

TEXT VERSION

THE TEXTBOOK VIDEOS MICROECONOMICS STUDY GUIDE



TEXTBOOK VIDEOS

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INTRODUCTION

Students want to learn in less time and get better grades. That pretty much summarizes our viewpoint, and is why we produced this short study guide. You may be interested in learning how a film production company ended up writing a microeconomics study guide.

A few years ago, our company recognized that students had virtually no access to professionally produced, entertaining, short educational videos that could help them learn key concepts outside the classroom.

Although online video was booming and it was very clear that students wanted online learning delivered in concentrated doses, the hour-long "lecture-capture" video remained the industry standard in education. We thought there was a better solution.

In fact, we approached the problem completely differently. We set out to help students learn key concepts as fast and as conveniently as possible. We thought that short videos should play a key role in this learning. The videos should be 10 seconds to 6 minutes in length - and must be accessible with smart phones, tablets and other mobile devices.

We began by interviewing hundreds of students, professors and administrators. From these interviews, we identified that economics students, in particular, had few video tools, and that they were challenged by many key subject concepts. In these interviews, some really amazing introductory economics professors worked with us to identify the concepts that students had the most difficulty understanding. We then designed the videos to help instructors teach both inside and outside the classroom, and so that the videos can easily be used alongside existing textbooks and existing course material.

We selected the topics and planned the videos with the professors. We then sent out young filmmakers across North America to film professors teaching the concepts in short videos, using real world examples. Then, we applied our filmmaking expertise to add interesting b-roll, animation, graphics and special effects. We produced more than 160 short videos and now offer them to students, teachers, and anybody else with a thirst for learning, at www.textbookvideos.com.

Along the way, we found out that written economics study guides existed, but we scratched our heads when we saw that the study guides were 400+ pages long. You don't need to be an economist to realize that 400 study guide pages plus 700 textbook pages was a lot of material for economics students to digest. Although the textbooks were very well written, we wanted to offer a notebook-type summary of key economics concepts that students could use to study and prepare for classes, tests and exams.

Although, we originally wrote this study guide to accompany the Real World Economics series of videos, we also wanted to offer the text version of the study guide separately. Eesha Sen Choudhury helped us make this happen, and we thank her for helping us write and proof the study guide and videos.

The videos are extremely helpful in teaching the concepts identified in this study guide. If you have a few minutes, check out the samples at www.textbookvideos.com. You'll see that the videos feature some really amazing professors, and that short, professionally-produced videos really can accelerate your learning.

Good luck with your studies!

TABLE OF CONTENTS

Introduction	iii
Part I – Consumer Behavior.....	1
What is Economics?	1
Circular Flow Between Households and Firms	2
Production Possibilities Frontier	3
Market Forces - Supply and Demand.....	3
Demand Curve.....	3
Quantity Demanded.....	3
The Law of Demand	3
Demand Curve Shifts	4
Variables That Can Cause Demand Curves to Shift	4
Supply Curve.....	6
Quantity Supplied	6
The Law of Supply	6
Supply Curve Shifts	6
Variables That Can Cause Supply Curves to Shift	7
Market Equilibrium.....	8
How Demand and Supply Changes Affect the Equilibrium Price	8
Elasticity	9
Price Elasticity of Demand.....	9
Income Elasticity of Demand	10
Cross Price Elasticity of Demand Formula.....	11
Elasticity of Supply	11
Price Controls	12
Taxes.....	12
Consumer Surplus	13
Producer Surplus	13

Price Discrimination	14
Consumer Choice	14
Perfect Substitutes	14
Perfect Complements	15
Utility.....	15
Part II - Producer Behavior and Cost Curves.....	16
Diminishing Marginal Product	16
Marginal Cost Curve	17
Short Run versus Long Run	17
Markets for Factors of Production.....	18
Why Wages Vary	18
Labor Demand Curve	18
Labor Supply Curve	19
Labor Market Equilibrium	19
Negative Externality.....	19
Part III – Market Structures.....	20
Perfect Competition.....	20
Monopoly	22
Oligopoly.....	23
Monopolistic Competition	24
International Trade.....	25
A Note of Thanks.....	26
About the Author	27

PART I – CONSUMER BEHAVIOR

WHAT IS ECONOMICS?

