

Economics

Fundamentals and the Economics of WWII



DEMIDEC POWERPOINT LECTURE 2016



Scarcity

Pareto Efficient

Demand

Rationality

Models

Trade-Offs

Micro

HOW TO USE THIS POWERPOINT LECTURE
1. View it as a presentation. Warning: if you read it as a PDF, or in "normal view" in PowerPoint, animations won't make sense and images and text will pile on top of other images and text.
2. Be sure to consult the notes with each page for more information.
3. The linked videos are non-essential, but can enhance your experience.

Supply

Gains from Trade

Opportunity Cost

Macro

I: Economics Fundamentals



Important Question:

What is Economics?

Economics is the study of **choices**.



Grocery Store

Adam Smith

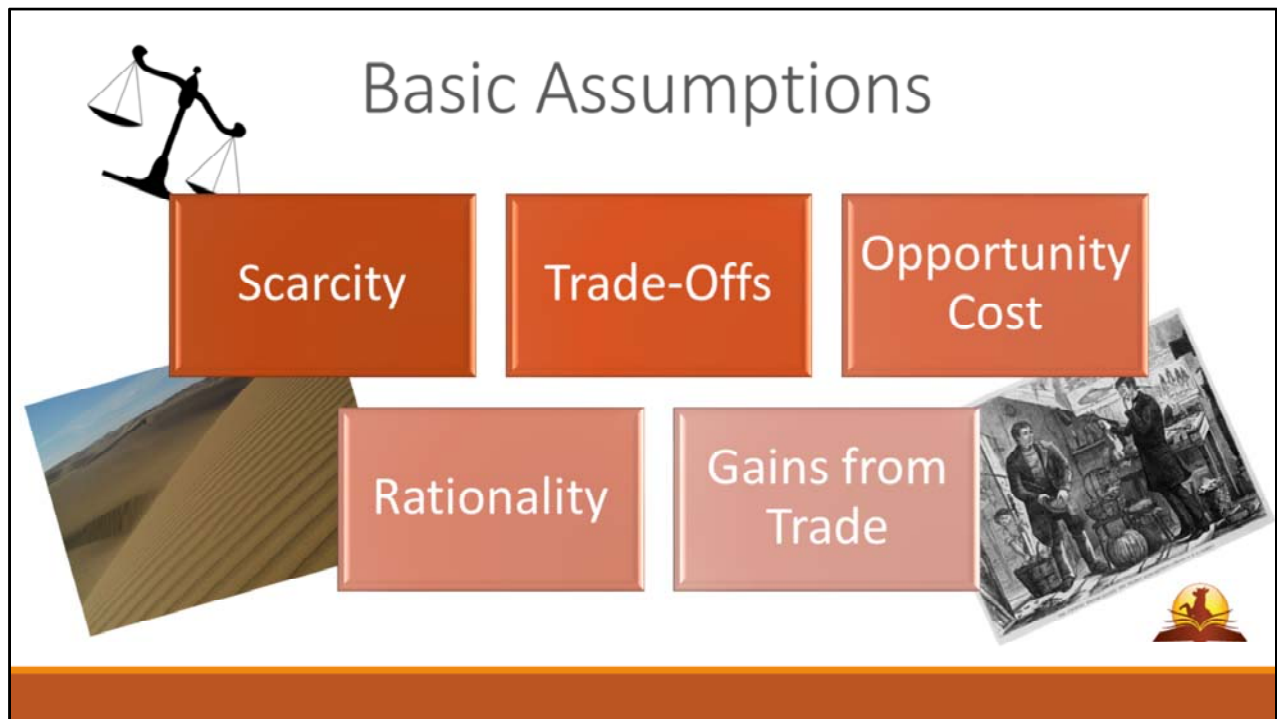


“It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from **their regard for their own interest**. We address ourselves not to their humanity but to their self-love, and **never talk to them of our own necessities but of their advantages.**”



Notes for presenter:

- Each item in a grocery store is there as a result of the choices of many people. According to economist Adam Smith, our economy functions because people make choices for their own self-interest. Economists study how this works and so will we.



- Scarcity: resources (e.g. time, gasoline, food, water) are **limited** but human wants are **unlimited**, which leads to scarcity of wanted resources.
- Trade-Offs: because of scarcity, every choice we make is a trade-off—we always have to give up something to get something else, even if it appears to be “free” (for instance, if I give you a “free” movie ticket you will still have to **spend your time** watching the “free” movie, hence TANSTAAFL—There Ain’t No Such Thing As A Free Lunch)
- Opportunity Cost: what you give up in a trade-off (for instance, instead of watching that “free” movie you could have spent your time studying for AcaDec! The extra knowledge (and points?) you could have gained is your opportunity cost)
- Rationality: when making choices in a trade-off, economists assume people always make the rational choice by using a cost-benefit analysis
- Gains from Trade: specialization—each person doing what they’re best at—is beneficial for all. This will be discussed later.

One Allocation to Rule Them All

Pareto Efficiency:

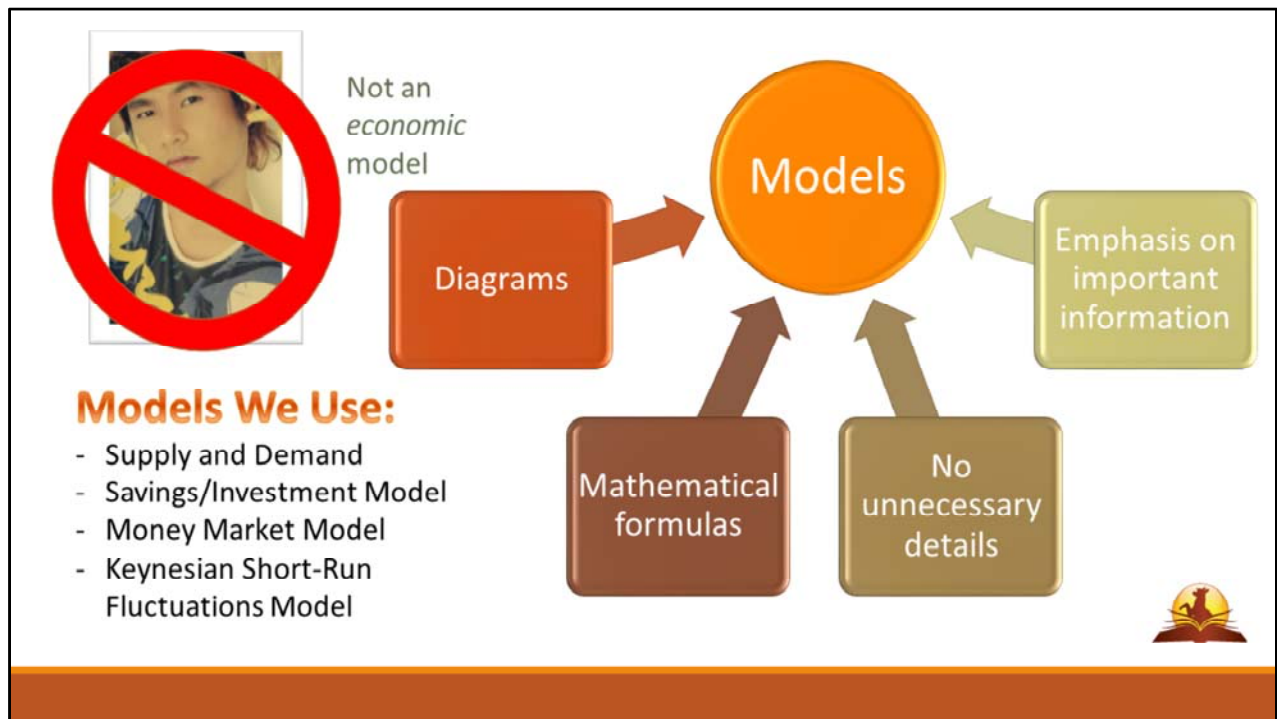
no way to improve one person's well-being without decreasing another person's well-being



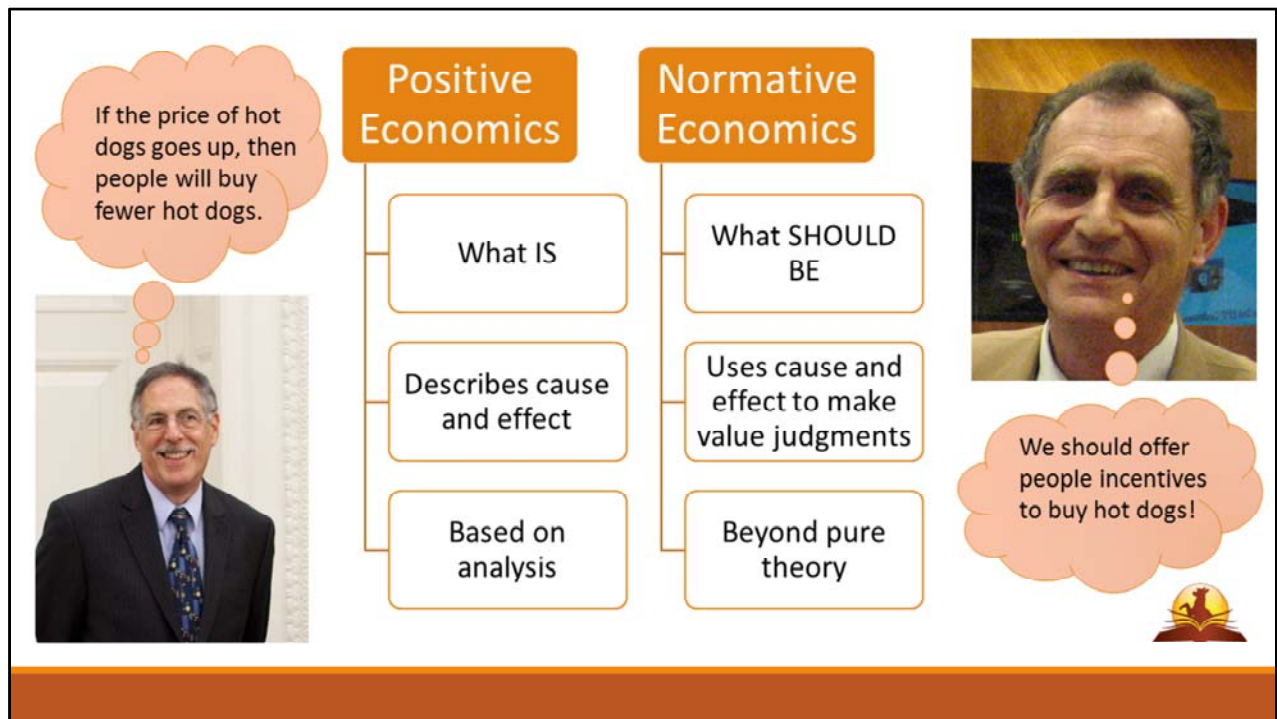
Total: 20 rings of power	Sauron	Elves	Dwarves	Kings of Men
Pareto Efficient	1 rings	3 rings	7 rings	9 rings
Pareto Efficient	20 rings	0 rings	0 rings	0 rings
NOT Pareto Efficient	1 ring	1 ring	1 ring	1 ring



- Economists are especially interested in studying when and how a situation can achieve efficiency.
- Efficiency is mostly concerned with allocation: allocation of resources to create products and allocation of products to people.
- An allocation is efficient if there's no way to improve someone's well-being without taking away from someone else's well-being (this specific situation is called **Pareto Efficiency**).
- Note that even if the allocation is unbalanced (e.g. someone possesses more than his "fair share" of goods) it is still considered Pareto Efficient as long as **all the goods** have been allocated.



- Economists express and test their theories using models.
- Models are useful because of their **simplicity**. They emphasize important information by removing unnecessary details. This why people sometimes view them as over-simplified and unrealistic.
- Models can be diagrams (such as the macroeconomic circular flow model) or mathematical formulas (such as $PV=MY$, another macroeconomic model or the supply and demand functions (which are graphed as curves)). These examples will be discussed later.



- Positive economics uses economic theory to determine cause-and-effect relationships. For instance: “If the price of hot dogs goes up, then people will buy fewer hot dogs” would be a positive statement since it is based on pure analysis, **not** value judgments.
- Normative economics **adds value judgments** to the cause-and-effect statements of positive economics. For instance: “Since if the price of hot dogs goes up, then people will buy fewer hot dogs, and people need hot dogs, then we should not raise the price of hot dogs,” would be a normative statement since it chooses a particular outcome. This choice is often not based in pure economic theory and can draw from the fields of ethics, psychology, and so on.

Micro versus Macro

MICROECONOMICS

Studies individual behavior and markets

Examples of tasks:

- analyze a change's effect on the buyers and sellers of Coca Cola
- determine how a firm could change its behavior to increase profits

Examples of models:

- supply and demand curve
- marginal cost and marginal revenue curves

MACROECONOMICS

Studies overall performance of national economies

Examples of tasks:

- calculate US unemployment
- calculate Nigerian GDP
- track course of French inflation

Examples of models:

- aggregate demand and aggregate supply curves
- money market graph
- financial market graph



All the example models will be discussed in future slides.



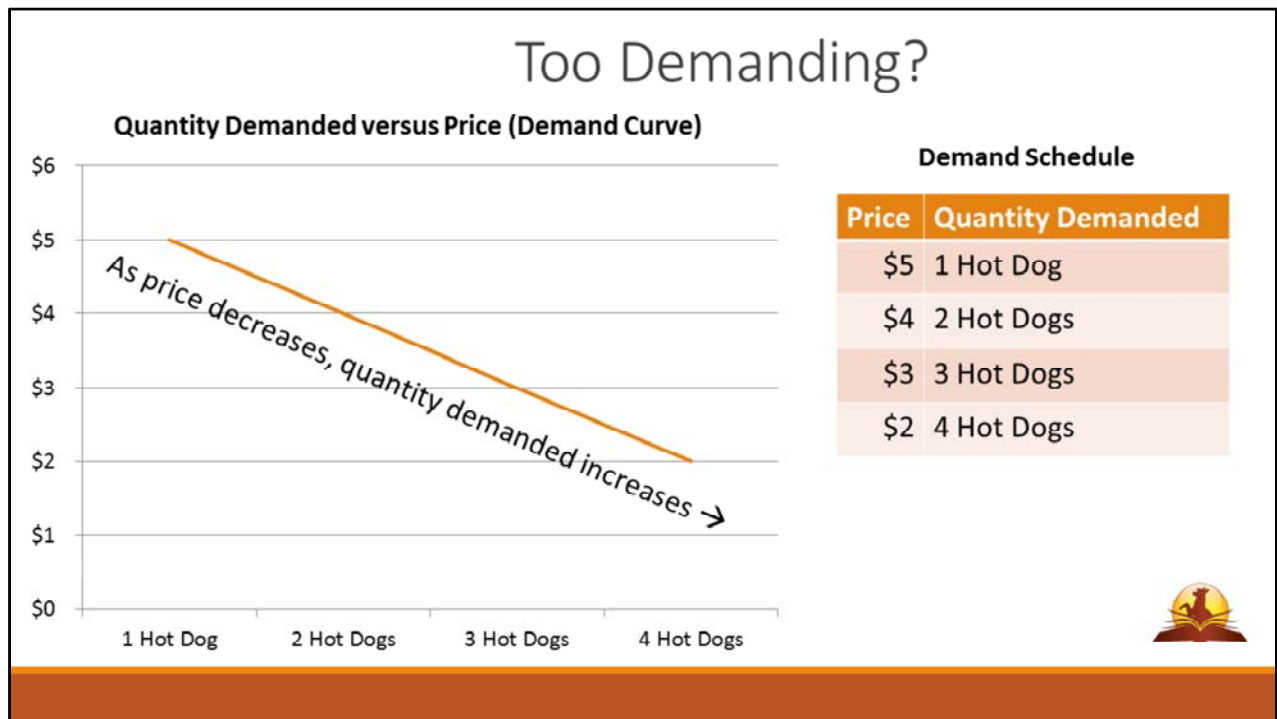
- Microeconomics deals with the behavior of individual economic actors (firms, people, etc.) and how they interact with each other in a **market**.

To Market, To Market



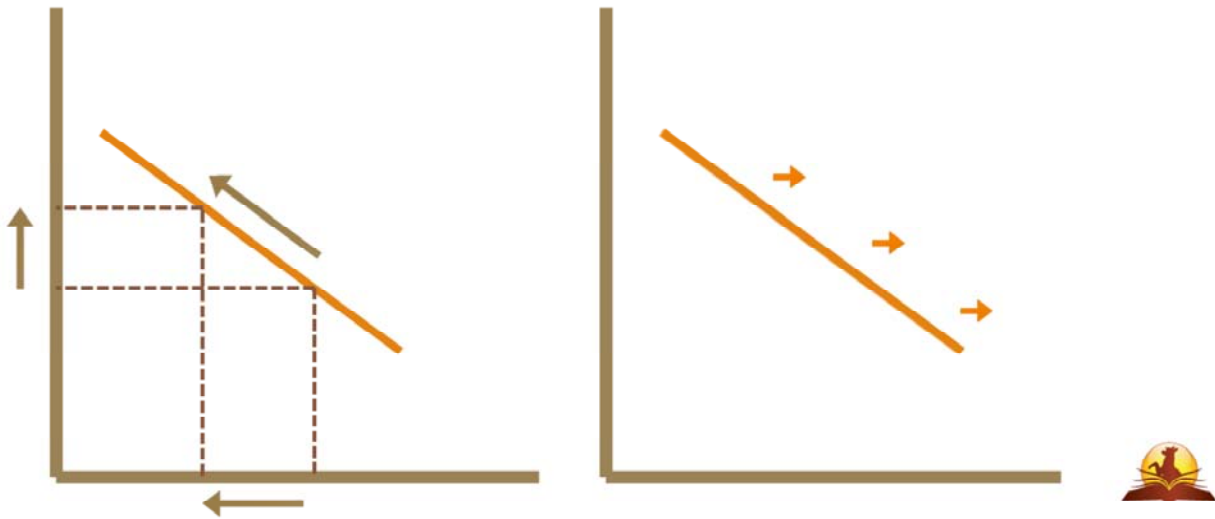
- Market: all buyers and sellers of a particular good/service.
- Markets can be formal or informal.
- In a formal market, all the buyers and sellers gather in one place and someone (called an auctioneer) helps set the price. Examples: NY Stock Exchange, antiques auction
- In an informal market, the buyers and sellers are spread out and no one specific person helps set the price. Examples: gasoline market, flour market

Too Demanding?



