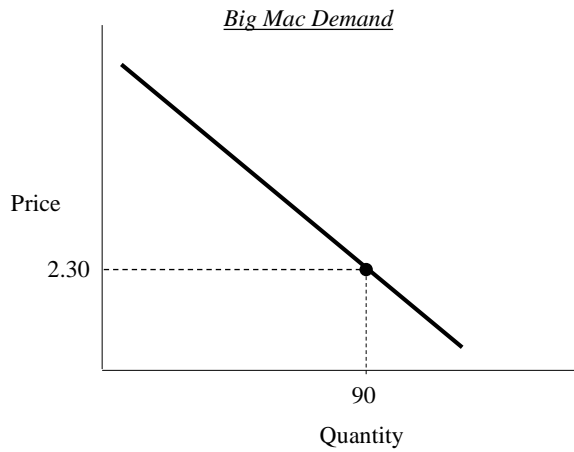
If demand of a good decreases when income increases, the good is an **inferior good**



## The Demand Curve

A **shift** of a demand curve is a change in the location of the demand curve

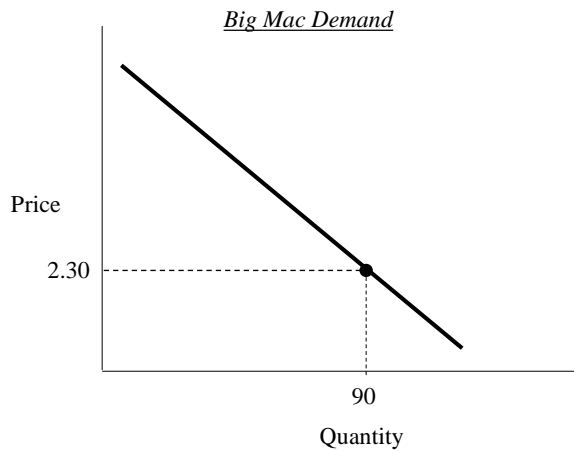
If the price of McDonald's fries falls ( $Q_D$  for fries would increase), demand for Big Macs **increases**. Big Macs and fries are **complements**.



## The Demand Curve

A **shift** of a demand curve is a change in the location of the demand curve

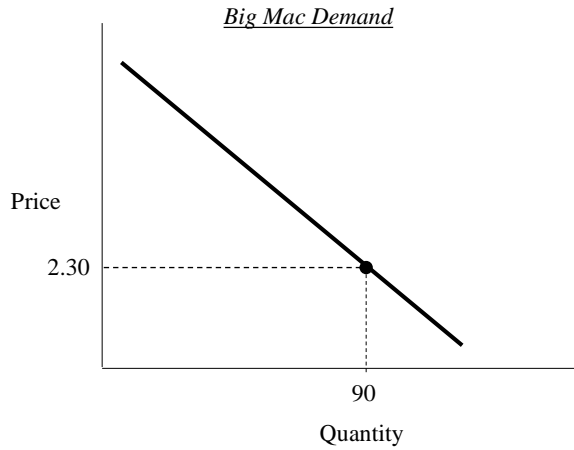
If the price of Burger King Whoppers falls ( $Q_D$  for Whoppers increases), demand for Big Macs **decreases**. Big Macs and Whoppers are **substitutes**.



## The Demand Curve

A **shift** of a demand curve is a change in the location of the demand curve

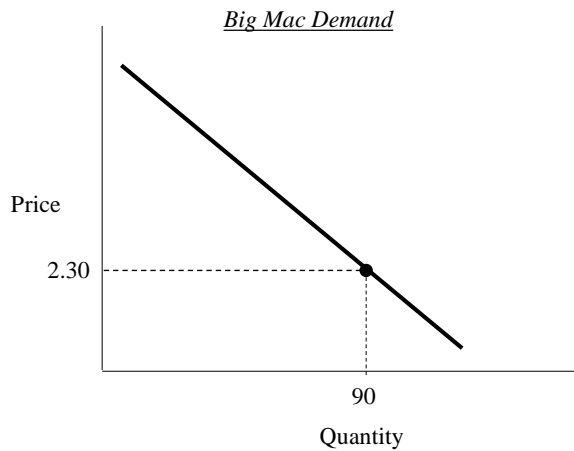
**Taste/preference shifts:** The low carbohydrate diet craze might have changed how people felt about eating foods high in carbohydrates and calories.