Ask ten different economists this question and you are likely to get ten different answers. Many will tell you that economics is about making choices in conditions of scarcity; others will tell you that it is about making decisions on the margins, and a few will tell you that those two answers are one and the same. Some economics professors will tell you that economics is a way of thinking and that their job is teaching students how to think like economists.

Maybe the best way to describe economics is that it is a set of tools that make it possible to better explain the world around us.

One of those tools is language and using language in a very specific way. Economists will frequently define words slightly differently from the way that non-economists do. They will also be very specific about how they describe the world around us, breaking those descriptions down into positive statements and normative statements.

POSITIVE STATEMENTS attempt to describe the world as it is. They are statements that are empirical facts – ones that make no value judgment. Note that positive statements can still be wrong; the point is that they can be tested to see whether they are wrong or right.

For example, “The minimum wage in the United States is \$100 an hour,” would be incorrect, but it would still be a positive statement, because it is a fact that can be tested and verified.

NORMATIVE STATEMENTS attempt to prescribe how the world should be. They are value judgments. By definition, they are impossible to prove right or wrong, although a great deal of effort is spent trying to do so.

For example, “The minimum wage in the United States should be \$100 an hour,” would be a normative statement because it is a value judgment about what public policy should be.

Generally, economics is built around positive statements. It is the study about how consumers and firms make decisions. Since the lab of Economics is the real world, much of what you will study can be seen and tested in the real world.¹

WHAT IS MICROECONOMICS?

Microeconomics is the study of how households and firms make decisions and how they interact in markets.

¹ If you are worried about the basic math used in microeconomics, there are a series of videos at www.textbookvideos.com that explain the basic math building blocks for economics.

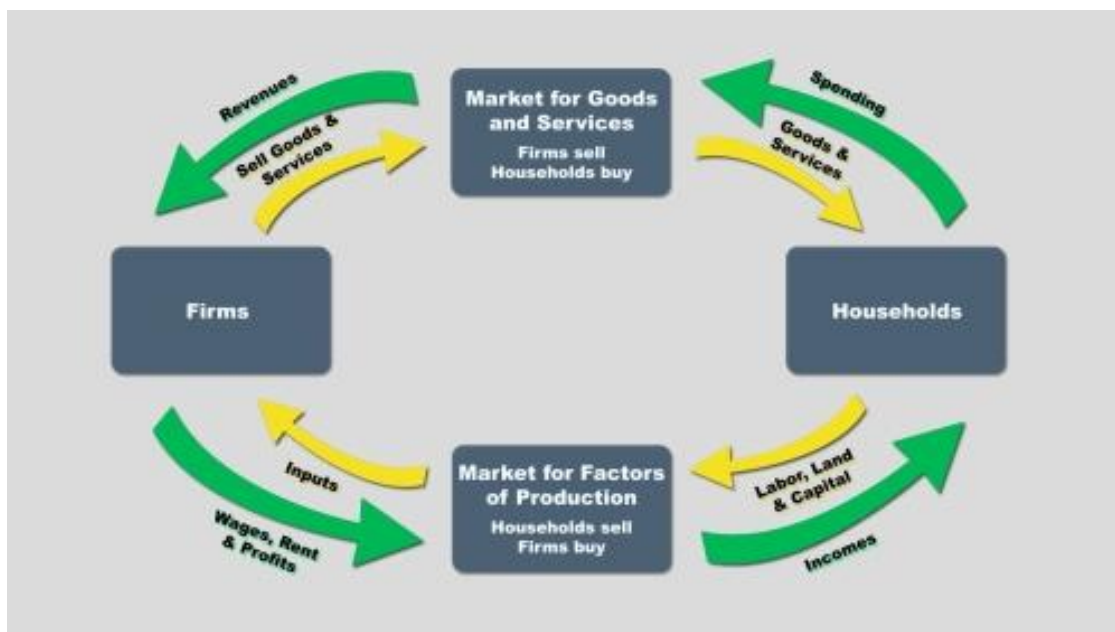
CIRCULAR FLOW BETWEEN HOUSEHOLDS AND FIRMS

Firms produce goods and services using factors of production. These are inputs such as labor, land, capital and entrepreneurial talent.