- Market quantity demanded is the sum of each individual's quantity demanded, or how much each individual is willing and able to purchase of a specific good (in this case, hot dogs).
- Quantity demanded of a good is determined by a number of factors: price, income, prices of related goods, future expectations, number of buyers, etc.
- Since price is one (or possibly the most) important factor, we graph the market quantity demanded of a good against the price of the good, **holding all other factors constant**, to get the demand curve. A demand schedule is the demand curve in chart form. Both the graph and chart show how much of the good buyers are willing and able to buy at a specific price (note that this price is the unit cost: e.g. the point 2 Hot Dogs, \$4 means that the consumer will buy 2 hot dogs at \$4 each).
- Notice that the demand curve is downward sloping. As the price rises, our opportunity cost grows (for instance, as the price of hot dogs rises, we have to reduce the amount of other goods we buy in order to buy another hot dog) and thus we buy less of the good. This is called the **Law of Demand**.

Change in Quantity Demanded vs. Shift in Demand



- Since quantity demanded is based on a number of factors and the demand curve is the quantity demanded against the price holding all **other factors** constant, a change in any of these **other** factors would lead to a shift in the demand curve—a change in the quantity demanded at any price. (Note that **a change in price would simply lead to a change in quantity demanded**. Since this information is already included in the demand curve, this is a simple movement along the demand curve, whereas a change in any other factor will lead to a shift in the entire demand curve.
- Since the demand curve is a function of price, shifts in demand are shifts right or left, also termed outward or inward. There is never a shift up or down.

Vocabulary on Demand

Causes of Demand Shifts: Terms to Know

Complements

Goods you buy with each other, such as hay and an alpaca

Substitutes

Goods you substitute for other goods, such as a pet alpaca instead of a pet llama

Normal Goods

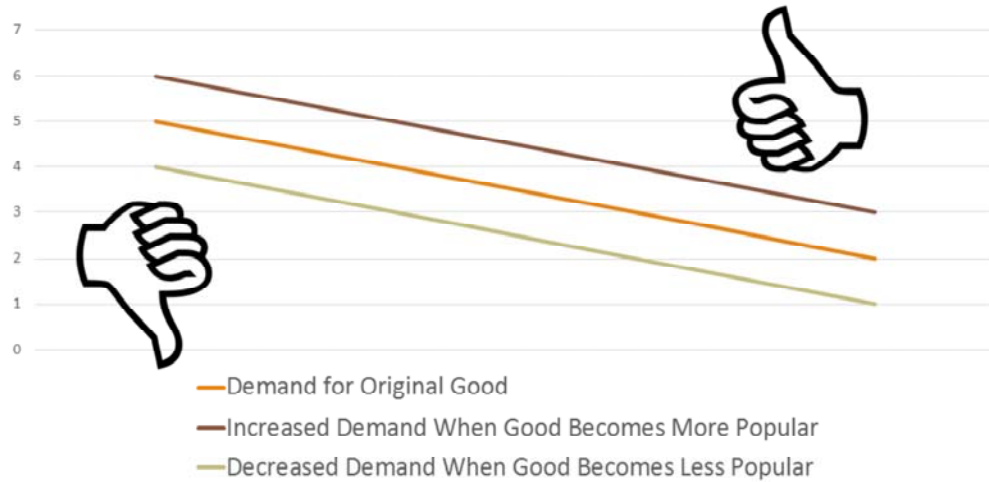
Goods you buy when you have more money to spend, such as an enormous plush alpaca

Inferior Goods

Goods you buy when you want to save money, such as a plastic alpaca toy from a vending machine

- There are many possible causes for shifts in the demand curve. The causes described on the next few slides are some of those most commonly studied by economists.

No Accounting for Taste?



- Perceptions of the good can change demand.
- For instance, if hot dogs suddenly become disgusting to everyone, demand will decrease at any price (as shown in the graph).
- If hot dogs grow in popularity (e.g. through new advertising strategies), demand will increase at any price (as shown in the graph).

Incoming!



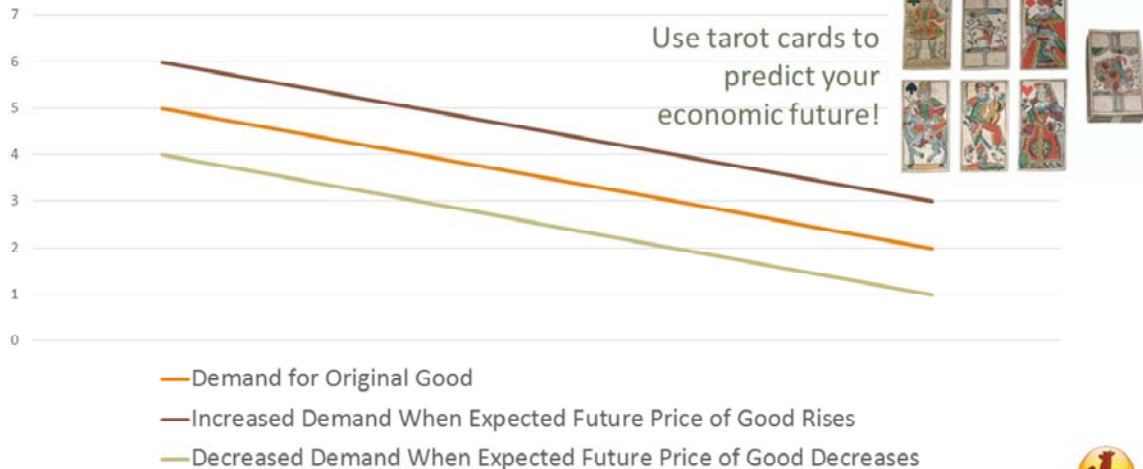
- Normal good: when income increases, demand increases, as shown in the graph (the opposite happens when income decreases)
 - Example: luxury items. When my income increases, I'm more likely to buy an iPad.
- Inferior good: when income increases, demand decreases, also shown in the graph (the opposite happens when income decreases)
 - Example: bus tickets. When my income decreases, I'm more likely to take public transportation.

“Neither can live while the other survives”: Related Goods



- Related Goods include both Substitutes and Complements.
- When the price of a substitute goes down, the demand for the original good decreases (as shown in the graph) and vice versa.
 - For instance, hamburgers can be considered a substitute for hot dogs. If the price of hamburgers decreases, I would buy more hamburgers and fewer hot dogs so my demand for hot dogs would decrease.
- When the price of a complement goes down, the demand for the original good increases (as shown in the graph) and vice versa.
 - For instance, mustard can be considered a complement to hot dogs. If the price of mustard decreases, I would buy more mustard and, to accompany it, more hot dogs, so my demand for hot dogs would increase.

Expectations (vs. Reality)



- Predictions of what will happen in the future can also affect demand.
- For instance, if I expect the price of hot dogs to go up in the future, I will buy more hot dogs now and my current demand will increase (as the graph shows).
- Conversely, if I expect the price of hot dogs to go down in the future, I will wait until then to buy hot dogs and my current demand will decrease (as the graph shows).
- Other types of predictions that are not so straightforward can also affect expectations. For instance, if I expect my income to increase in the future, I might start buying more hot dogs.

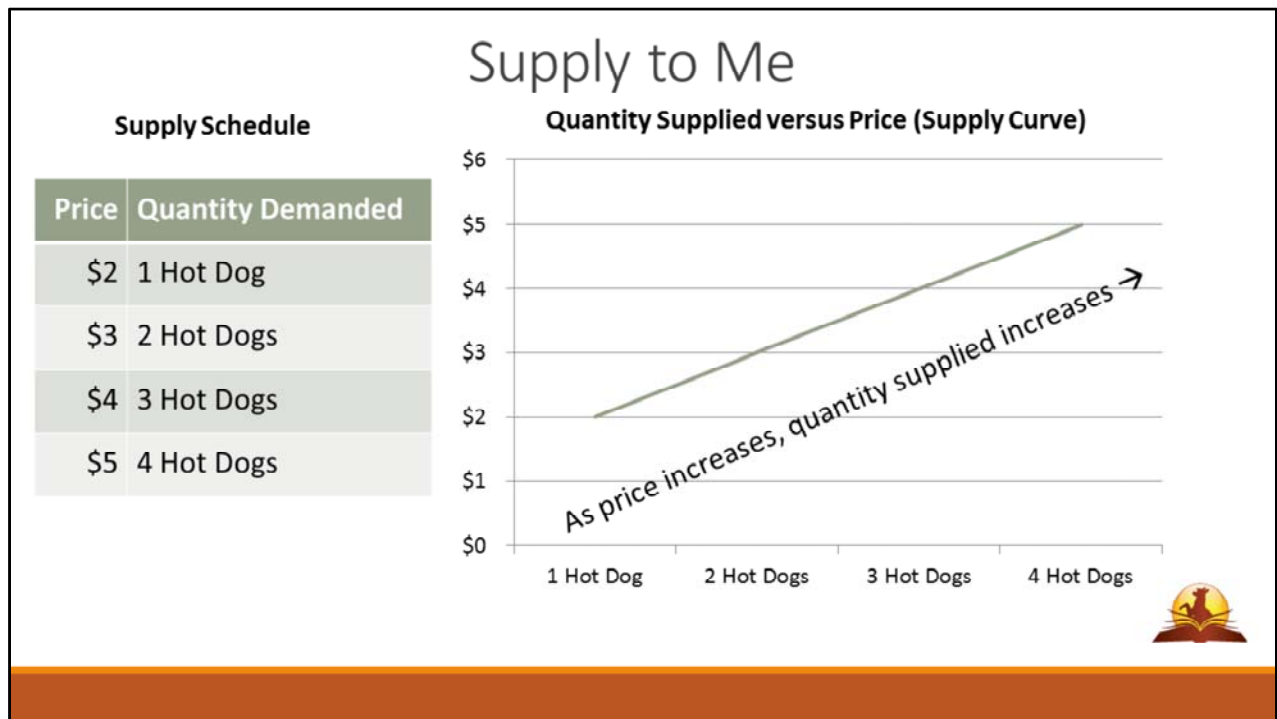
Causes of Demand Shifts: Number of Buyers



*Assuming the Starks and the Lannisters are the only buyers in the market (or the only players in the game of thrones)

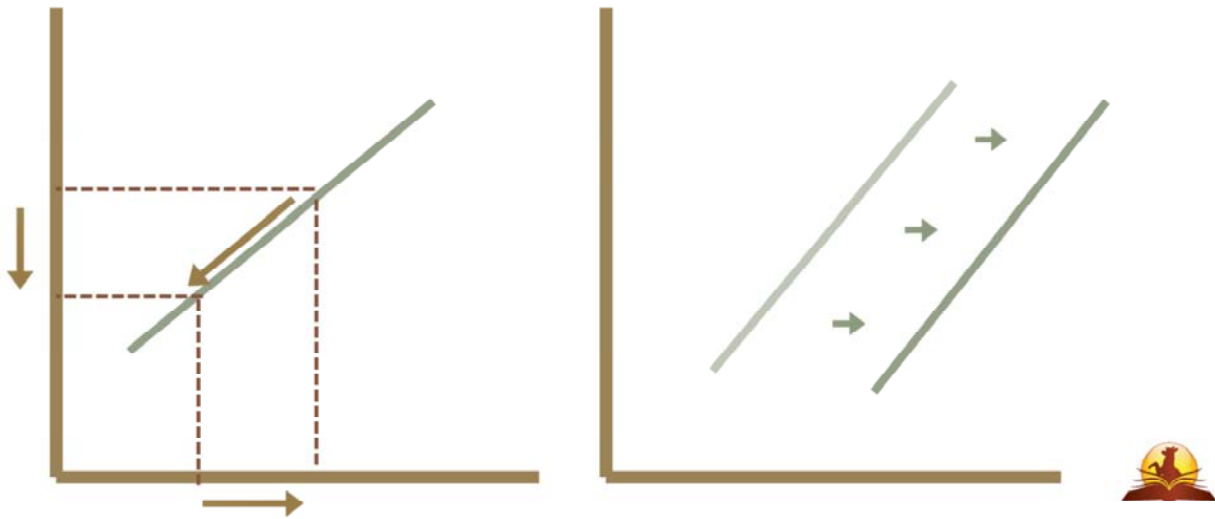
More buyers → **More demand** 

- Number of Buyers: since market demand is the sum of each buyer's demand, the more buyers there are, the more demand there is.
 - For instance, if population grows, the demand curve for hot dogs will shift outward, all other factors held constant (as shown in the graph).
 - If the population falls, the demand curve for hot dogs will shift inward, all other factors held constant (as shown in the graph).
- Note that most of the causes of shifts in demand are logical! Just think about what would normally happen in that situation and you're usually on the right track.



- Market quantity supplied is the sum of each individual's quantity supplied: how much each individual is willing and able to supply of a specific good (in this case, hot dogs).
- Quantity supplied of a good is determined by a number of factors: price, input prices, technology, expectations, number of sellers, etc.
- Since price is one (or possibly the most) important factor, we graph the market quantity supplied of a good against the price of the good, **holding all other factors constant**, to get the supply curve. A supply schedule is the supply curve in chart form. Both the graph and chart show how much of the good suppliers are willing and able to supply at a specific price (note that this price is the unit cost: e.g. the point 2 Hot Dogs, \$3 means that the supplier will provide 2 hot dogs at \$3 each).
- Notice that the supply curve is upward sloping. As the price rises, the supplier's benefit increases while the cost rises relatively more slowly (for instance, as the price of hot dogs rises, the cost of supplying more hot dogs is simply the increased cost of buying more buns and franks, whereas the cost of the grill and the time spent remain relatively constant) and thus suppliers will provide more of the good. This is called the **Law of Supply**.

Change in Quantity Supplied vs. Shift in Supply



- Since quantity supplied is based on a number of factors and the supply curve is the quantity supplied against the price holding all **other factors** constant, a change in any of these **other** factors would lead to a shift in the supply curve—a change in the quantity supplied at any price. (Note that **a change in price would simply lead to a change in quantity supplied**. Since this information is already included in the supply curve, this is a simple movement along the supply curve, whereas a change in any other factor will lead to a shift in the entire supply curve).
- Since the supply curve is a function of price, shifts in supply are shifts right or left, also termed outward or inward. There is never a shift up or down.

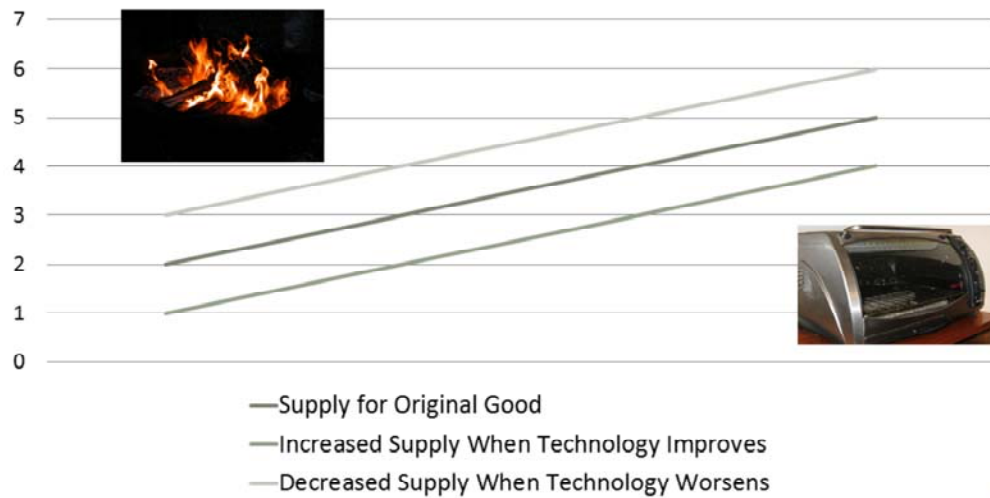
We Need Your Input

Inputs:



- Note that there are many possible causes for shifts in the supply curve. The examples on the next few slides are those most commonly studied by economists.
- Additional Note: It may look like what's labeled as "Increased Supply" is actually showing a decrease in the supply curve. However, remember that goods being supplied at a lower price is an increase in supply since when the supply curve shifts outward, each quantity supplied is now supplied at a lower price.
- An **input** is something that is needed to produce a certain good.
- When its price increases, it becomes more costly to provide the original good and suppliers supply less of the original good at any price (as shown in the graph).
- When the price of inputs decreases, it becomes less costly to provide the original good and suppliers supply more of the original good at any price (as shown in the graph).
- For instance, hot dog buns and pork are inputs for hot dogs. If the price of hot dog buns decreases, the cost to supply hot dogs decreases and therefore the supply of hot dogs increases. (NOTE: to clarify, "hot dog" refers to what you would get when you purchase a hot dog at Nathan's: a bun plus a frank).

Man vs. Machine



- New inventions that decrease the amount of time spent or otherwise increase efficiency will decrease the cost of providing a good and will therefore cause the supply of that good to increase (as shown in the graph).
- For instance, if I, a hot dog supplier, buy a hot dog toaster or a toaster oven, I will no longer have to grill hot dogs and buns myself, thus freeing up more of my time and decreasing my opportunity cost. This will decrease the cost of providing hot dogs and thus I will supply more hot dogs at any price.
- On the other hand, if technology worsens (for instance, my hot dog toaster breaks), supply of the good will decrease.



- Predictions of what will happen in the future can also affect supply.
- For instance, if I'm a supplier and I expect the price of hot dogs to go up in the future, I will sell fewer hot dogs now, conserving my resources for when prices are higher and I can make higher profits (as shown in the graph).
- Conversely, if I expect the price of hot dogs to go down in the future, I will sell more hot dogs now, trying to preserve my profits before they start selling for less (as shown in the graph).
- Less straightforward predictions can also affect expectations. For instance, if I expect pork meat to be more expensive in the future, I will sell more hot dogs now before the cost of providing them increases.