## The Demand Curve

A **shift** of a demand curve is a change in the location of the demand curve

If the population **increases**, demand for Big Macs might **increase** as well.



## The Supply Curve

A **Supply Curve** (or simply supply) shows the quantity of a good that

**Quantity Supplied** ( $Q_s$ ) is the amount of a particular type of good firms will

A **movement along** a supply curve is the change in quantity supplied that

The **Law of Supply** is the economic principle that says that the higher

We test this theory by asking questions.

You have an old oil well in Mississippi which produces 10,000 barrels per year. There are 9 other people in the area that have identical oil wells. How many barrels of oil will you pump out of the ground if the crude oil price is  $P = \$15$ ? How many barrels of oil will you pump out of the ground if the crude oil price is  $P = \$115$ ?

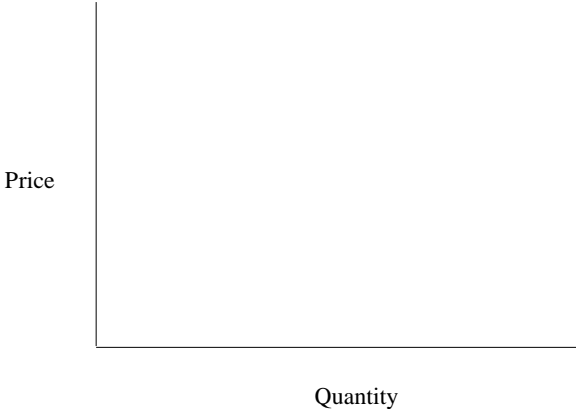
## The Supply Curve

Individual	$P = 15$	$P = 115$
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
Total		

# The Supply Curve

According to our data,

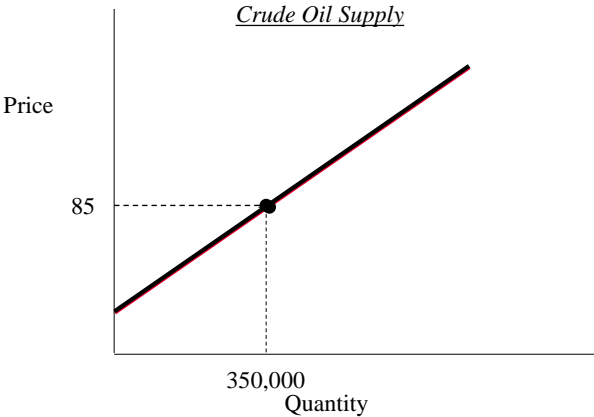
$$\text{When } P = \$15, Q_S = 0$$



# The Supply Curve

A **shift** in supply is a change in the location of the supply curve

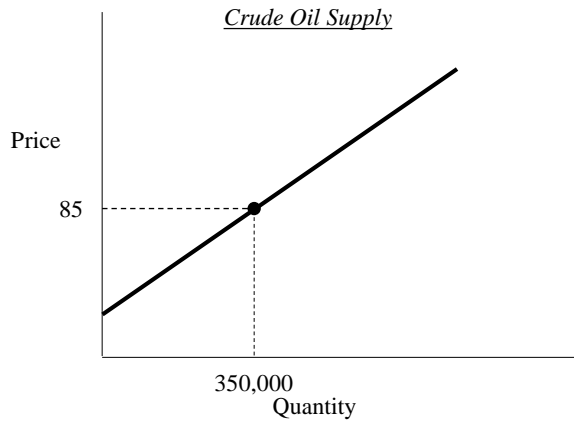
If the price of related good (natural gas) **falls** ( $Q_S$  of natural gas falls), supply of crude oil **increases**.