Households consume the goods and services that firms produce. Households also own the factors of production that firms use.

Households and firms interact in two markets: the market for goods and services and the market for factors of production.

In the market for goods and services, firms are sellers and households are buyers. In the market for factors of production, firms are buyers and households are sellers. The impact of government and international trade is not considered in this model.



As an example of how this works, think about what happens when you buy a pizza. You are a household and you pay a firm (a pizza parlor) \$10 for a pizza. The owner of the pizza parlor uses that money to pay for his rent, for electricity (to cook the pizza), for his workers (to make the pizza) and for the ingredients (tomatoes, flour, cheese, pepperoni) that go into the pizza.

Obviously, your \$10 won't cover all of that, but if you take all the money that the pizza parlor makes in a week and 20% of that money goes to buying the ingredients for the pizza, then \$2 out of your \$10 was used to buy ingredients.

Now further imagine that you work for the company that makes the cheese that goes on to the pizza that you paid \$10 for. That means that every time you buy a pizza, a small amount of money – maybe a few pennies – comes back to you in your salary, because the owner of the pizza parlor uses a small amount of

² Real World Economics video: "Circular Flow of Income" - www.textbookvideos.com

that \$10 to buy cheese and the company that makes the cheese uses part of that money to pay your salary. That's why it's called the circular flow.

PRODUCTION POSSIBILITIES FRONTIER

The production possibilities frontier is a graph that shows the possible combinations of output an economy can produce with available factors of production and production technology.

In a simplistic example where an economy can produce only two types of goods, iron ore and autos, the economy can produce any combination of output on or inside the production possibility frontier.

At the extreme, if all resources are used to produce iron ore, no autos can be produced.

At the other extreme, if all resources are used to produce autos, no iron ore can be produced.

Points on the production frontier represent efficient levels of production. Points inside the curve represent inefficient production since better outcomes are available on the frontier.

MARKET FORCES - SUPPLY AND DEMAND

A market is where a group of buyers and sellers of a good or service interacts.

The buyer group determines demand for the good or service and the seller group determines supply of the good or service.

A competitive market has many buyers and sellers. Neither buyers nor sellers have a meaningful impact on market prices in a competitive market.

DEMAND CURVE

QUANTITY DEMANDED: the law of demand states, that all other things being equal, as prices rise, quantity demanded declines.³ This is why the demand curve has a negative slope.

As prices decline, quantity demanded increases.

THE LAW OF DEMAND states that the quantity of a commodity demanded varies negatively with a change in its price, other things remaining constant.



The demand curve can show a single individual's demand for a good or it can show many individuals' aggregate demand for a good.

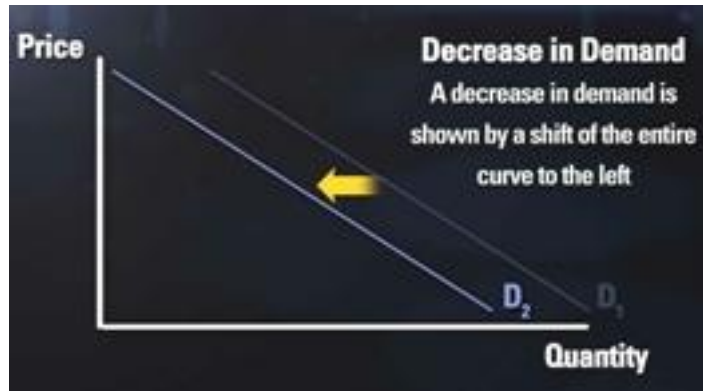
³ Real World Economics video: "Movement Along the Demand Curve" - www.textbookvideos.com

When we add together all individuals' demand curves in a market, we get a market demand curve.

DEMAND CURVE SHIFTS. A shift in the demand curve occurs when the quantity demanded at every price changes.

An "increase in demand" means that the demand curve shifts to the right and the quantity demanded at every price increases.