Causes of Supply Shifts: Number of Suppliers



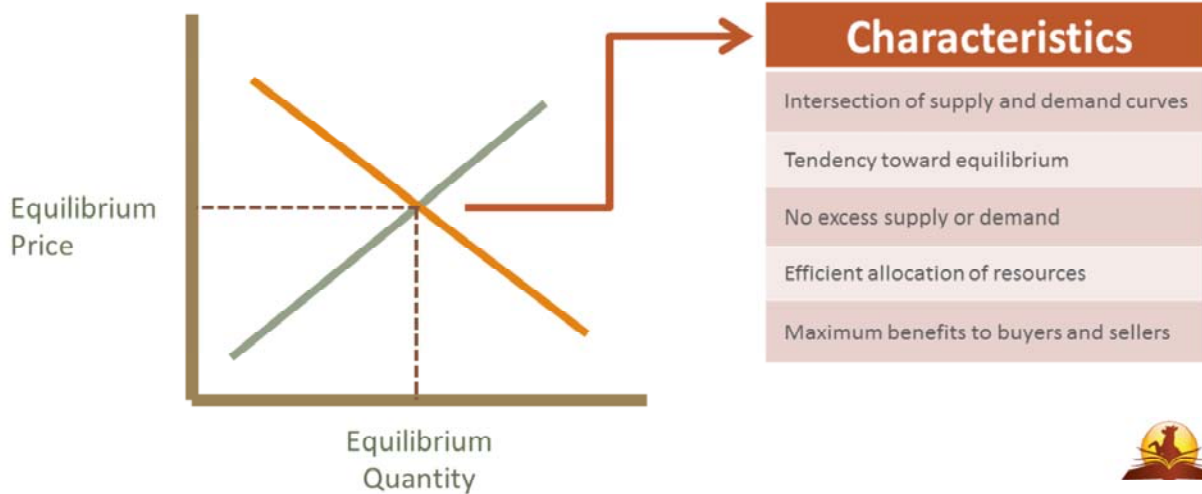
*Assuming that S.H.I.E.L.D. and Hydra are the only suppliers (or top-secret agencies) in the market

More suppliers → **More supply**



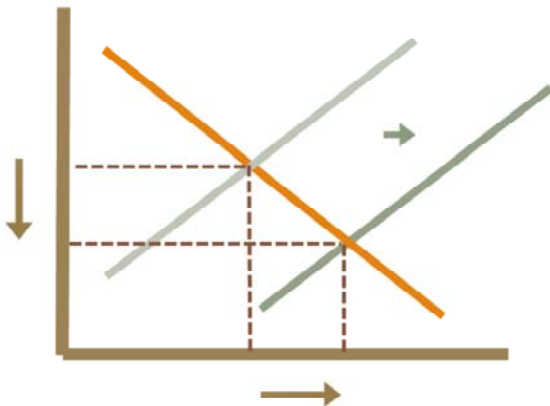
- Number of Suppliers: since market supply is the sum of each supplier's supply, the more suppliers there are, the more supply there is and the fewer suppliers there are, the less supply there is (as shown in the graph).
- For instance, if more hot dog suppliers enter the market, the supply for hot dogs will increase, all other factors held constant.

Striking a Balance



- Equilibrium occurs at the price at which the quantity demanded by buyers exactly equals the quantity supplied by sellers. This is also where the supply and demand curves intersect. At this price, buyers will buy all they want and sellers will sell all they want.
- Equilibrium has a special characteristic: the market, when no external forces are acting on it, will always tend towards equilibrium.
- For instance, if the market price is above the equilibrium price, sellers will want to sell more than equilibrium quantity, but buyers will want to buy less than equilibrium quantity. Thus, a surplus will exist. Suppliers, in order to sell off their surplus supply, will try to attract buyers by lowering the price. This will force the price down to the equilibrium price, and as the price lowers, buyers will want to buy more of the good. Eventually, the price will reach the equilibrium price where buyers will want to buy exactly as much as sellers will want to sell.
- Equilibrium also maximizes producer and consumer surplus, which will be discussed later, making it the most efficient method of allocating resources. Equilibrium is considered Pareto Efficient because there is no way to increase anyone's benefit (or surplus) without reducing someone else's benefit whereas at a point other than equilibrium there is a way to increase someone's benefit while keeping everyone else's benefit the same.

Changes in Equilibrium



Shift in one curve:

- Predictable change in eq. price
- Predictable change in eq. quantity

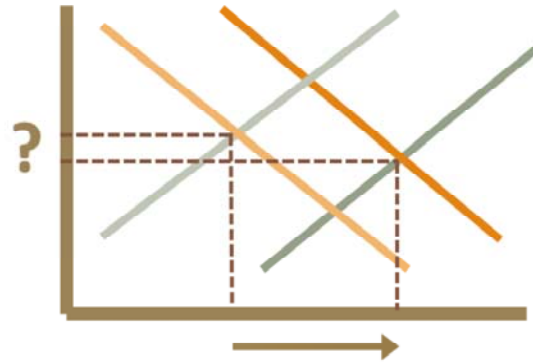


- Equilibrium can change if either the demand or supply curve shifts. This will change both equilibrium price and equilibrium quantity.
- An easy way to determine how equilibrium price and quantity change is to draw the original curves, pinpoint where the original equilibrium price and quantity values are by drawing lines to the axis, then draw the shifted curves and pinpoint where the new equilibrium price and quantity are. You can then determine if equilibrium price/quantity has increased or decreased. Try shifting the supply and demand curves in different ways! If you do this long enough, you should start to notice some patterns.
- When one curve is shifted, the equilibrium price and equilibrium quantity change in a predictable way. For instance, if the supply curve is shifted outward, as is shown on the left, equilibrium price will decrease and equilibrium quantity will increase (Notice that more stuff at a lower price sounds good! Remember that supply shifts to the right can be caused by better technology? Better technology is usually beneficial economically.)

Changes in Equilibrium

Shift in two curves:

- Predictable change in either eq. price or quantity

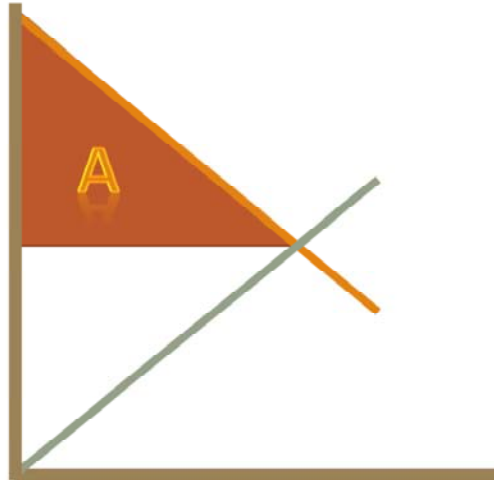


- When both curves are shifted, either the equilibrium price or the equilibrium quantity changes in a predictable way. The other variable can either increase or decrease depending on the magnitude of the shifts. For instance, if both the supply and demand curves are shifted outward, as is shown on the right, equilibrium quantity will definitely increase, but equilibrium price could either increase or decrease depending on how large the shifts are.

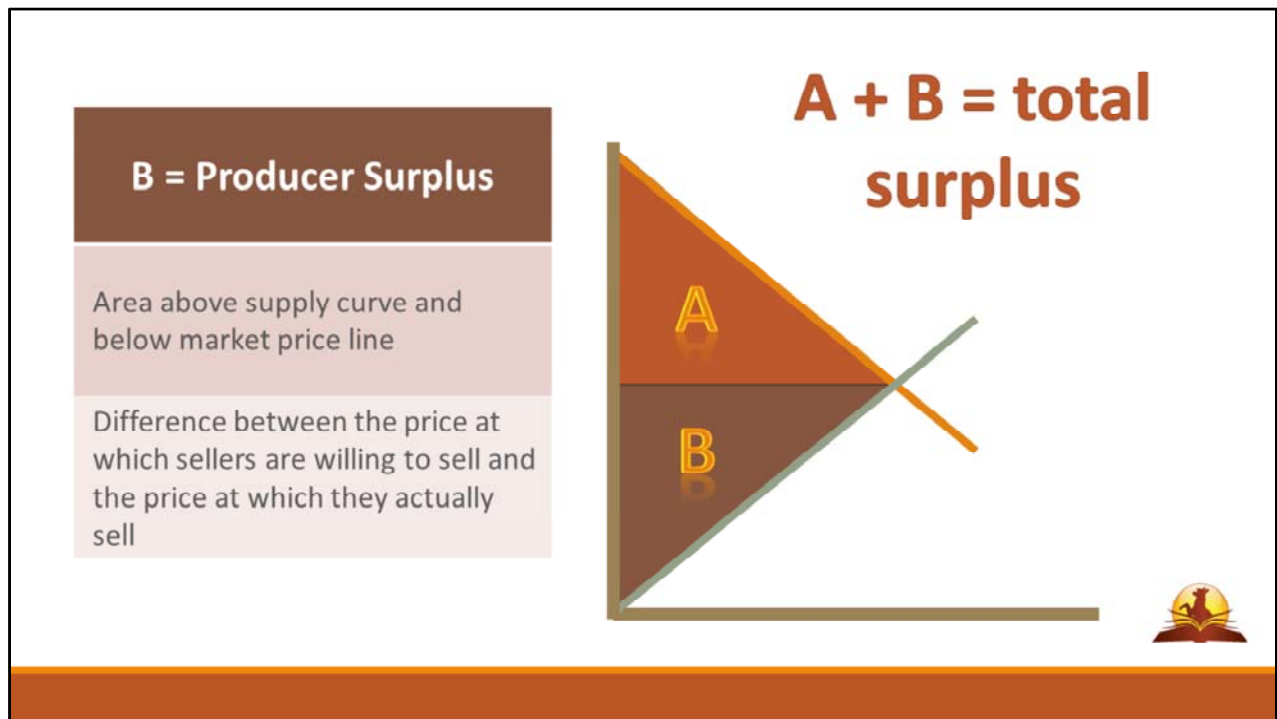
A = Consumer Surplus

Area below demand curve and above market price line

Difference between what consumers are willing to pay and what they actually pay



- Since the market demand curve is the sum of each consumer's individual demand curve, each point beneath the market demand curve represents a consumer who wishes to purchase the good at that particular price.
- An individual's consumer surplus is the difference between the market price and the price at which the individual would purchase the good. For instance, if I was willing to pay \$30 for a toaster, but the market price is \$18, my consumer surplus is \$12. There are some buyers who would want to buy the toaster at \$10. Since the market price is higher than that, they would not buy the toaster.
- The market's consumer surplus is the sum of each individual's consumer surplus.
- Similarly, since the market supply curve is the sum of each seller's individual supply curve, each point above the market supply curve represents a seller who wishes to sell the good at that particular price. An individual seller's producer surplus is the difference between the market price and the price at which the individual would sell the good. The market's producer surplus is the sum of each individual producer's surplus.
- Total surplus is consumer surplus + producer surplus.
- Actions that affect the market are usually evaluated based on how they affect total surplus.



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Elasticity measures how **sensitive** one variable is to another variable.

We can find elasticity with **percentage change**.

Question:

How do changes in price affect quantity demanded (Q_D)?

Answer:

Price elasticity of demand =
 $(\% \text{ change in } Q_D) / (\% \text{ change in price})$

Perfectly elastic	Elasticity = ∞
Elastic	Elasticity > 1
Unit elastic	Elasticity = 1
Inelastic	Elasticity < 1
Perfectly inelastic	Elasticity = 0



- In economics, it is important to understand how a change in one variable affects another variable or, in other words, how sensitive one variable is to another variable.
- Let's say we wanted to find how sensitive variable A was to variable B. Note that A and B can be any economic quantity—quantity demanded, price, income, etc. The equation used is: $\text{elasticity} = (\% \text{ change in } A) / (\% \text{ change in } B)$. We always take the absolute value so that elasticity is always positive.
- Price elasticity of demand = $(\% \text{ change in quantity demanded}) / (\% \text{ change in price})$ and price elasticity of supply = $(\% \text{ change in quantity supplied}) / (\% \text{ change in price})$ are common uses of elasticity since they measure how a change in price will affect how much buyers buy or sellers sell.
- There are a few different types of elasticity, defined by what elasticity is calculated to be.
- Notice that price elasticity of demand and supply is measured by putting change in quantity over change in price: you can relate it to the slope of the demand or supply curve. For instance, an inelastic demand curve generally has a steep slope while an elastic demand curve has a more shallow slope.
- Elasticity changes as we move along curves since percent change is measured based on current position.

Using Elasticity to Increase Revenue



- Elasticity is critical to the process of calculating how changes in price will affect revenue and therefore finding how to maximize revenue.
- Revenue is quantity demanded multiplied by price.
- For instance: if a good is elastic at a certain point on the curve, then lowering the price will increase quantity demanded at a percentage higher than the price is lowered. Therefore, revenue will increase.
- Similarly, if a good is inelastic at a certain point on the curve, then raising the price will increase quantity demanded at a percentage lower than the price is increased. Therefore, revenue will increase.
- Graphically, you can picture this as changing the area of the rectangle formed with one corner on the demand curve.

Factors Influencing Price Elasticity of Demand

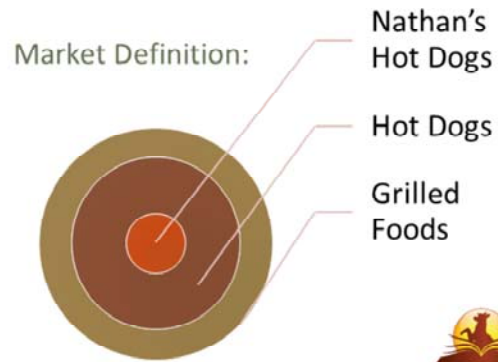
SUBSTITUTES enable buyers to switch easily from one good to another.

Buyers still need NECESSITIES even when they are expensive.

The broader the MARKET DEFINITION, the more difficult it is to switch to buying a good outside of it.

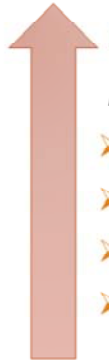
The greater buyers' TIME HORIZON, the better they will be able to adjust their behavior to require more or less of the good.

Anything that affects how **sensitive** demand or supply is to price will change the price elasticity of demand or supply.



- Price elasticity of supply and demand is based on how sensitive quantity demanded or supplied is to changes in price.
- When price rises, suppliers will try to enter the market for the good and buyers will try to leave the market. When price decreases, buyers will try to enter the market and suppliers will try to leave the market. Factors that make it easier or harder to enter or leave the market will affect price elasticity.
- Market Definition is a main factor. When we talk about “leaving the market”, first we have to define what the market is. Depending on how we define it, it may be easier or harder to enter/exit the market. For instance, if I’m ONLY talking about the elasticity of Nathan’s hot dogs, then that’s a very small market and it’s very easy for buyers to switch to another market. However, if I’m analyzing the elasticity of ALL hot dogs, or grilled foods in general, it’s much harder for buyers to switch to another market. One would have to give up hot dogs entirely.

Factors that Affect Elasticity of Demand



INCREASE

Buyers can enter or leave market easily

- Many substitutes for good
- Good is not a necessity
- Broad market definition
- Increased time horizon


DECREASE

Buyers enter or leave market with difficulty

- Few substitutes
- Good is a necessity
- Narrow market definition
- Decreased time horizon



Time Horizon
As time passes,




Factors Influencing Price Elasticity of Supply

With a high EASE OF ENTRY AND EXIT, supply will rise when price does

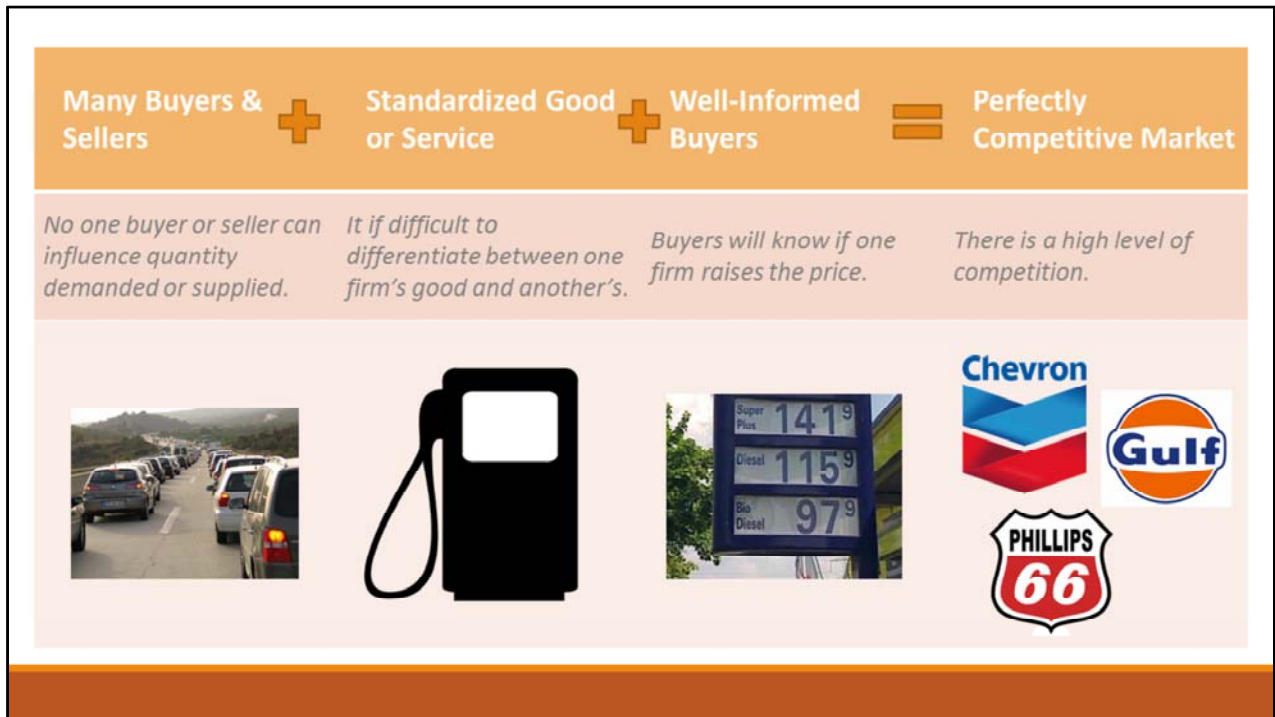
SCARCITY OF RESOURCES makes entering the market difficult, even when price rises.