## The Supply Curve

A **shift** in supply is a change in the location of the supply curve

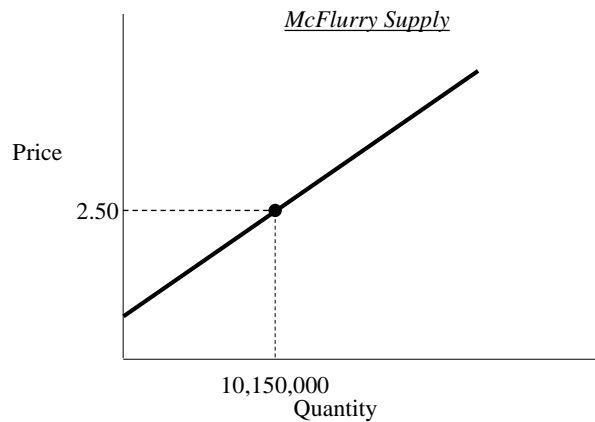
If the price of an input to production (workers' wages) **falls**, supply of crude oil **increases**.



## The Supply Curve

A **shift** in supply is a change in the location of the supply curve

If technology **improves** (McFlurry Spoon/stirrer), McFlurry supply **increases**.

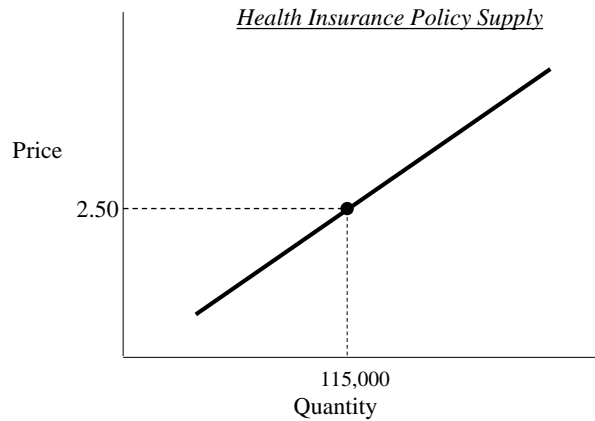




## The Supply Curve

A **shift** in supply is a change in the location of the supply curve

If government intervenes by **mandating** health insurance companies to cover preexisting conditions, the supply of health insurance policies will **decrease**.



## Law of Supply and Demand

The **Law of Supply and Demand** states that in a free market the forces of supply and demand generally push the price toward the level at which quantity supplied ( $Q_S$ ) equals quantity demanded ( $Q_D$ ).

Use the following model to explain why the price of gasoline is so high.