A "decrease in demand" shifts the demand curve to the left and the quantity demanded at every price decreases.⁴



VARIABLES THAT CAN CAUSE DEMAND CURVES TO SHIFT

Many variables can shift demand curves. The most important are:

1. Income
2. Prices of related goods (complements and substitutes)
3. Tastes and preferences
4. Expectations
5. Number of buyers

INCOME can affect demand. If demand for a good increases when income increases, the good is a "normal" good. If demand for a good falls when income increases, the good is an "inferior" good.

"Normal goods" can be further divided into Necessary goods and Superior goods. You purchase more "necessary goods" as your income increases, but there is a limit to how much more you will buy. Your purchases of "superior goods" on the other hand continue to increase the more income that you make.

As an example, as your income increases the amount of milk you purchase will go up, but only to a limited extent. You can only drink so much milk! So milk is a "necessary good". On the other hand, as your income increases, your purchases of wine also increase because you buy more wine and more expensive wine. So wine is a "superior good".

Mathematically, any good that you purchase more as your income increases is a "normal good", but to be a "superior good" the income elasticity of demand of the good has to be greater than 1. In other words, if your income goes up by 10%, and your purchases of a good go up by 10% or higher, then it is a "superior good".

PRICES OF RELATED GOODS can affect demand. When the price of one good falls, causing demand for another good to fall, all other things remaining constant, the two goods are substitutes. Example: If the price of Coke falls and demand for Pepsi falls, then the two goods are substitutes.

⁴ Real World Economics video: "Change in Demand" - www.textbookvideos.com

When the price of one good falls, causing demand for another good to rise, all other things remaining constant, the two goods are complements. Example: If the price of gas falls, causing demand for cars to rise, then gas and cars are complements.

Actual buyer behavior determines which goods are substitutes and which goods are complements.

Mathematically, the Cross-Price Elasticity of Demand is expressed as the percentage change in demand for good X divided by the percentage change in price for good Y.

TASTES AND PREFERENCES. People's changing tastes and preferences affect demand. For example, when the Atkins diet became popular, those on the diet began eating more meat, so the demand for meat increased. Conversely, outbreaks of the "Mad Cow Disease" made consumers scared to eat beef, reducing the demand.

CONSUMER EXPECTATIONS can affect demand. If people think that the price of appliances, for example, will fall, this expectation may cause people to buy fewer appliances today.

POPULATION GROWTH. If there are more individuals buying in the marketplace, demand for goods will grow.⁵ Note that this can also refer to demographic shifts. As an example, let's say that the population of a city stays the same, but the percentage of immigrants increases. We would expect that the demand for specialty foods like exotic spices would increase.



DEMAND CURVE SHIFTS VERSUS MOVING UP OR DOWN THE DEMAND CURVE

A demand curve shifts when relevant variables, other than the two variables being plotted on the axes, change.

When describing a demand curve, remember to consider whether or not you should preface a statement with "all other things being equal".

Changes in price of a good do not shift the curve; they cause a movement up or down the curve. According to the law of demand, an increase in price decreases the quantity demanded - moving up and to the left on the curve. A decrease in price increases the quantity demanded - moving down and to the right on the demand curve.

⁵ Real World Economics video: "Variables Shift Demand Curves - Population Growth" www.textbookvideos.com

SUPPLY CURVE

QUANTITY SUPPLIED: the law of supply states, that all other things being equal, as prices rise, quantity supplied increases. This is why the supply curve has a positive slope.

The curve plotting price and quantity supplied is called the supply curve.

THE LAW OF SUPPLY states, that all other things being equal, when prices rise, quantity supplied rises.

The supply curve shows a positive relationship between the quantity of a good sold and the price at which it is sold. When prices are high, firms make more money and supply more goods. When prices are low, firms may lose money and even be forced to shut down.

A supply curve shifts when relevant variables, other than the two variables being plotted on the axes, change.

When describing a supply curve, remember to consider whether or not you should preface a statement with "all other things being equal".

Market supply is the sum of all individual sellers' supply curves.