The broader the MARKET DEFINITION, the more difficult it is to switch to selling a good outside of it.

Sellers who have a greater TIME HORIZON are better able to adjust their behavior to sell more or less of the good



- Factors that make it easier for suppliers to enter the market:
 - Narrow market definition
 - Long time horizon
- Factors that make it harder for suppliers to enter the market:
 - Scarcity of resources
 - Broad market definition
 - Short time horizon



- Perfectly competitive markets are characterized by a high level of competition
- Because they are so competitive, the market tends towards equilibrium.
- Perfectly competitive markets maximize efficiency and lead to the greatest surpluses (benefits) for their participants.
- Traffic image uploaded by Osvaldo Galgo onto Wikimedia Commons. (license: <http://creativecommons.org/licenses/by-sa/2.5/>)

Perfectly competitive markets **only exist in theory** but some markets come close:



Gasoline



Flour



Bread

Imperfectly competitive markets include **monopolies and oligopolies.**

- Firms have control over price
- Price does not tend towards equilibrium



- Examples of imperfectly competitive markets (imperfect competition) are monopolies and oligopolies.
 - In these markets, firms have more control over the price of the good and therefore the market does not tend towards equilibrium.

Firm up your vocabulary	
Firm	Supplier of a good or service
Accounting Costs	Monetary expenditures by firm to provide good/service
Economic Costs	Accounting Costs + Opportunity Cost
Marginal Cost	Cost of supplying exactly one more unit of good or service
Marginal Revenue	Money received for supplying exactly one more unit of good or service
Diminishing Returns	Marginal Cost increases as quantity supplied increases

Accounting Cost

+

Opportunity Cost

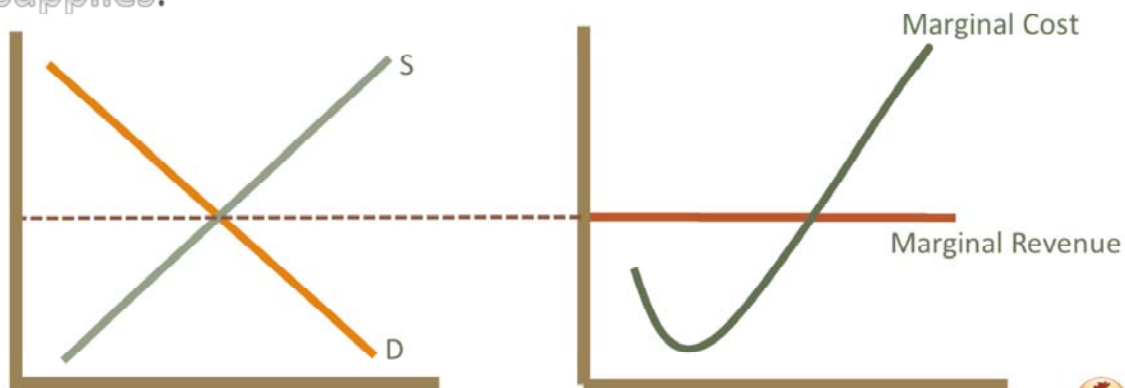
=

Economic Cost



- It's important to differentiate between accounting costs and economic costs. Accounting costs are also known as "explicit costs" because they are costs that you would keep track of if you were running the firm—wages for workers, rent for the building, cost of materials used to make the good, etc. Economic costs are your accounting costs plus opportunity cost, the cost of your time.

The **intersection** of the Marginal Cost and Marginal Revenue curves determines **how much a firm supplies**.



- Marginal revenue, in a perfectly competitive market, is a horizontal line because the price of the good is set by the market (it's the intersection of the market's supply and demand curves) and thus every time the firm sells one unit of the good, it gets exactly that much more money. In a perfectly competitive market it is disadvantageous for firms to offer the good at higher or lower than the market price.
- Marginal cost, in general, slopes upward because of diminishing returns to cost which means that eventually, the money you put in the firm will yield less and less. For instance, if space is finite, initially hiring a few workers will increase production by a lot (and therefore create a low marginal cost) while hiring more and more workers will eventually cramp everyone up, and will not increase production as much (therefore creating a higher marginal cost).
- Once marginal revenue equals marginal cost, it becomes more costly to supply one more good than what you make from supplying that good, so a firm can maximize profit by only supplying up to that intersection. Thus, the intersection of the marginal revenue and marginal cost curves determine how much a firm supplies.

Imperfect Competition

Monopoly



Only one supplier has complete control over price (electricity).

Oligopoly



Few large suppliers have control over price (cartels such as OPEC).

Monopolistic



Many suppliers try to differentiate their product (restaurants).

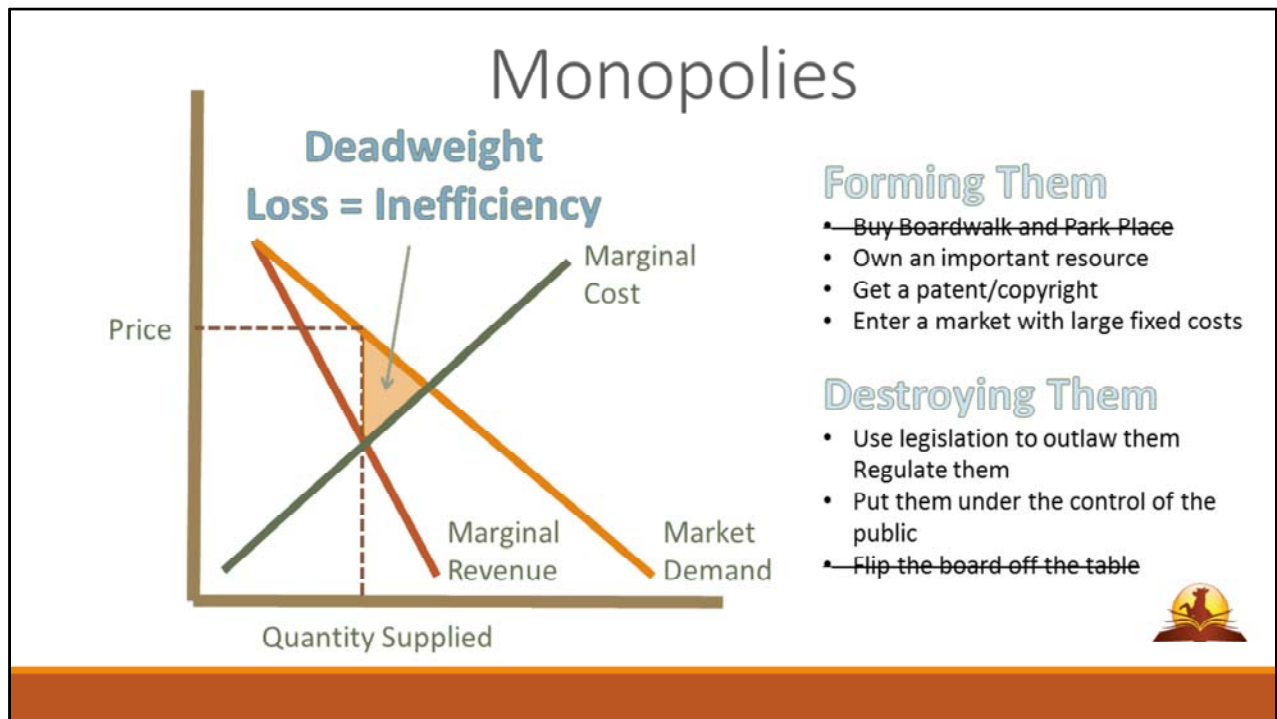
Imperfect Competition



Inefficiency



- Imperfect competition occurs when one of the conditions for a perfectly competitive market is violated.
- Imperfect competition comes in a variety of forms, but three of the most popular are monopoly, oligopoly, and monopolistic competition.
- In a monopoly, there is only one supplier and thus it has complete control over the price of the good/service. This situation will be discussed on the next slide.
- In an oligopoly, there are a few large suppliers. They can band together and form cartels in which they fix a price (usually a high one). These are illegal in the US but one example is OPEC (Organization of Petroleum Exporting Countries) which controls oil prices. In a cartel, there's always a risk that one supplier will slightly lower its price, breaking the agreement, to increase revenue.
- In monopolistic competition, there are many suppliers but each tries to differentiate its product, therefore trying to become a monopoly (since if your product is different enough, you are considered its sole supplier). Examples of this are found with similar but differentiable products, such as restaurants, books, and makeup.



- Monopolies are a well-known example of imperfect competition. In a monopoly, there is only one seller in the market.
- This seller controls the price. Its marginal revenue curve is sloped more steeply than the market demand curve since to sell one more of a good, it must lower its price for every unit of that good. (Compare this to a firm in a perfectly competitive market where the marginal revenue curve is horizontal, meaning that the seller's actions have no effect on market price).
- The marginal cost curve is the same as that for a firm in a perfectly competitive market.
- The optimal quantity supplied for a monopoly is at the point where marginal revenue meets marginal cost. Because of the steeper marginal revenue curve, this quantity supplied is less than that in a perfectly competitive market, creating an inefficiency, or deadweight loss, as depicted by the triangle in the graph.
- Since monopolies cause inefficiency and a reduction of total surplus, governments try to eliminate these negative effects by disbanding them (using laws such as the Sherman Anti-Trust Act), regulating them (so that they cannot raise the price of a good too high), or putting them under the control of the public.

Let Us Monopolize Your Attention:

Terms to Know

Price Discrimination

Different buyers are offered different prices a monopoly does not need to lower its prices for every additional good.

Fixed Costs

Some industries have large fixed costs. For example, railroads need to lay down expensive track before they can operate.

Barriers to Entry

Barriers keep other suppliers from entering the market. Examples include licenses, certifications, and patents.



Creative Destruction

or, how we learned to stop worrying and love imperfect competition



Joseph Schumpeter

The large profits gained in a monopoly encourage **ENTREPRENEURS** to **INNOVATE** since innovation leads to a (usually temporary) monopoly through patents or trade secrets.

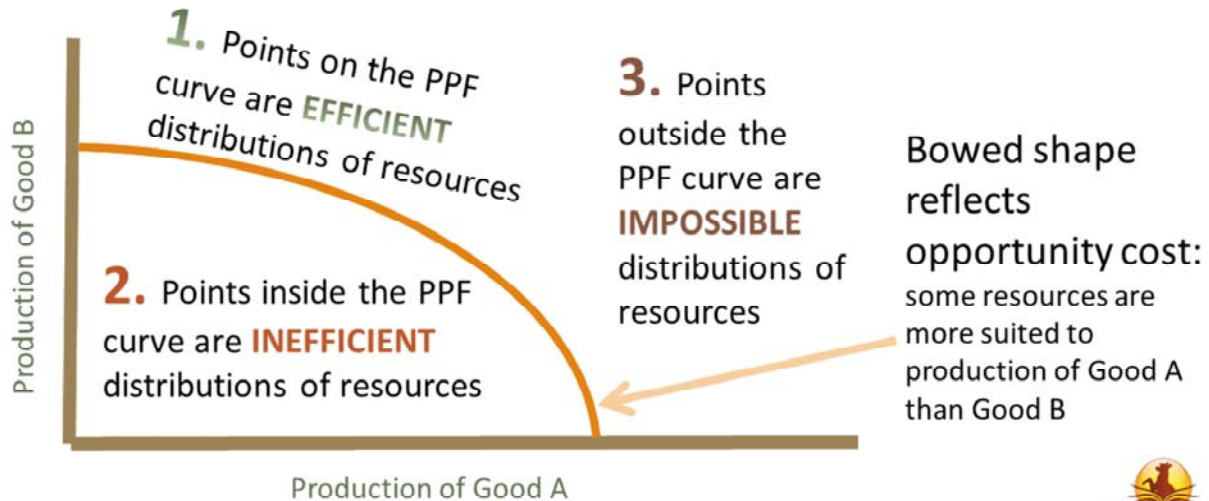
Thus, **IMPERFECT COMPETITION** creates **INNOVATION**.

"The opening up of new markets...this process of Creative Destruction is the essential fact about capitalism."



- According to Joseph Schumpeter, the driving force behind capitalism is the incentive to innovate that the profits from imperfect competition provide for entrepreneurs.
- Therefore, though monopolies and other forms of imperfect competition decrease efficiency, the fact that they exist is the reason we have so many technological breakthroughs! According to Schumpeter, the benefits completely outweigh the costs.
- Innovation can also help break monopolies as people innovate to get around entry barriers: for instance, railroads broke the steamboat monopoly.
- Image uploaded by Unai Fdz de Betono to Wikimedia Commons. (license: <http://creativecommons.org/licenses/by-sa/3.0/>)

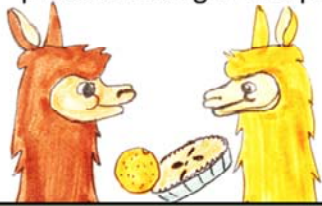
Production Possibilities Frontier (PPF)



- The production possibilities frontier for a person, company, or country shows how much a person/company/country can produce. Usually this takes the form of a consumer versus capital goods distinction (goods for consumers versus goods for businesses) for a country's PPF curve, but it can be as simple as production of lemonade versus production of ice cream cones for a ten-year-old's stand.
- The PPF curve shows all possible efficient distribution of resources. This means no resources are wasted.
- Though some PPF curves are represented as straight lines, the one in this graph is bowed. The bowed shape of the curve represents opportunity costs. As I move to one end of the curve, I have to use some resources to make Good A that could be better spent producing Good B. For instance, milk is better spent making ice cream than lemonade. Thus, my opportunity cost for using those resources increases and I do not make as much of Good A.
- The points inside the PPF curve show inefficient distributions of resources because from any point inside the curve, I could move to a point on the curve without exceeding the resources at my disposal. In other words, if I'm inside the curve, I'm wasting stuff.
- The points outside the PPF curve show impossible distributions of resources because they require more resources than I have.

Why is Trade Mutually Beneficial?

Meet AlpAna and AlPaulca. They both produce oranges and pies.



	AlpAna	AlPaulca
Oranges per day	25	12
Pies per day	5	4
Oranges per pie	5	3
Pies per orange	1/5	1/3

Absolute Advantage: One supplier can supply more of a good than another.

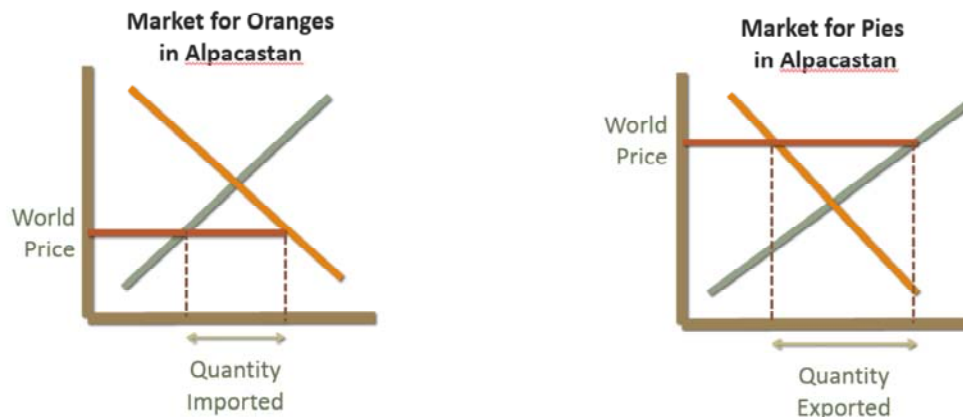
Comparative Advantage: One supplier can supply a good at a lower opportunity cost than another.

While AlpAna has an absolute advantage for both goods, AlPaulca has a comparative advantage producing pies. Thus, it would be beneficial for AlpAna to trade AlPaulca oranges for pies.



- AlPaulca has a comparative advantage producing pies because while AlpAna has to give up 5 oranges to produce 1 pie (5 oranges per pie), AlPaulca only gives up 3 oranges to produce 1 pie.
- Differences in comparative advantage are why trade is mutually beneficial.
- This explanation is usually shorthanded: “specialization.”

Trade on a Larger Scale



- When domestic markets are opened to the world market, the world price for the good becomes dominant.
- In a domestic market in which the world price is beneath the domestic price, domestic suppliers cannot provide for the increased demand, so the good is imported.
- In a domestic market in which the world price is above the domestic price, domestic suppliers provide more than the decreased demand, so the good is exported.

When Markets Fail...

Problem	Solution
<p>Externality: a side effect of some economic activity that is not reflected in the market supply/demand</p> <ul style="list-style-type: none">• Positive Externality: the socially optimal level of production is above the market quantity produced• Negative Externality: the socially optimal level of production is below the market quantity produced	<p>Coase Theorem: if private property rights are defined and negotiation is possible, the externality's inefficiency should be resolvable.</p> <p>Possible Solutions:</p> <ol style="list-style-type: none">1. Negotiation2. Internalizing the externality3. Government regulation (using taxes or subsidies)



- The competitive market system fails when it doesn't maximize total welfare.
- Often, property rights are not well-defined and therefore it is difficult to resolve an externality.
- Internalizing the externality means combining the producer of the externality with those who are affected by it.

Example of positive externality:



My neighbor plants pretty flowers that increase my well-being.

Solution:



I marry my neighbor and now we both own the flowers.

Example of negative externality:



Pollution from a factory affects the residents' air supply.

Solution:



Negotiation: the residents of the town pay the factory to produce less.



When Markets Fail...

Problem

Tragedy of the Commons: lack of sole ownership of a resource causes it to be overused



e.g. fish in a lake, wild Truffula trees

Solution

Since the overuse caused by the Tragedy of the Commons is a type of negative externality, we can deal with it in a similar way.