Assume the daily demand and supply for gasoline is given by

$$P = 7.35 - 0.0125Q_D$$

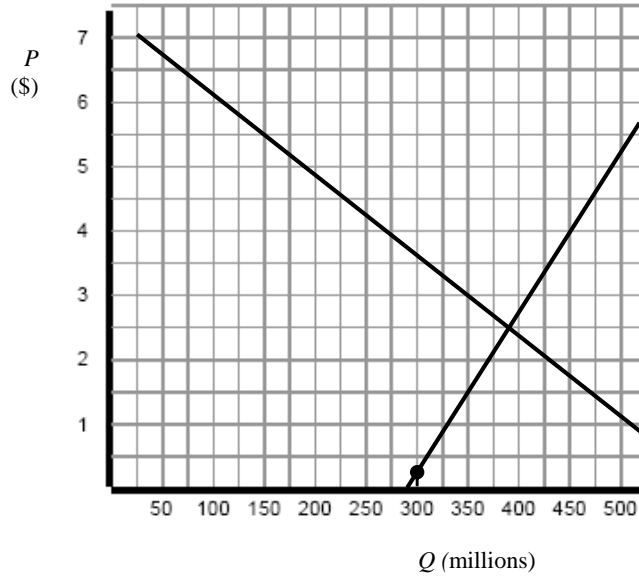
$$P = -7.2 + 0.025Q_S$$

$Q_D$ (millions)	P (\$)
100	
500	

$Q_S$ (millions)	P (\$)
300	
500	

## Law of Supply and Demand

Gasoline Market

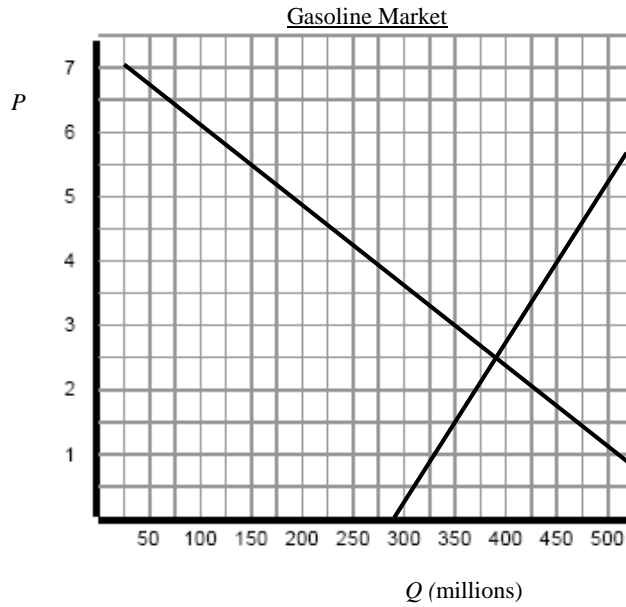


## Law of Supply and Demand

Compute the equilibrium price and quantity of gasoline

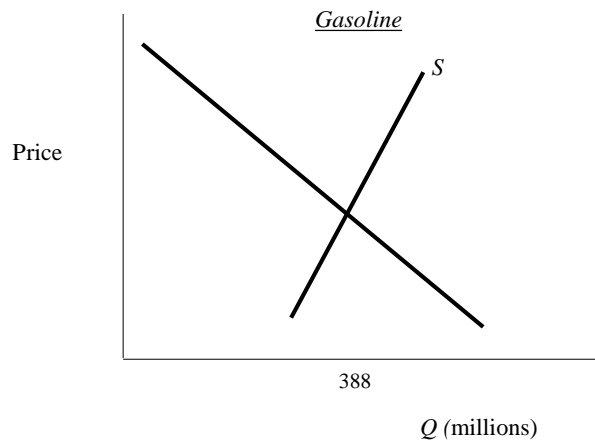


## Law of Supply and Demand



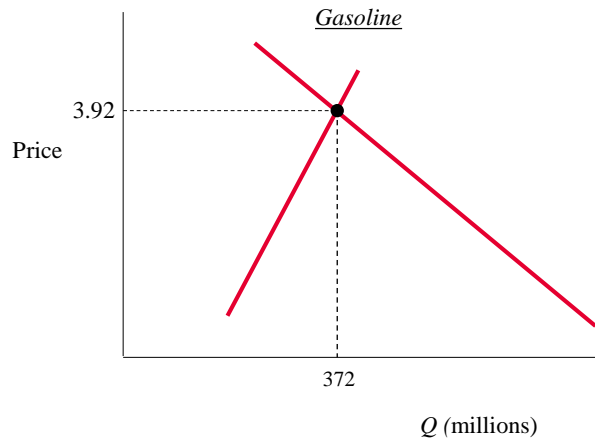
## Law of Supply and Demand

Use supply and demand analysis to explain why gas prices jumped after Hurricane Katrina. How does a spike in gasoline prices encourage Americans to conserve gasoline during after natural disasters such as Katrina?



## Law of Supply and Demand

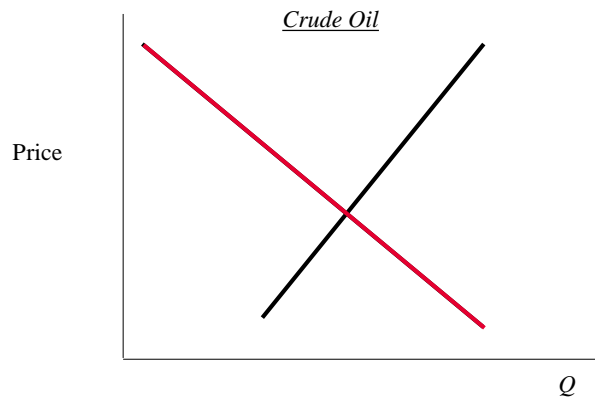
Using supply and demand analysis, explain why the government should or should not intervene and impose a price ceiling on gasoline after natural disasters such as Katrina.



## Law of Supply and Demand

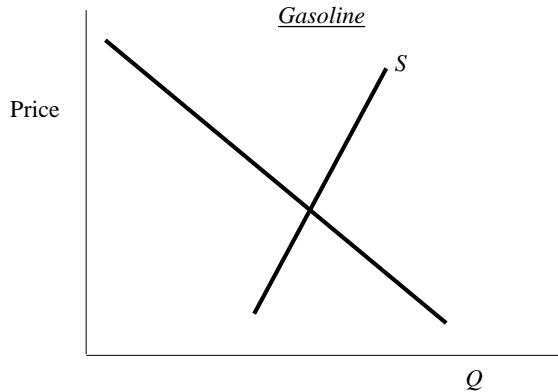
Using supply and demand analysis, explain how does the **Strategic Petroleum Reserve** (SPR) contribute to higher gasoline prices.