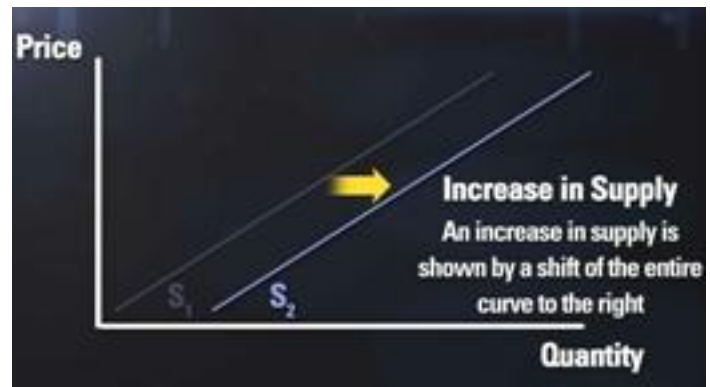
SUPPLY CURVE SHIFTS - Factors other than price that affect how much producers sell.

Any change that causes sellers to supply greater quantities at all prices causes the supply curve to shift to the right. This is called an increase in supply.⁶

Any change that causes sellers to supply lower quantities at any given price causes the supply curve to shift the left. This is called a decrease in supply.

Many variables can shift supply curves. The most important are:

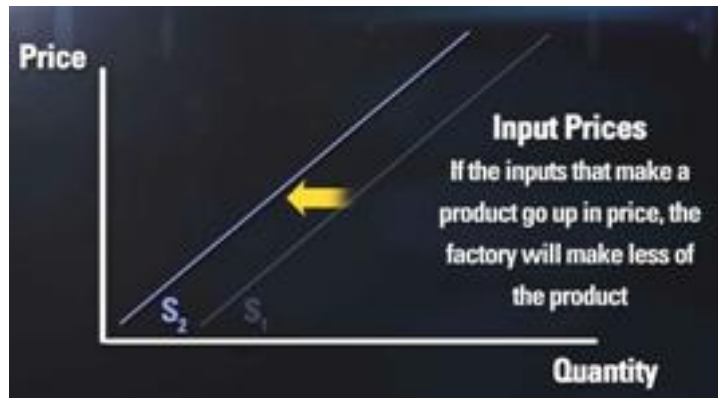
1. Input prices
2. Producer's expectations
3. A change in price of a related good
4. Technology
5. Number of sellers
6. Government



⁶ Real World Economics video: "Change in Supply" - www.textbookvideos.com

VARIABLES THAT CAN CAUSE SUPPLY CURVES TO SHIFT

INPUT PRICES. If the prices of a good's inputs rise, then producing the good is less profitable for the firms. Firms then supply fewer goods, causing the supply curve to shift to the left.⁷ Thus, supply of the good is negatively related to the cost of its inputs.



PRODUCER'S EXPECTATIONS. If a producer expects prices to rise in the future, the producer may stockpile its goods, supplying fewer goods to the market today.

A CHANGE IN PRICE OF RELATED GOODS. If substitute goods' prices rise, a producer may be willing to supply fewer goods at any given price, thus shifting the supply curve to the left. Frequently this happens because substitute goods use the same or similar inputs. For example, a new diet craze leads to an increase in demand for yogurt, which leads to an increase in price. This leads to a decrease in supply of sour cream because firms would rather make yogurt at the new higher price than sour cream.

TECHNOLOGY. Improved automation processes, for example, can reduce producers' costs, thus shifting the supply curve to the right.⁸



THE NUMBER OF SELLERS. More sellers of a good cause a greater supply of the good, thus shifting the supply curve to the right. When sellers exit the market, supply decreases and the supply curve shifts to the left.

GOVERNMENT. Government may tax producers' goods causing them to be less profitable thus shifting the supply curve to the left. Governments may also subsidize a particular good causing them to be more profitable and thus shifting the supply curve to the right.

SUPPLY CURVE SHIFTS VERSUS MOVING UP OR DOWN THE SUPPLY CURVE

Remember that a supply curve shifts only when a relevant variable, not named on either axis, changes. Changes in price of a good do not shift the supply curve; they cause a movement up or down the curve

According to the law of supply, an increase in price increases the quantity supplied - moving up and to the right on the curve. A decrease in price decreases the quantity supplied - moving down and to the left on the supply curve.