Possible Solutions:

1. Internalize the externality (have the fishermen jointly decide the best allocation)
2. Assign property rights (someone buys the lake)





- Goods are classified based on **rivalry of consumption** and **excludability**.
 - High rivalry of consumption means that if one person uses a good/service, there is less of that good/service available for everyone else.
 - High excludability means that it is easy to keep people from using the good.
- Common resources are often the goods that suffer from the “tragedy of the commons” problem described on the previous slide.

Collective decision-making helps solve many problems and is achieved through institutions.

INSTITUTIONS are sets of rules that structure society

ORGANIZATIONS are sets of *formal* rules that structure society

Both require *voluntary cooperation*.

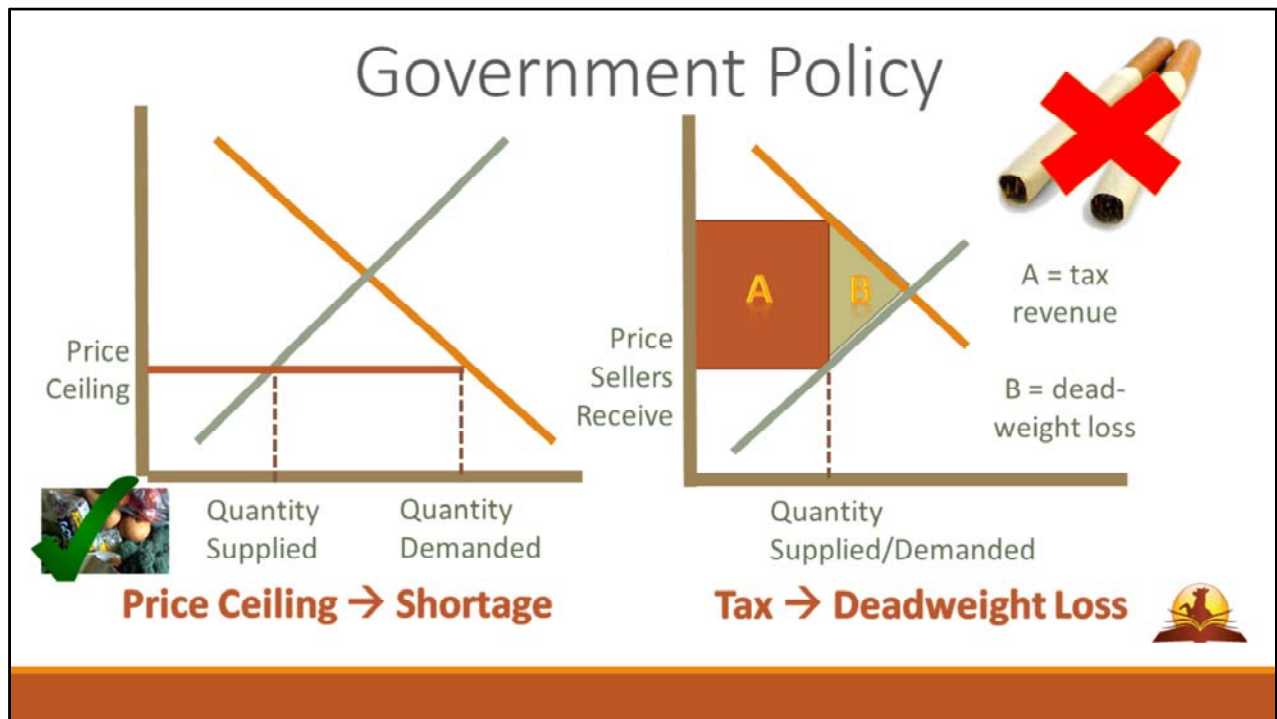
On the other hand...

GOVERNMENTS can

- Tax
- Use **force**
- Require *involuntary cooperation* for the good of the whole



- Examples of institutions: driver's license system, tipping practices
- Examples of organizations: churches, NY Stock Exchange
- The government's power also comes in handy through contracts which are enforced through courts (organized by the government). Thus, the government helps facilitate voluntary cooperation.



- Governments can choose to establish a price floor or ceiling, rather than letting the market establish equilibrium. These can cause inefficiencies in the market. For instance, the price ceiling above causes a shortage, as quantity demanded is higher than quantity supplied.
- Governments can also choose to establish a tax. This drives a wedge between the price buyers pay and the money sellers receive. This wedge is as wide: the tax per unit, multiplied by the quantity supplied/demanded, will equal the tax revenue (the rectangle in the graph). The extra triangle, which would be in the total surplus in a perfectly competitive market, is therefore lost surplus and is named deadweight loss.
- Note that while these seem like negative consequences, government policy is often designed to benefit the public as a whole. A price ceiling, for instance, could help lower-income individuals purchase necessities, while a tax could discourage the use of unhealthy items such as cigarettes.

Government Problems

Pork Barrel Politics:

Government representatives use federal money to pay for local projects to win local support.

Logrolling: Legislators agree to support each others' projects, causing more inefficiency.

Rent Seeking: activities that aim to redirect economic benefits without increasing total surplus on their own



Lobbying is an example of rent seeking.



- Image uploaded by Mark A. Hershberger to Wikimedia Commons. (license: <http://creativecommons.org/licenses/by-sa/2.0/deed.en>)



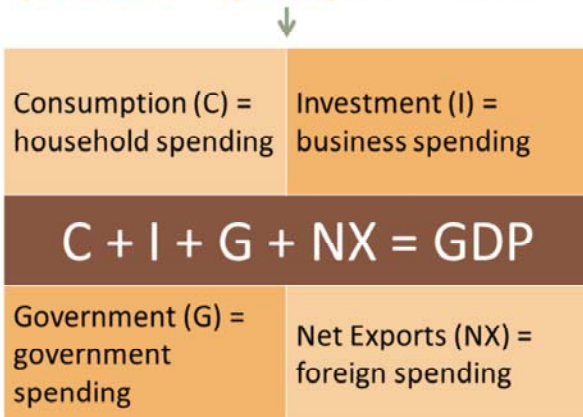
- Map uploaded by Sorent to en.wikipedia. Data from CIA figures. (license: <http://creativecommons.org/licenses/by-sa/3.0/>)

Calculating GDP

Definition of Gross Domestic Product

“The market value...”	<ul style="list-style-type: none"> GDP measures how much is produced Unit of measurement = \$1
“...of all final goods and services...”	<ul style="list-style-type: none"> ONLY end products NO intermediate goods
“...produced within a country...”	<ul style="list-style-type: none"> Within borders of the country Can include foreign-owned production
“...during a specified period of time.”	<ul style="list-style-type: none"> Usually either a one-year or three-month period

Since everything produced is bought, GDP can be calculated by measuring **production** OR **spending** (expenditures)



- **Intermediate goods** are goods that are used up to produce another good. For instance, if I grind up beef to make hamburgers, then the ground beef is an intermediate good because it is used to make hamburger patties (which are used to make hamburgers).
- **Capital goods** are goods used to make other goods that are not used up in the process (e.g. factory machinery) and are only counted once (when they are produced themselves).

Inflation

Inflation occurs when all **prices** in an economy **rise**.
But why is inflation a problem?

Tax on Money

- Makes money seem less valuable
- People have to go to the ATM more often

Price Distortion

- Not all businesses increase prices at same time
- This causes confusion about prices

Uncertainty

- Higher inflation leads to lower investment returns
- This decreases investment (bad for the economy)



Calculating Inflation



1. Consumer Price Index

The cost of a market basket is measured every month. This cost is compared with the basket's cost in a base year.

$$\text{CPI} = 100 \times (\text{cost of bundle in current year}) / (\text{cost of bundle in base year})$$

According to the Boskin Commission, the CPI overstates inflation by 1.3% per year

2. Problems with the CPI

- Substitution bias
- Unmeasured quality change
- New goods and services

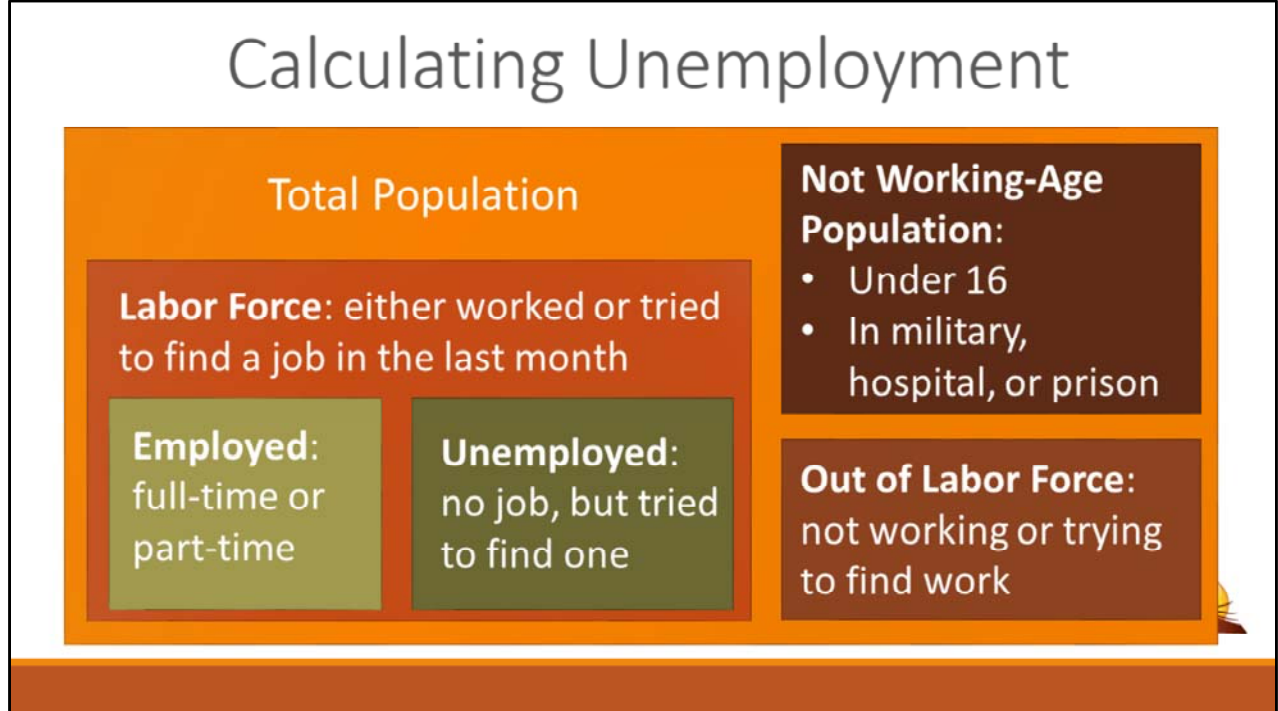
3. Another option

The GDP deflator compares nominal GDP (GDP determined by current prices) with real GDP (GDP determined by a base year's prices).



- The market basket is a set of goods households usually buy.

Calculating Unemployment



- Every month, the Bureau of Labor Statistics surveys 60,000 households to get estimates of the **unemployment rate (unemployed/labor force)** and the **labor force participation rate (labor force/working-age population)**.

Types of Unemployment



Frictional Unemployment

- Natural unemployment caused by time spent matching employers and employees (e.g. new college grads)



Structural Unemployment

- Natural unemployment caused by mismatch of workers' skills with those required by job (e.g. seasonal)



Cyclical Unemployment

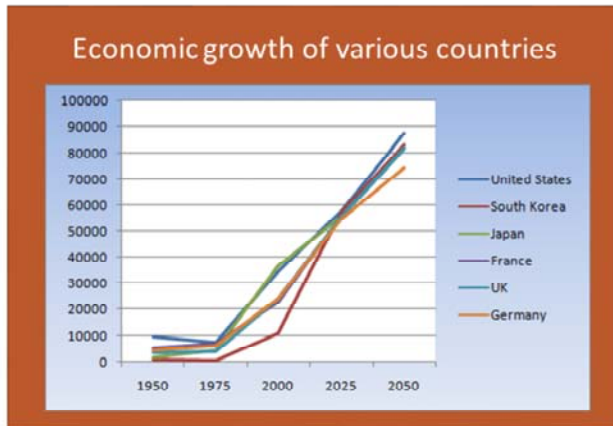
- Unemployment caused by lowered production levels during a recession



- Seasonal unemployment affects people who only have skills to work during part of the year. For instance, many lifeguards can only work during the summer months.

Economic Growth

GDP per capita =
average labor productivity x labor force participation rate



Economic growth comes from:

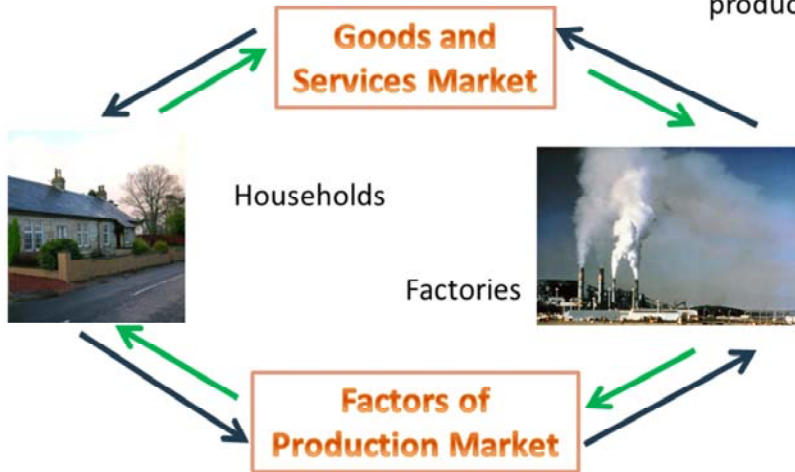
- Better physical capital
- Better human capital
- Increased natural resources
- Better technology
- Less strict legal/political environment
- Increased labor force participation



- Economic growth is usually characterized as growing GDP per capita (or per person).
- Either labor productivity or the labor force participation rate can increase.
- Physical capital includes machines, working spaces (for instance, factories), or anything physical that increases worker productivity.
- Human capital: workers' skill, experience, and education.
- Strict political and/or legal environments can often lead to a suppression of economic activity.
- Graph uploaded by Lakshmix to Wikimedia Commons. Graph data from National Master and Goldman Sachs. (license: <http://creativecommons.org/licenses/by-sa/3.0/deed.en>)

Circular Flow Model: The Circle of Money

→ Flow of payment → Flow of goods/services or factors of production



As the model shows...

Expenditures by one group serve as income for another group, so income = expenditures



- Calculating total income for an entire country is therefore another valid way of calculating GDP.

The Name's Bond(s)

Financial markets **match savings with investment**. In other words, they deliver money from households to firms who **borrow it to invest**.

Financial intermediaries connect households to financial markets.

Financial Markets	Financial Intermediaries
Bonds <ul style="list-style-type: none">• Direct borrowing• Get paid back first in event of a loss	Banks <ul style="list-style-type: none">• Keep savings• Provide loans to businesses
Stock <ul style="list-style-type: none">• Equity: ownership of part of the company• Get paid back last in event of a loss	Mutual Funds <ul style="list-style-type: none">• Variety of stocks and bonds that are all invested in at once• Diversity increases security



- A bond is an IOU with three important quantities: the principal (the initial amount of money borrowed), the interest rate, and the date of maturity (when the loan will be repaid). The interest is paid until the date of maturity at which point the principal is repaid.

Mo' Money, Mo' Assets

A bank's balance sheet lists its **assets** (its property) and **liabilities** (money for which it is responsible). When in balance, assets = liabilities.

Bank of Alpaca		Royal Llama Bank	
Assets	Liabilities	Assets	Liabilities
Reserves: \$10 Loans: \$90	Deposits: \$100	Reserves: \$9 Loans: \$81	Deposits: \$90

This process continues until there is nothing more to lend out.

If someone deposits \$100 in the Bank of Alpaca, the bank will keep a minimum in reserve (**reserve ratio**) and lend the rest out to Alpaulca.

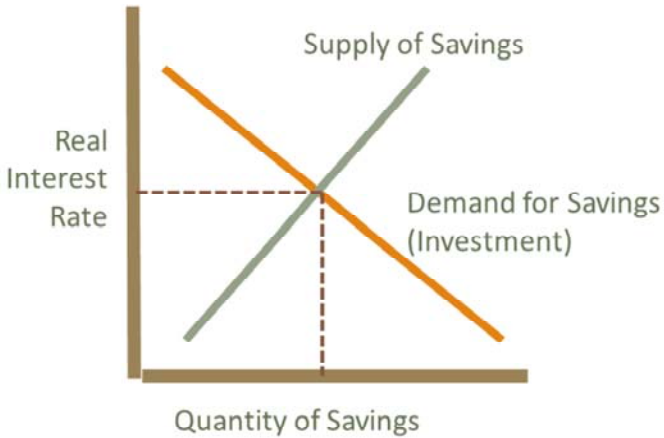
Alpaulca then deposits his money in the rival Royal Llama Bank. The Royal Llama Bank will keep 10% in reserve and lend out the rest.

Each new deposit increases the money supply by $1/(\text{reserve ratio})$.



- Banks are required by the Federal Reserve to keep money in reserve. The Federal Reserve sets a reserve ratio—here we're assuming it's 10%. This means one-tenth of all deposits must be kept as reserves.
- $1/(\text{reserve ratio})$ is also known as the money multiplier. In this case, the money multiplier is 10, which means the initial deposit of \$100 increased the money supply by \$1000.

Savings/Investment Model



Shifts in Model

Shifts in Demand:

- Changes in motivation to invest (e.g. future expectations)
- Government spending

Shifts in Supply:

- Changes in ability of households to save money (e.g. higher taxes)



- When the government chooses to spend to invest in the economy, it can increase demand for savings, driving up the real interest rate and therefore discouraging private businesses from investing. This is called **crowding out**.

Financial System: International

Today, savings (or funds for investment) can come from **all over the globe**.

Net Capital Outflow = Net Exports

This equation is always true because when foreigners purchase goods from the US, they give us their money. Since money is an asset, owning a country's currency means investing in that country. Thus, as NX increases, so does NCO.