*The **SPC** (underground salt caverns in TX, LA and MS) is the D of E's emergency supply of oil, holding up to 727,000,000 barrels of crude oil (a 60-day supply).*



## Law of Supply and Demand

Using supply and demand analysis, explain how does the **Strategic Petroleum Reserve (SPR)** contribute to higher gasoline prices.



## Law of Supply and Demand

### Gasoline Facts

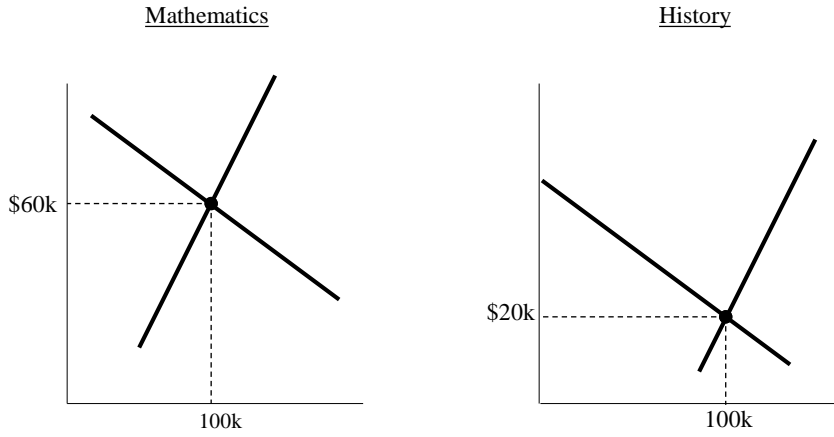
- In 2005, the U.S. imported 3,695,971,000 barrels of crude oil.
- Refineries convert crude oil into gasoline, diesel fuel, asphalt base, heating oil, kerosene. The U.S. has not built a new refinery since 1976.
- Gasoline tax in NC amounts to 48.6 cents per gallon, while in NY it amounts to 60.1 cents. 20 gallons of gas/week over 52 weeks means you pay \$505.44 in gasoline taxes each year in North Carolina versus \$625.04 in New York.
- The U.S. economy consumes about 388,000,000 gallons per day.
  - Or 150,544,000,000 gallons per year
  - US consumers paid \$27.1 billion in Federal gasoline taxes last year at the pump.
- Exxon Mobile's 2007 pre-tax profit was about \$70 billion, assuming a 35 percent tax rate, Exxon Mobil's federal income tax bill was

$$(\$70)(0.35) \text{ billion} = \$31.85 \text{ billion}$$

*This is about 10% of all corporate income taxes collected by the federal government.*

# Law of Supply and Demand

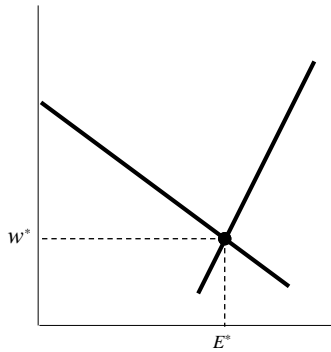
*Why is there a shortage of math teachers?*



# Law of Supply and Demand

*How does increasing the minimum wage affect workers and firms?*

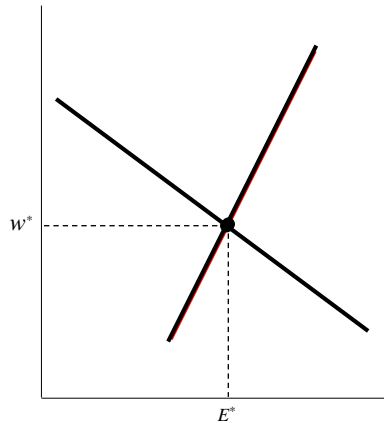
Low skilled labor market



## Law of Supply and Demand

*Is there a cost to immigration?*

Low skilled labor market



## Law of Supply and Demand

*Is LeBron James over paid?*

There are 41 Cleveland home games a season and the stadium the team plays in seats about 20,000 fans.