Net capital outflow: purchase of foreign capital by domestic residents minus purchase of domestic capital by foreign residents

Foreign direct investment: when the capital is purchased to be owned/managed

Portfolio investment: when capital is purchased through the financial system (stocks, bonds)



- “Purchase of capital” usually refers to the purchase of or investment in a business.

The Federal Reserve



Powers

- The Federal Reserve or “Fed” is the central bank of the United States, a title formerly held by the First Bank of the US.
- The Fed regulates the money supply through the Federal Open Market Committee (FOMC) by using open market operations of purchasing or selling government bonds, changing the reserve ratio, or changing the discount rate.



- Open market operations: the buying and selling of government bonds.
 - When the Fed buys government bonds, it puts money into the economy.
 - When the Fed sells government bonds, it takes money out of the economy.
- Reserve ratio:
 - As we saw in a previous slide, a lower reserve ratio leads to a higher money multiplier, increasing the money supply.
- Discount rate:
 - The rate at which banks can borrow from the Fed. A lower discount rate encourages borrowing, leading to a larger money supply.

The Federal Reserve



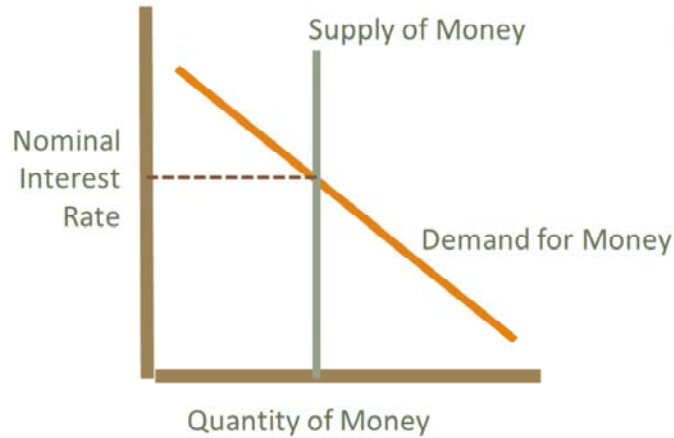
Structure

- The Fed consists of twelve regional banks and the Federal Reserve Board. Governors of these regional banks sit on the FOMC.
- The Fed is controlled by its board of governors, which consists of seven members who also sit on the FOMC.



- Open market operations: the buying and selling of government bonds.
 - When the Fed buys government bonds, it puts money into the economy.
 - When the Fed sells government bonds, it takes money out of the economy.
- Reserve ratio:
 - As we saw in a previous slide, a lower reserve ratio leads to a higher money multiplier, increasing the money supply.
- Discount rate:
 - The rate at which banks can borrow from the Fed. A lower discount rate encourages borrowing, leading to a larger money supply.

Money Market Model



Shifts in the model

Shifts in Demand:

- Increased population causes more demand for money
- An economic recession causes a reduced demand for money

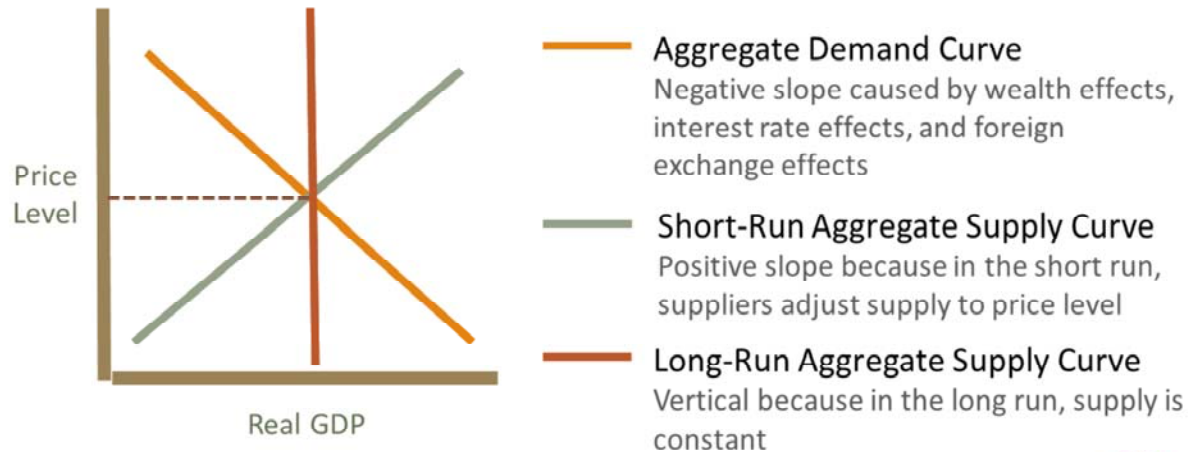
Shifts in Supply:

- The Fed can choose to increase or decrease the money supply



- Supply of money is vertical because it can only be adjusted by the Federal Reserve and, once set, remains the same no matter what the nominal interest rate.
- Nominal interest rate = real interest rate + rate of inflation

Keynesian Model



- Supply of money is vertical because it can only be adjusted by the Federal Reserve and, once set, remains the same no matter what the nominal interest rate.
- $\text{Nominal interest rate} = \text{real interest rate} + \text{rate of inflation}$

Vocabulary on *Aggregate Demand*

Why the negative slope?

Wealth Effects

When price level increases, people spend less, which decreases expenditures and real GDP.

Interest Rate Effects

When price level increases, people save less, therefore shifting the savings supply curve inwards, decreasing investment and real GDP



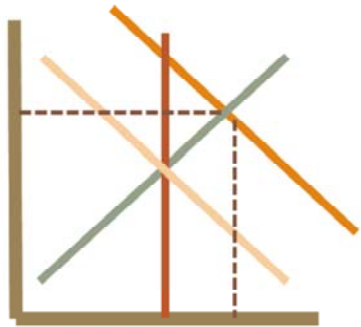
Aggregate Demand Curve on the Keynesian Model

Foreign Exchange Effects

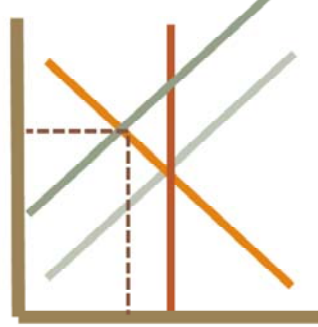
When price level increases, goods appear more expensive to foreigners in comparison to goods from their own countries, decreasing net exports and real GDP

Shifts in the Keynesian Model

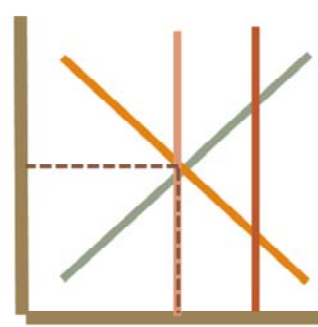
1. Shift in AD



2. Shift in SRAS



3. Shift in LRAS



- Unless there's a shift in the LRAS (long-run aggregate supply) curve, real GDP will not change in the long-run since there is a maximum to what an economy can produce.
- However, real GDP can increase or decrease in the short-run. In the short-run, real GDP and price level will temporarily shift to wherever the SRAS (short-run aggregate supply) curve intersects the AD (aggregate demand curve). Then, some mechanism will adjust either the AD or SRAS curve so that real GDP returns to long-run real GDP.
- Price level, however, can change with a change in the LRAS curve. For instance, when AD shifts out, in the long-run, the SRAS curve will shift its prices up to meet the increased demand, causing a new equilibrium at a higher price level.



IV: The Economic Origins and Impact of WWII



Photo: Canadian War Museum



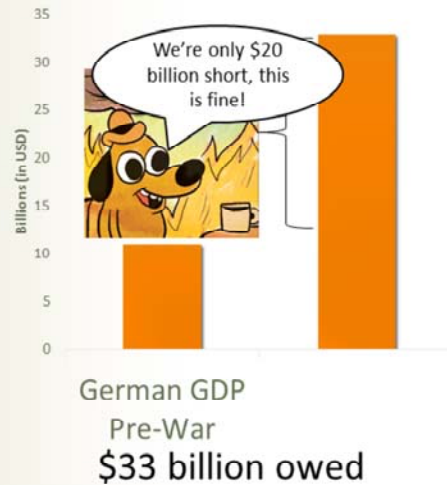
- WWII remains one of the deadliest and costliest conflicts in history.
- Historians typically divide study of the war into two geographic sections: the Pacific theater, which covers American and British involvement against Japan, and the European theater, which covers England, France, the USSR, and the United States' fight against Germany and Italy.
- The United States officially entered the war in 1941, after Japan bombed the naval base Pearl Harbor in Hawaii.
- The war ended in 1945, with Germany surrendering in May and Japan surrendering in August, after the United States drops atomic bombs on Hiroshima and Nagasaki.
- PHOTOS:
- 1) Map: By Ktrinko - Own work, CC0, <https://commons.wikimedia.org/w/index.php?curid=17169364>

Is It Too Late Now to Say Sorry?

After WWI, German reparations in the Treaty of Versailles included:



Removal of territories



- The victors of World War I came up with the Treaty of Versailles as a way for Germany to atone for its actions in the Great War.
- Germany lost sections of its territory, including important industrial regions like Ruhr, and now also owed \$33 billion in reparations—which was three times greater than its pre-war GDP.
 - Germany would have to make payments of \$375 million per year until 1925, plus \$900 million in interest after 1925.

PHOTOS:

- 1) Germany Map, adapted from: By User:52 Pickup - Based on Afbeelding:Duitsland1914-1923.png from the Dutch Wikipedia, CC BY-SA 2.5, <https://commons.wikimedia.org/w/index.php?curid=3203936>
- 2) Dog cartoon: KC Green, "Gunshow"



- Some economists, such as John Maynard Keynes, believed that the Treaty of Versailles was unnecessarily harsh towards Germany, and would potentially create the circumstances for later vengeance.
- Keynes described this situation as a “Carthaginian Peace” —named for the ancient city of Carthage, which Romans defeated in battle, then destroyed the city and enslaved its people.
- PHOTOS:
- 1) Background, Carthage: By Patrick Verdier, Free On Line Photos - Photo: <http://www.folp.free.fr/Open.php?getTabSigIdImg=001270>Description: <http://www.folp.free.fr/AddComment.php?getTabComIdImg=1270>, Copyrighted free use, <https://commons.wikimedia.org/w/index.php?curid=25540>
- 2) Keynes: By Unknown - National Portrait Gallery: NPG x 1933.

Hyperinflation cripples the Germany economy between 1919 and 1923

In 1913, 1 US Dollar = 4.2 German Marks

In 1923, 1 US Dollar = 4.2 trillion German Marks

"Kids, go play with some money—it's cheaper than buying toys!"

- After World War I, Germany becomes a democracy, in an era known as the Weimar Republic.
- In order to make payments, Germany begins printing more money, which leads to hyperinflation.
 - Before the war, it took 4.2 German Marks to exchange for 1 US Dollar; in 1923, it took approximately 4.2 trillion German Marks.
- The Nazi Party also makes a failed attempt to overthrow the government in 1923, using public sentiment about the economic situation to fuel its power.
- PHOTOS:
- 1) Background, German stamps: By scanned by User:Nickpo (own collection) [Public domain], via Wikimedia Commons
- 2) Children playing with money: By Unknown - <http://www.mtholyoke.edu/~rapte22p/classweb/interwarperiod/politicaldisorder.html>, Public Domain, <https://commons.wikimedia.org/w/index.php?curid=28121890>

Time for a New Strategy: The Dawes Plan

- 1) Give back industrial Ruhr region
- 2) Restructure reparations payments
- 3) Restructure national bank (Reichsbank)
- PLUS: US will loan money to Germany

The key to more success is trust me

- American Charles Dawes designed a plan to help stabilize the German economy in 1924.
 - He advocated for returning industrial regions back to Germany, so Germany could actually produce goods; restructuring the reparations payments to make it easier for Germany to pay them off; and restructuring German's national bank, known as the Reichsbank.
 - Dawes also decided the US would loan money to Germany.
- This plan, in part, led to a period of German prosperity that lasted until the Great Depression.

PHOTOS:

- 1) Background: © Carschten / Wikimedia Commons, via Wikimedia Commons
- 2) Charles Dawes: By Harris & Ewing - <http://www.loc.gov/pictures/collection/hec/item/hec2009007646/>, Public Domain, <https://commons.wikimedia.org/w/index.php?curid=8955579>

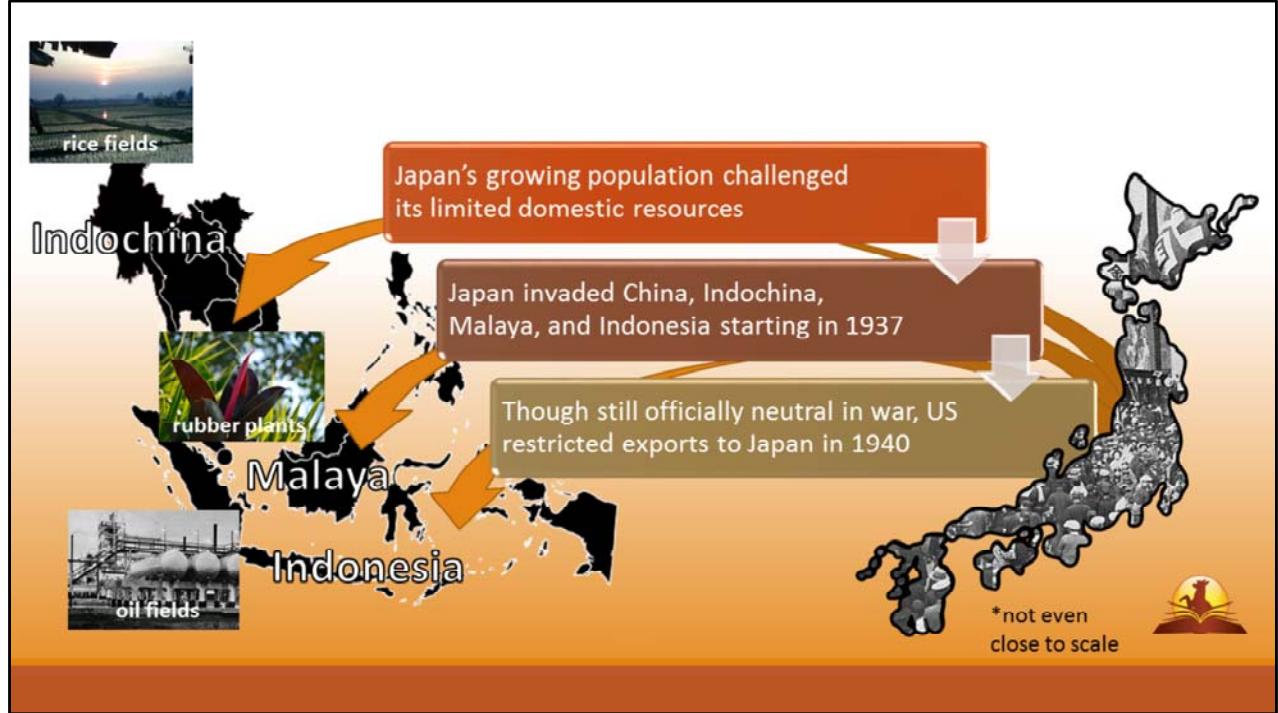
I TOLD you!

Germany hit hard by Great Depression

Hitler promises return to German greatness

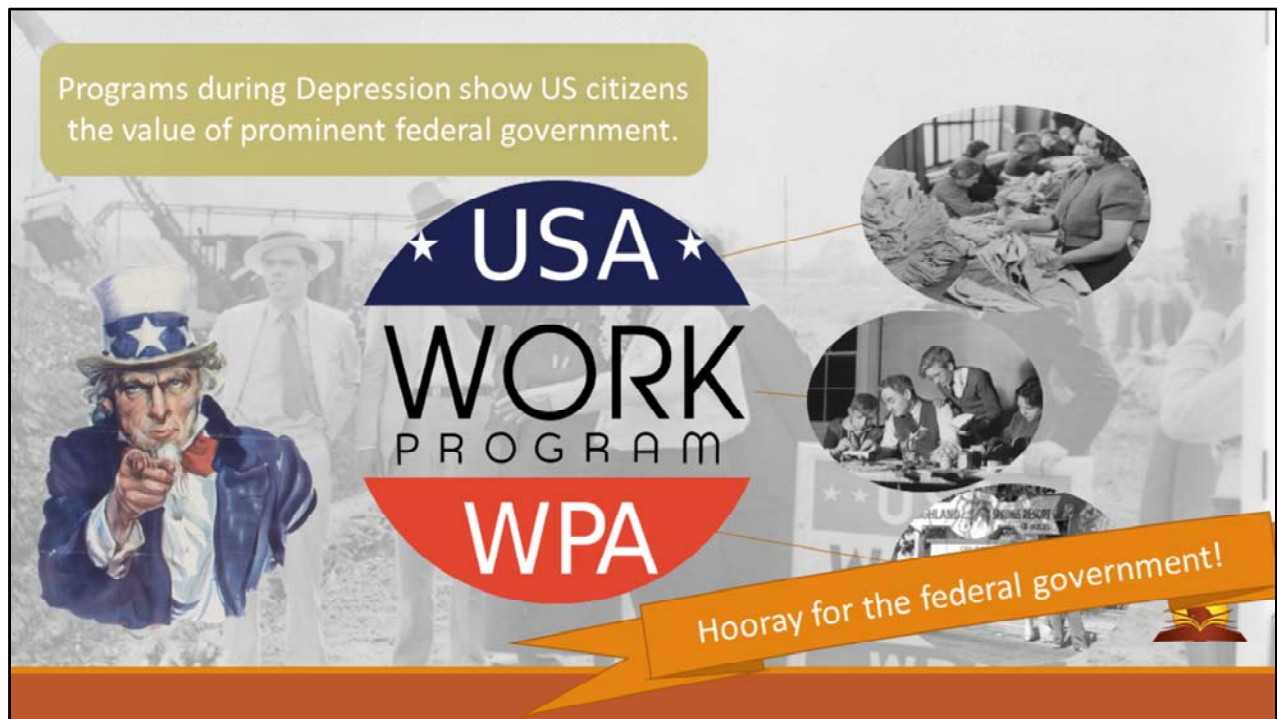
- The Great Depression spreads to Europe after starting in the United States in 1929.
- Germany's economic prosperity in the 1920s had been largely due to foreign loans, which more or less disappeared during the Depression.
- From its height, Germany's GDP decreases by 42% during this period.
- Hitler and the Nazi Party again appeal to common people's sentiments by promising to return Germany to its former greatness, and blaming the other countries of Europe for putting Germany in this position.