Before LeBron Cleveland averaged 12,000 fans per game at an average ticket price of about \$40 per ticket.

After LeBron the team nearly sold out every game at an average ticket price of \$41 per ticket.

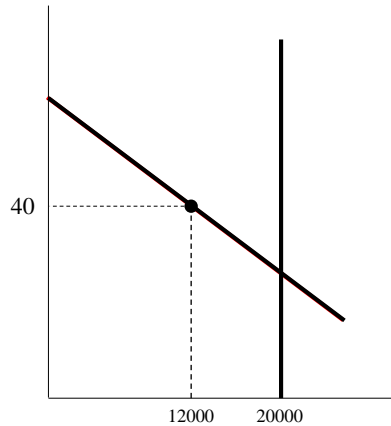
Suppose this increase in fan interest is attributable entirely to LeBron (8,000 additional fans do not attend games to see the new white guy sitting at the end of the bench).

Demand for Cavalier home basketball games jumps from  $D_{BL}$  to  $D_{AL}$  as a result of adding LeBron to their roster.

## Law of Supply and Demand

*Is LeBron James over paid?*

Low skilled labor market



## Law of Supply and Demand

*Is LeBron James over paid?*

Total revenue for all 41 home games:

$$TR_{BL}$$

$$TR_{AL}$$

Marginal Revenue of adding LeBron (*MR*):

$$\frac{\Delta TR}{\Delta LeBron} =$$

Adding one LeBron increases

Cleveland would love to continue



## Law of Supply and Demand

### *Is Lebron James over paid?*

How many additional fans would come to Cleveland home games to watch me sit at the end of the bench?

*Maybe* my mom, wife and grandmother. This increase in the quantity demand is so small that it would have no effect on the price of a ticket.

$$TR_{BH}$$

$$TR_{AH}$$

Marginal Revenue of adding me (*MR*):

$$\frac{\Delta TR}{\Delta Hal} =$$

Adding one Hal increases

Since  $MR < MC$  Cleveland would

## Macroeconomics Models

- Production Possibilities Frontier
- Consumption Possibilities Frontier
- Free Trade
- Aggregate Demand and Aggregate Supply (PowerPoint lecture 4)
  - **Aggregate Demand** is the relationship between the quantity of real GDP demanded and the price level when all other influences on expenditure plans remain the same
  - **Aggregate Supply** is the relationship between the quantity of real GDP supplied and *PL* when all other influences on production plans remain the same
  - AS and AD determine equilibrium real GDP and the *PL*

## Production Possibilities Frontier

A Production possibilities frontier (PPF) is a depiction of all different combinations of two goods that a society can produce with fixed amount of resources and the best available technology.

The PPF models scarcity and choice.

The PPF models **opportunity cost** (OC). OC of using a resource in a particular way is the value of the resource in its best alternative use

Assumptions

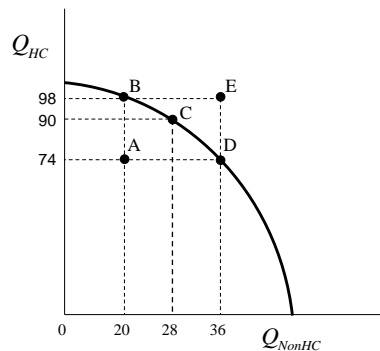
- only produce two goods
- use best available technology
- use all available resources

The PPF puts 3 features of production possibilities in sharp focus:

- Attainable and unattainable combinations
- Efficient and inefficient production
- Tradeoffs and free lunches

## Production Possibilities Frontier

The President's health care proposal



Is point A efficient? Is point A attainable?

Is point B efficient? Is point B attainable?

What is the opportunity cost (OC) of moving from D to C?

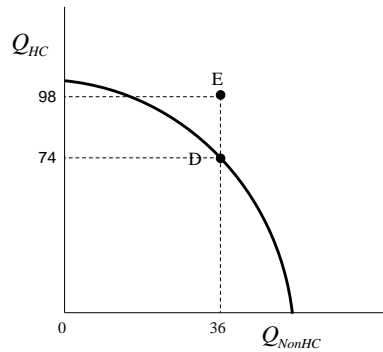
What is the opportunity cost (OC) of moving from C to B?