Photos: German Federal Archive (By Bundesarchiv, Bild 102-03497A / CC-BY-SA 3.0, CC BY-SA 3.0 de, <https://commons.wikimedia.org/w/index.php?curid=5414066>)



- Japan remained relatively unscathed by the Great Depression, thanks to reflationary policies by Finance Minister Korekiyo Takahashi, and enjoyed one of the highest living standards in Asia throughout the 1920s.
- Japan, then an ally of Great Britain, secretly made demands of China with the goal of China ultimately becoming a client state of Japan.
- Japan's population continued to grow, despite its limited domestic resources, so it looked to gain control of resources like rice fields in Indonesia, rubber plants in Malaya, and oil fields in Indonesia through invasion.
- The United States, though still officially neutral in the war, stopped exporting industrial goods to Japan in 1940 due to these invasions.
- When Japan demanded that France leave its military bases in Indochina in 1941, the United States banned all trade with Japan.
- PHOTOS:
- 1) Rice fields: Public Domain, <https://commons.wikimedia.org/w/index.php?curid=808391>
- 2) Rubber plants: By Thangaraj Kumaravel from Chennai, India (Rubber Plant) [CC BY 2.0 (<http://creativecommons.org/licenses/by/2.0>)], via Wikimedia Commons
- 3) Oil fields: Ministry of Information of Indonesia: Jakarta

- 4) Southeast Asia map: By Zuanzuanfuwa (Own work) [CC BY-SA 3.0 (<http://creativecommons.org/licenses/by-sa/3.0/>)], via Wikimedia Commons
- 5) Japan map, adapted from: By Vrysxy [CC BY 3.0 (<http://creativecommons.org/licenses/by/3.0/>)], via Wikimedia Commons
- 6) Crowds at Asakusa Rokku: Japanese magazine "Historical Photograph, February 1934 issue" published by Rekishi-Shasin Kai., Public Domain, <https://commons.wikimedia.org/w/index.php?curid=19717393>



Programs during Depression show US citizens the value of prominent federal government.

USA WORK PROGRAM WPA

Hooray for the federal government!

- In the United States, Franklin D. Roosevelt expanded the federal government during the Great Depression in order to revitalize the economy.
- At the start of World War II, American citizens largely accepted the benefit of a federal government heavily involved in their daily lives.

PHOTOS:

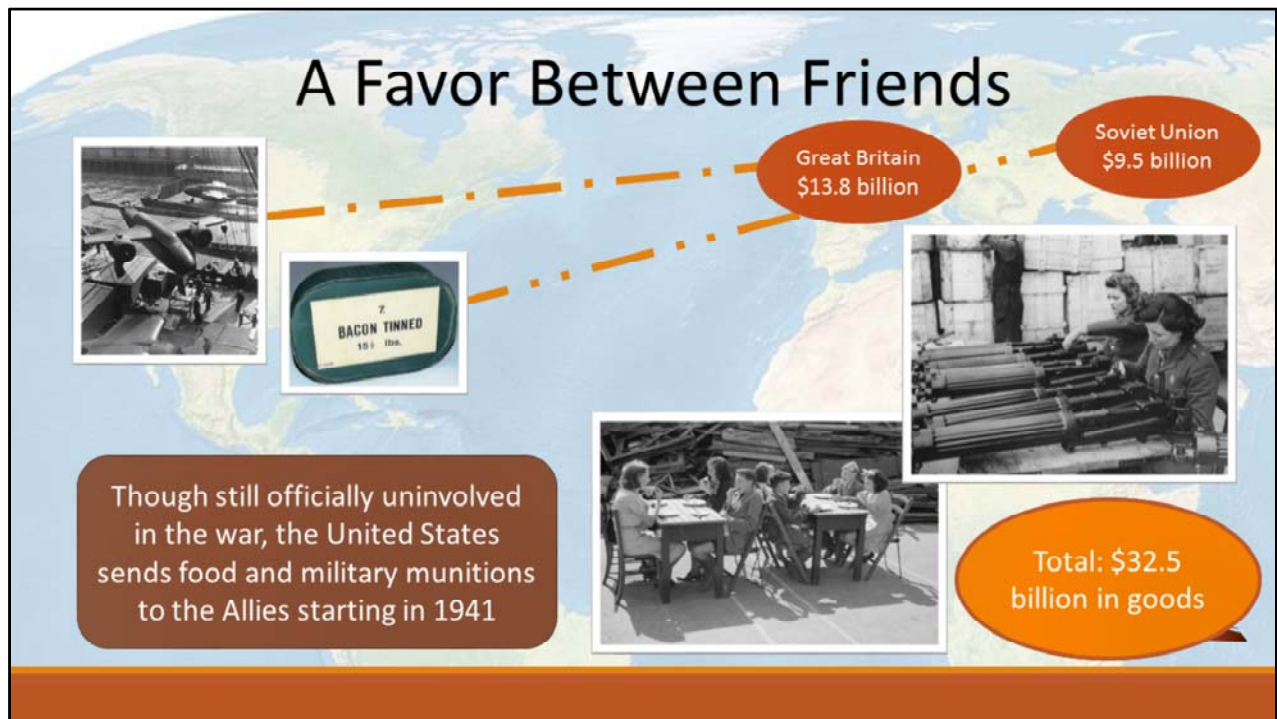
- 1) Background: U.S. National Archives and Records Administration
- 2) Uncle Sam: U.S. National Archives and Records Administration
- 3) Clothing: U.S. National Archives and Records Administration
- 4) Crafting: U.S. National Archives and Records Administration
- 5) Hitchhiking: U.S. National Archives and Records Administration



- Even before the United States officially entered World War II, the American economy was already shifting focus to war-related expenditures.
- In June 1940—a year and a half before the United States declared war on Japan—one percent of the American labor force was already devoted to building military training camps.
- By 1941, another one percent of the labor force worked building ships for the navy and for the Lend-Lease program.
- By June 1941, American factories produced iron, steel, and durable goods at full capacity.

PHOTOS:

- 1) Background: By U.S. Navy [Public domain], via Wikimedia Commons
- 2) Plane mechanics: U.S. National Archives and Records Administration
- 3) Loading ammunition: U.S. National Archives and Records Administration



- As part of their war effort, German U-boats sank British ships containing supplies, leading Great Britain to ration food, clothing, and other items.
- In March 1941, the US Congress passed a measure, known as the Lend-Lease program, to send military and food aid to Great Britain, despite the United States still officially functioning as neutral in the war at this point.
- In total, the United States sent \$32.5 billion in goods to Europe, mostly to Great Britain (\$13.8 billion) and the Soviet Union (\$9.5 billion).
- Winston Churchill called the Lend-Lease Program “the most unsordid act in the whole of recorded history.”

PHOTOS:

- 1) Bomber Plane: By Photograph by Gruber for the U.S. Office of War Information [Public domain], via Wikimedia Commons
- 2) Bacon: By KingaNBM (Own work) [CC BY-SA 4.0 (<http://creativecommons.org/licenses/by-sa/4.0>)], via Wikimedia Commons
- 3) Meal: By Ministry of Information Photo Division Photographer [Public domain], via Wikimedia Commons
- 4) Checking Howitzers: By Unknown or not provided (U.S. National Archives and Records Administration) [Public domain], via Wikimedia Commons

The United States creates new offices to prepare for a wartime economy



Office for Emergency Management

- Est. 1940
- Coordinates newly created emergency wartime agencies



Office of Price Administration

- Est. 1941
- Oversees price controls and rations on goods



Supply Priorities and Allocation Board

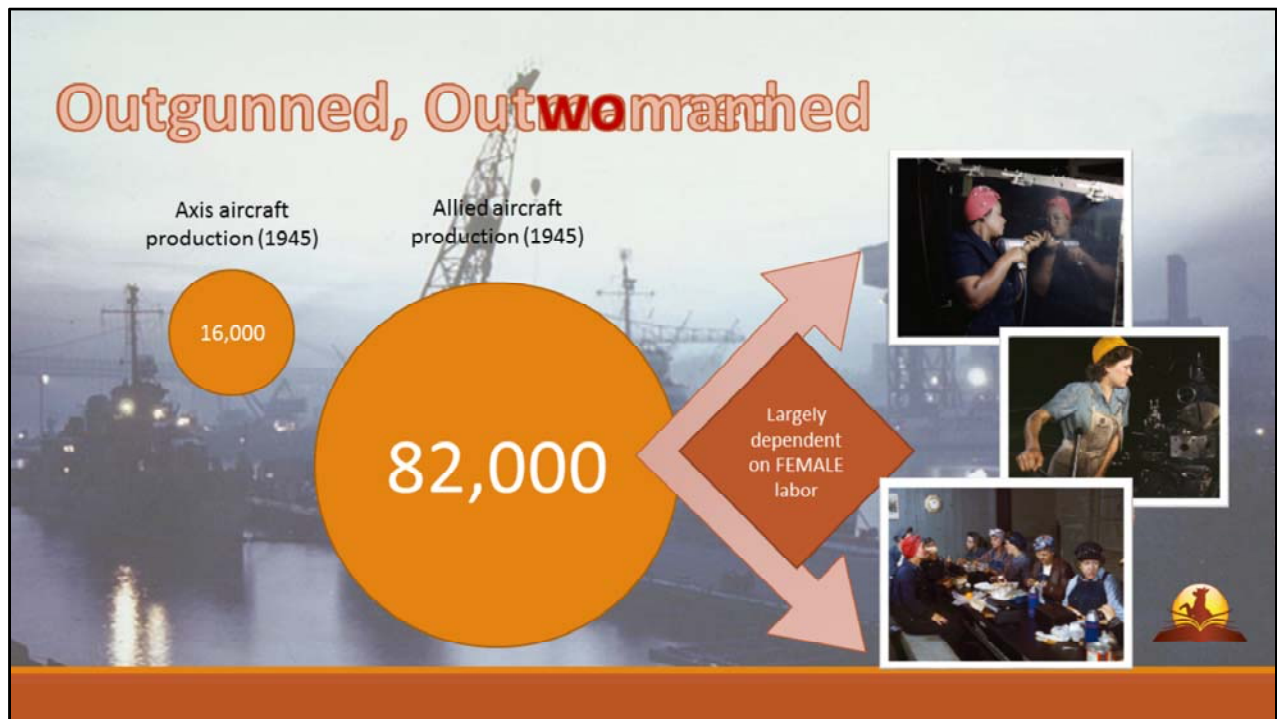
- Est. 1941
- Manages purchase and production of war materials



Office of War Mobilization

- Est. 1943
- Organizes all federal agencies related to war

- To prepare for the shift to war and a wartime economy, the United States creates wartime conversion offices like the Office for Emergency Management, the Office of Price Administration, the Supply Priorities and Allocation Board, and the Office of War Mobilization.
- PHOTOS:
- 1) Post office: By Ministry of Information Photo Division official photographer [Public domain], via Wikimedia Commons
- 2) Weekly ration: By Ministry of Information Photo Division Photographer [Public domain], via Wikimedia Commons
- 3) Women inspecting tubing: Alfred T. Palmer [Public domain], via Wikimedia Commons
- 4) Check signing machine: By National Photo Company [Public domain], via Wikimedia Commons



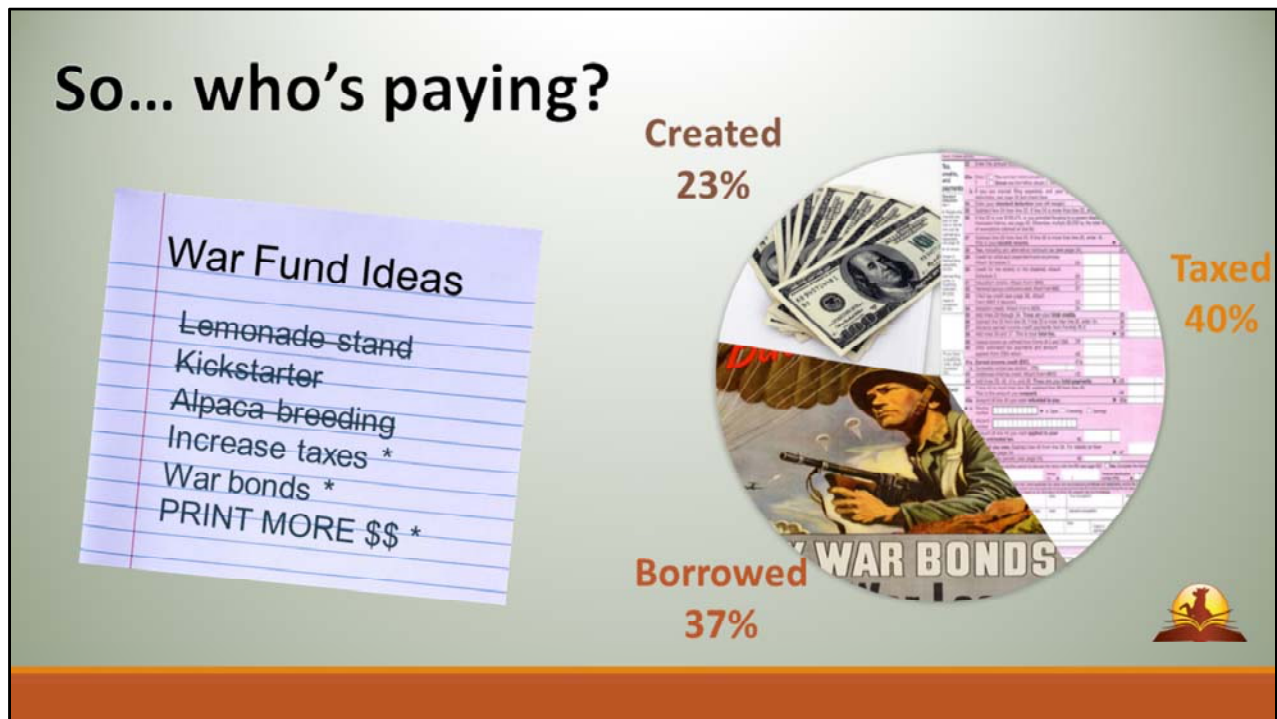
- The Allies, and particularly the United States, greatly outspent the Axis powers, which ultimately helped determine the result of the war.
- In 1942, American firms built 26,000 military aircraft, while Germany produced fewer than 12,000 aircraft that same year.
 - Also in 1942, the United States spent \$20 billion on military equipment, roughly double Germany and Japan's combined spending.
- By 1945, the Allies were producing 82,000 aircraft annually, while the Axis countries were producing only 16,000 aircraft.
- The strength of American industrial output during the war depended heavily on female participation in the workforce, which rose from 19.9 percent in 1940 to 41.8 percent in 1944.
- The surge in female workers didn't hold steady after 1945, but they served an important role during the war.

PHOTOS:

- 1) Background (Brooklyn Navy Yard): By USN [Public domain or Public domain], via Wikimedia Commons
- 2) Women at Turret: Howard R. Hollem [Public domain], via Wikimedia Commons
- 3) Workers eating lunch: Jack Delano [Public domain], via Wikimedia Commons
- 4) Riveter: By Alfred T. Palmer, U.S. Office of War Information [Public domain], via

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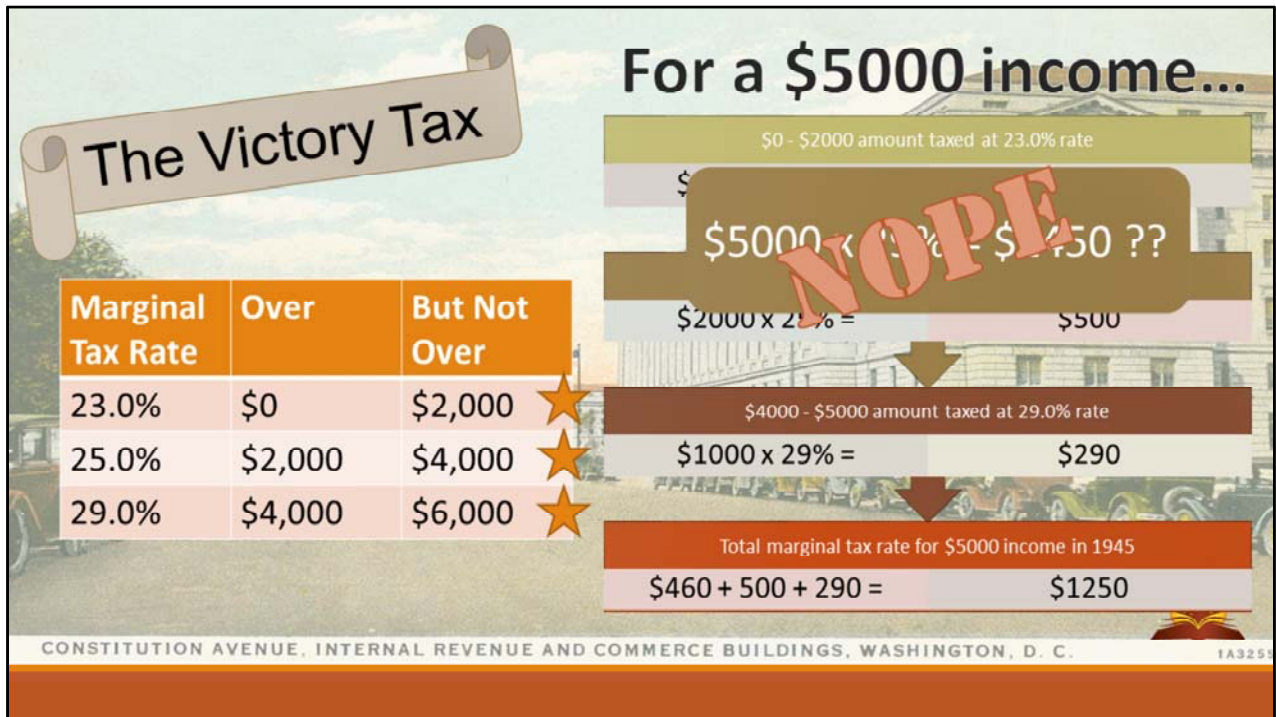
So... who's paying?



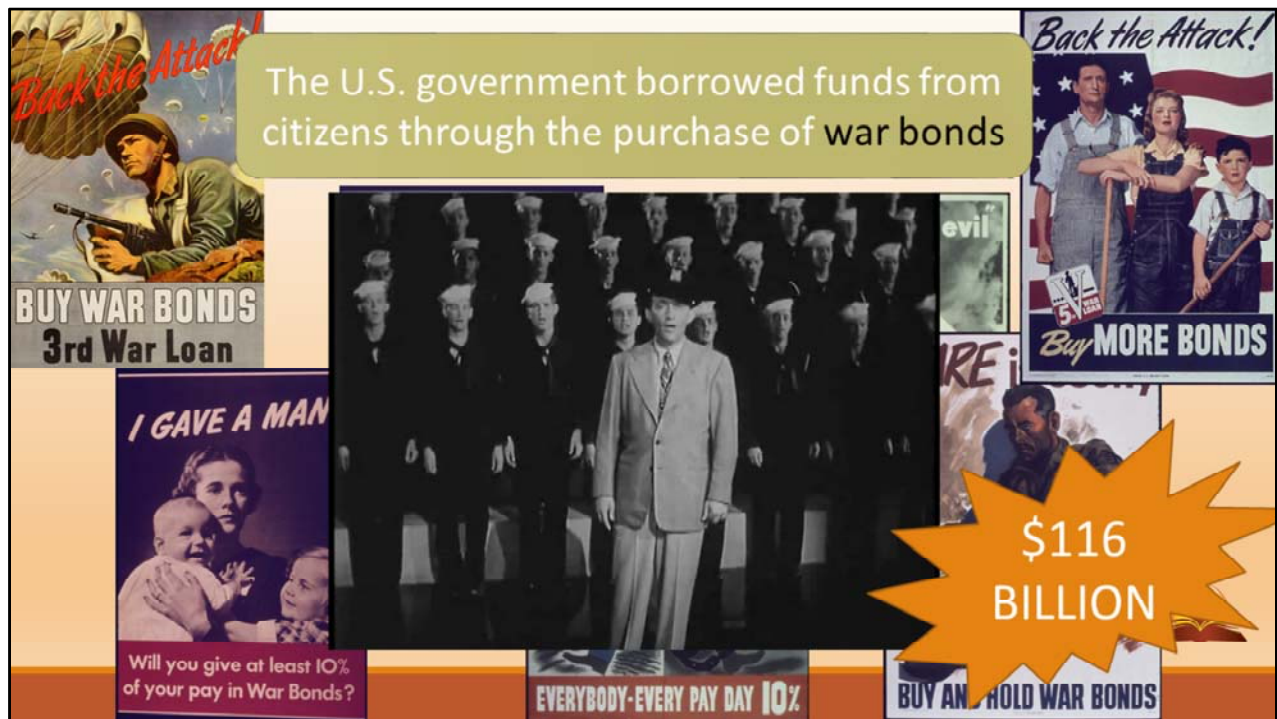
- In terms of GDP percentage, World War II remains the most expensive war in American history—36 percent in 1945.
- The United States government spent \$320 billion on the war, composed from tax revenue, borrowed money, and created money.

- PHOTOS:

- 1) Cash: By MediaPhoto.Org (mediaphoto.org Own work) [CC BY 3.0 (<http://creativecommons.org/licenses/by/3.0>)], via Wikimedia Commons
- 2) Tax form: Public Domain, <https://commons.wikimedia.org/w/index.php?curid=662017>
- 3) War bond poster: By Office of War Information. Poster by George Schreiber (1904–1977). - National Archives and Records Administration, Public Domain, <https://commons.wikimedia.org/w/index.php?curid=44342836>



- During World War II, the United States government increased the scope of citizens who paid taxes, no longer restricting collection to the wealthiest Americans.
- For those wealthiest households, the top marginal tax rate increased from 88 percent in 1942 to 94 percent in 1944.
- Marginal tax rates aren't calculated by using the top tax rate applied to the entirety of the income, but rather by each segment.
- After the war, the government retained these multiple tax rates, or tax brackets.
- PHOTOS:
- Background: By Reynolds (Library of Congress) [Public domain], via Wikimedia Commons



- The United States earned \$116 billion for the war effort through the sale of war bonds.
- Average citizens could (and were encouraged to) buy these bonds, which could be automatically deducted from their paychecks, and would be paid back after the war.
- The Federal Reserve, with the United States Treasury, oversaw the sales of war bonds.
- The government enlisted many celebrities, such as Bing Crosby seen here, to appear in advertisements for the sale of war bonds.

POSTERS:

- 1) Back the Attack: By Office of War Information. Poster by George Schreiber (1904–1977). - National Archives and Records Administration, Public Domain, <https://commons.wikimedia.org/w/index.php?curid=44342836>
- 2) I Gave a Man: By U.S. National Archives and Records Administration, Public Domain, <https://commons.wikimedia.org/w/index.php?curid=16719338>
- 3) Even a Little Can Help a Lot: By U.S. National Archives and Records Administration, Public Domain, <https://commons.wikimedia.org/w/index.php?curid=16702387>
- 4) Bonds or Bondage: By U.S. National Archives and Records Administration, Public Domain, <https://commons.wikimedia.org/w/index.php?curid=16678036>
- 5) Deliver Us from Evil: By U.S. National Archives and Records Administration, Public Domain, <https://commons.wikimedia.org/w/index.php?curid=16678057>
- 6) Care Is Costly: By U.S. National Archives and Records Administration, Public Domain,

<https://commons.wikimedia.org/w/index.php?curid=16700666>

- 7) Buy More Bonds: By U.S. National Archives and Records Administration, Public Domain,
<https://commons.wikimedia.org/w/index.php?curid=16684362>

VIDEO:

- 1) Portion of *Hollywood Victory Caravan*: United States, Department of the Treasury



- The Federal Reserve increased the total money supply from \$48.4 billion in 1939 to \$125.3 billion in 1945.

PHOTOS:

- 1) Background: By Logan, Mary Simmerson (Cunningham), "Mrs. J. A. Logan," , 1838-1923 [No restrictions], via Wikimedia Commons
- 2) Money pile: By Manuel Dohmen - Own work, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=185802>
- 3) Allan Sproul: By Source, Fair use, <https://en.wikipedia.org/w/index.php?curid=37481508>

Did WWII return the US to prosperity?

Yes!

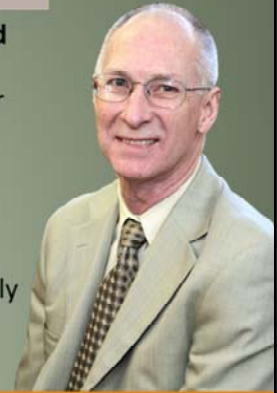
- **Unemployment rates fell** from 14.6% (1940) to 1.2% (1944)
- **Nominal GDP increased** by over 20% for every year between 1941 and 1943
- Overall **government spending increased**



Paul Krugman

...Not Really!

- ...but **10 million drafted soldiers** skewed the unemployment number
- ...but production increased on **military goods**, not consumer goods
- ...but consumers actually had **FEWER choices** for goods during wartime

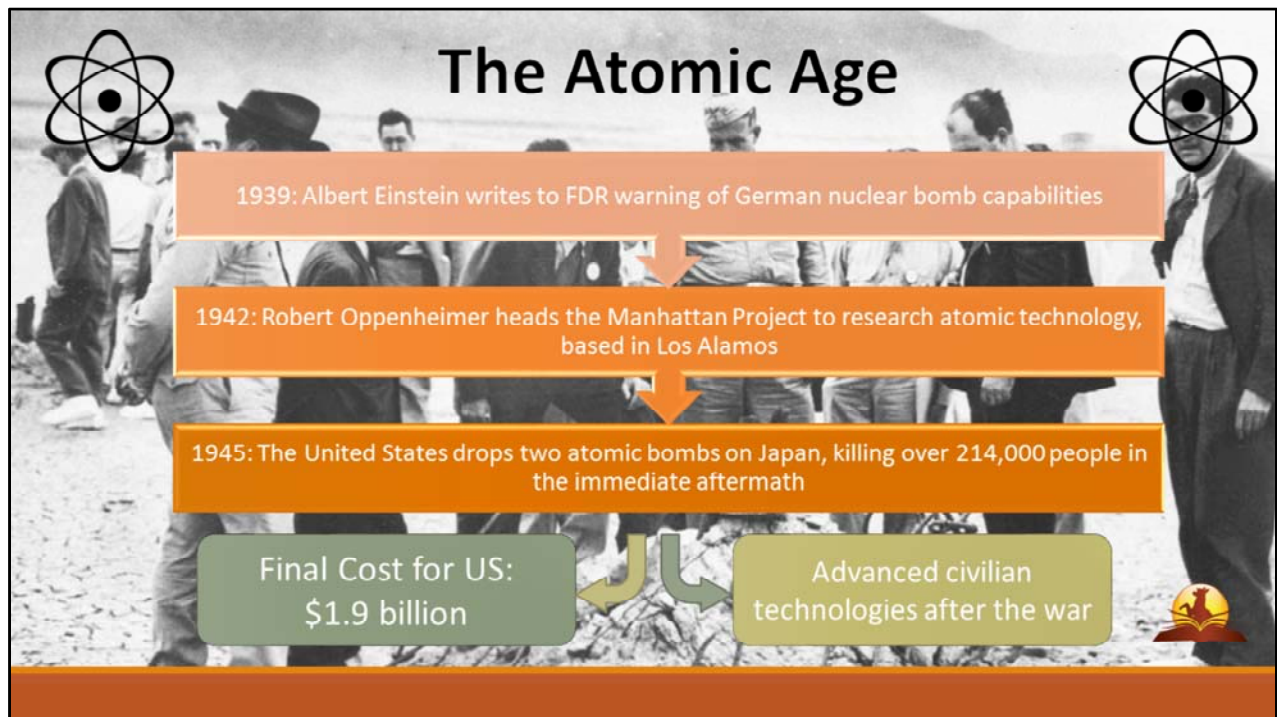


Robert Higgs

- Many economists, like Paul Krugman, argue that WW2 spending stimulated the US economy back into prosperity.
- Other economists, like Robert Higgs, argue that GDP and unemployment rates are not effective measures of the true standard of living.

PHOTOS:

- 1) Krugman: By Prolineserver (Own work) [GFDL 1.2 (<http://www.gnu.org/licenses/old-licenses/fdl-1.2.html>)], via Wikimedia Commons
- 2) Higgs: By Mises Institute [GFDL (<http://www.gnu.org/copyleft/fdl.html>) or CC-BY-SA-3.0 (<http://creativecommons.org/licenses/by-sa/3.0/>)], via Wikimedia Commons



- The United States atomic research program, called the Manhattan Project, began in 1942, based in Los Alamos, New Mexico, and led by Robert Oppenheimer.
- In total, the atomic program cost \$1.9 billion for the United States.
- As a result, the United States dropped two atomic bombs on Japan in 1945, effectively ending the war:
 - —at Hiroshima, on August 6, 1945, killing 140,000 in the immediate aftermath.
 - —at Nagasaki, on August 9, 1945, killing 74,000 in the immediate aftermath.
- Research gained through the Manhattan Project, such as radar and aircraft bombsights, led to later improvements in civilian life, including air travel.

PHOTO: By United States Army Signal Corps - Image taken from <http://www.gutenberg.org/etext/279> and cropped and saved to a more appropriate file format., Public Domain, <https://commons.wikimedia.org/w/index.php?curid=300465>



- The meeting of world powers at Bretton Woods, in New Hampshire, set up several new systems designed to stabilize the world economy after the war.
 - The newly created International Monetary Fund (IMF) would keep track of international exchange rates, as well as lending funds to countries that had trade deficits.
 - The meeting also created the World Bank, which provided investment funds to developing nations.
 - They also established a new system for determining exchange rates, in which world currencies would convert into US dollars, and US dollars would convert into gold at a fixed rate of \$35 per ounce.
- President Nixon broke the link between gold and the US dollar in 1971, which ended the system.
- Countries today can choose whether to freely float their exchange rates, use another country's currency, or create a monetary union (like the Euro).

PHOTOS:

- 1) Background (Bretton Woods): CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=8259117>
- 2) World currencies: By Udaykumar236 (Own work) [CC BY-SA 4.0 (<http://creativecommons.org/licenses/by-sa/4.0>)], via Wikimedia Commons

- 3) US Dollar: By Milad Mosapoor (Own work) [Public domain], via Wikimedia Commons
- 4) Gold: By Agnico-Eagle (Agnico-Eagle Mines Limited) [CC0], via Wikimedia Commons

Where Are They Now?

USA



- Assumes title of superpower
- Enters Cold War against USSR after WWII

Great Britain



- Remains strong
- Never regains former world dominance

Germany



- 1949: splits into East (Soviet) and West
- 1961: constructs Berlin Wall

Italy



- 1943: fascist government surrenders
- 1946: becomes republic

Japan



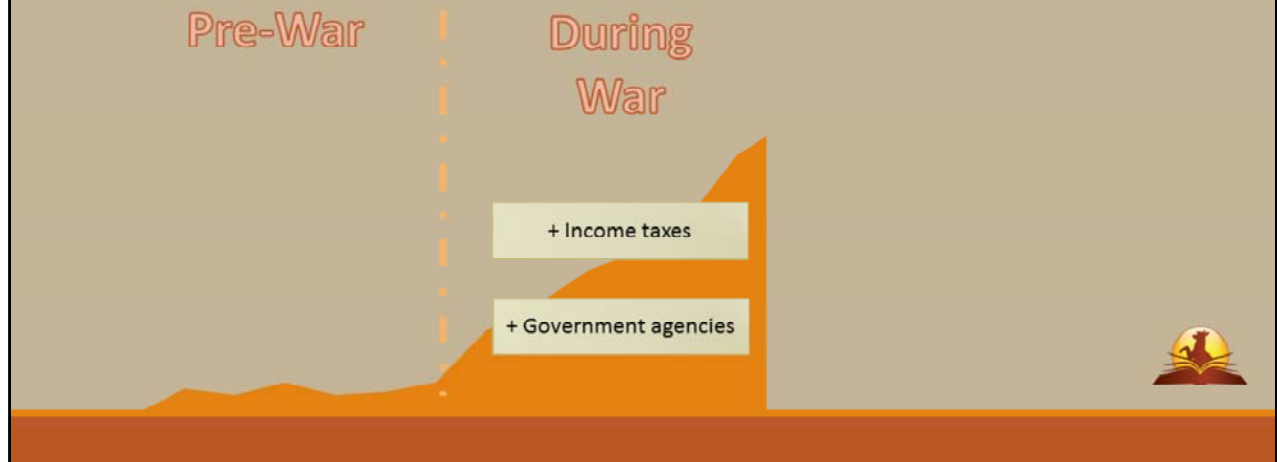
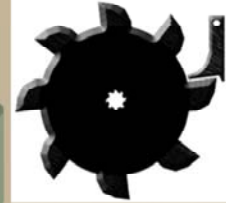
- 1945-1952: Allies help to rebuild
- 1950s-1970s: experiences significant economic growth

PHOTOS:

- 1) Background: By Aude - Own work, CC BY-SA 2.5, <https://commons.wikimedia.org/w/index.php?curid=449591>
- 2) USA: By Petty Officer 3rd Class Diana Quinlan (<https://www.dvidshub.net/image/1532238>) [Public domain], via Wikimedia Commons
- 3) Great Britain: By Alfred Teske nach Foto von Karl Teske (verstorben 1982) [GFDL (<http://www.gnu.org/copyleft/fdl.html>) or CC BY-SA 3.0 (<http://creativecommons.org/licenses/by-sa/3.0/>)], via Wikimedia Commons
- 4) Germany: German National Archives (Bundesarchiv)
- 5) Italy: By Nicholas Gemini (Own work) [CC BY-SA 3.0 (<http://creativecommons.org/licenses/by-sa/3.0/>)], via Wikimedia Commons
- 6) Japan: By xlibber (Toyko Streets) [CC BY 2.0 (<http://creativecommons.org/licenses/by/2.0/>)], via Wikimedia Commons

Ratchet Effect

During national emergencies, government presence grows larger and—like a ratchet device—remains in effect even after the emergency is over.



- Ratchet mechanisms—such as zip ties, handcuffs, turnstiles, or rollercoasters—allow movement in one direction only, preventing backwards motion.
- Similarly, in what economist Robert Higgs terms the “Ratchet Effect,” increases in government presence that occur during national emergencies, such as a war, will remain in place even after the emergency has ended.

PHOTOS:

1) Ratchet GIF: CC BY 3.0, <https://en.wikipedia.org/w/index.php?curid=22785007>

GIs Go to College to Get More Knowledge



FDR signs GI Bill
in 1944, providing...



Stipends for unemployed veterans



Home loans with no cash down



Payments to attend universities

- In 1944, President Roosevelt signed the GI Bill, which provided benefits for veterans, including \$20 per week for unemployed veterans, home loans with no cash down, and payments to attend universities.

PHOTOS:

- 1) Background: By Sgt. Jarred Woods (<https://www.dvidshub.net/image/1471480>) [Public domain], via Wikimedia Commons
- 2) FDR: FDR Library
- 3) House: By Preservation Maryland - Fishing Creek, house, CC BY-SA 2.0, <https://commons.wikimedia.org/w/index.php?curid=47624949>
- 4) University: Billy Hathorn at English Wikipedia [CC BY-SA 3.0 (<http://creativecommons.org/licenses/by-sa/3.0>) or GFDL (<http://www.gnu.org/copyleft/fdl.html>)], via Wikimedia Commons

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