Why does the OC of health care increase as we move up along the PPF to the left?

Is point E attainable?

## Production Possibilities Frontier

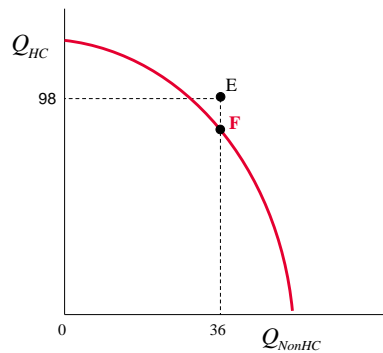
Technological advancements lead to economic growth



Suppose we are at point D. What happens if we invent a new medical technique?

## Production Possibilities Frontier

Natural resource discoveries lead to economic growth



Suppose we are at point F. What happens if we discover 1.2 trillion barrels of natural gas?

## Consumption Possibilities Frontier

A Consumption Possibilities Frontier (CPF) is a depiction of all different combinations of two goods that a society can **afford** with a fixed set of prices.

CPF is simply the **budget line** for the entire economy.

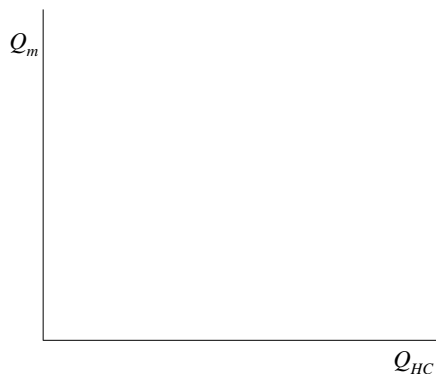
All of the combinations of two goods that can be consumed from a given fixed budget when the prices are known.

**EXAMPLE:** Suppose the government budgets  $B = \$24,000$  per citizen for health care and military protection. Assume the price of military services is  $P_m = \$120$  per citizen while the price of health care is  $P_{HC} = \$100$  per citizen.

$$P_m \times Q_m + P_{HC} \times Q_{HC} = B$$

## Consumption Possibilities Frontier

Graph the CPF       $120(0) + 100 Q_{HC} = 24000$



Plot a point that indicates the government is running a budget deficit.  
 Plot a point that indicates the government is running a budget surplus.  
 What is the OC of moving from A to B?

# Macroeconomics Models

## Free Trade Model

The PPF can be used to model the benefits of free trade.

**Absolute advantage** is a situation in which one country is more productive than another country in the production of both goods.

**Comparative advantage** is the ability of a country to produce a good or service at a lower OC than other countries.

**EXAMPLE:** Let  $C$  denote packs of cigarettes produced. Let  $T$  denote the units of textiles produced. Indonesia devotes all of its resources according to

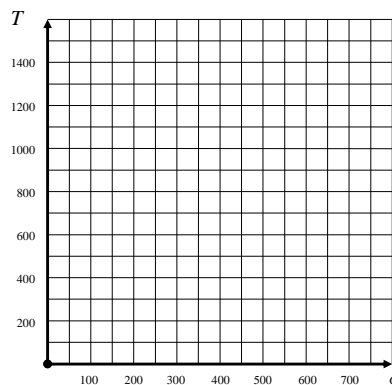
$$T = 1200 - 4C$$

North Carolina devotes all of its resources according to

$$T = 1000 - 2C$$

## Free Trade Model

Graph the two PPFs in the same diagram.



Indonesia

$$T = 1200 - 4C$$

$C$	$T$
0	
	0

North Carolina

$$T = 1000 - 2C$$

$C$	$T$
0	
	0

## Free Trade Model

Which country has the absolute advantage in textile production?

Which country has the absolute advantage in cigarette production?

Which country has the comparative advantage in cigarette production?

Which country has the comparative advantage in cigarette production?

Suppose NC and Indonesia are the only producers of cigarettes and textiles, *trade barriers exist*, and both countries *devote half* their respective resources to producing both goods.

Suppose NC and Indonesia pass a Free Trade Agreement, what will NC produce? What will Indonesia produce? Why is free trade good? Why is free trade bad?