⁷ Real World Economics video: "Variables Shift Supply Curves – Input Prices" - www.textbookvideos.com

⁸ Real World Economics video: "Variables Shift Supply Curves – Technology" - www.textbookvideos.com

MARKET EQUILIBRIUM

Market Equilibrium occurs when the market price reaches a level at which quantity supplied equals quantity demanded. At this point, the price is called “equilibrium price” and quantity is called “equilibrium quantity”.⁹ The equilibrium price is sometimes called the market-clearing price.

Surplus: a situation in which quantity supplied is greater than quantity demanded.

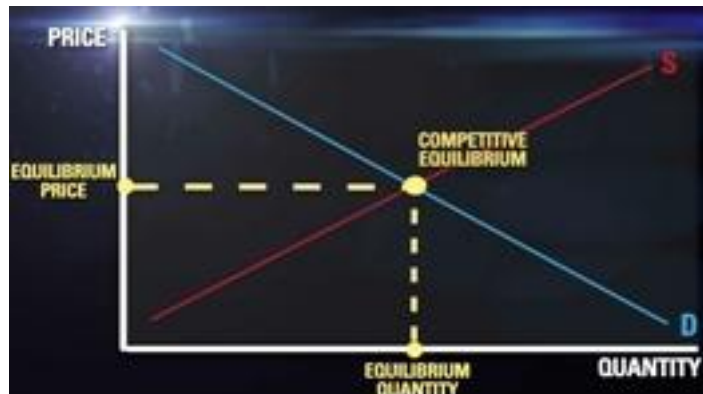
Suppliers respond to the surplus by reducing prices, thus increasing quantity demanded. Prices fall until market equilibrium is reached.

Shortage: a situation in which quantity demanded is greater than quantity supplied.

Suppliers respond to the shortage by increasing prices, thus reducing quantity demanded. Prices rise until market equilibrium is reached.

In free markets, shortages and surpluses are eliminated as prices adjust. This is called the "law of supply and demand".

Another way of thinking of this is that prices are the way that markets correct themselves. If prices are too high, consumers refuse to buy (demand is low) and this creates a surplus. Firms reduce prices in reaction to the surplus until the price becomes so low (demand is high) that consumers buy enough to create a shortage, leading firms to increase the price.



HOW DEMAND AND SUPPLY CHANGES AFFECT THE EQUILIBRIUM PRICE

Increase or Decrease in Demand. If demand for a good increases, the demand curve shifts right. If there has been no change in supply, the equilibrium price rises. If demand for a good decreases, the demand curve shifts to the left. If there has been no change in supply, the equilibrium price falls.

Decrease or Increase in Supply. A decrease in supply means that the supply curve shifts to the left. If there has been no change in demand, the equilibrium price rises. An increase in supply means that the supply curve shifts to the right. If there has been no change in demand, the equilibrium price falls.

Demand Increase, Supply Increase. Both the supply and demand curve shift to the right. The new equilibrium price can increase, decrease, or remain the same, depending on curve shape and how much each curve shifts. If demand increases more than supply, the new equilibrium price is higher. If supply increases more than demand, the new equilibrium price is lower. If supply and demand both increase by the same amount, the equilibrium price stays the same.

⁹ Real World Economics video: “Collusion In The Marketplace” - www.textbookvideos.com

Demand Decrease, Supply Decrease. Both the supply and demand curve shift to the left. The new equilibrium price can increase, decrease, or remain the same depending on curve shape and how much each curve shifts. If demand falls more than supply, the new equilibrium price is lower. If supply falls more than demand, the new equilibrium price is higher. If supply and demand both decrease by the same amount, the equilibrium price stays the same.

Increasing Demand, Decrease in Supply. The demand curve shifts to the right. The supply curve shifts to the left. The new equilibrium price rises.

Decreasing Demand, Increase in Supply. The demand curve shifts to the left. The supply curve shifts to the right. The new equilibrium price falls.

ELASTICITY

Elasticity is defined as the magnitude of a change in the quantity consumed due to a change in price, income or the price of a related good. In other words, how much more or less of a particular good do we purchase and use when our circumstances change? These three elasticities are called price elasticity, income elasticity and cross-price elasticity respectively.

Price elasticity of demand = Percentage change in quantity demanded / Percentage change in price

Income elasticity of demand = Percentage change in quantity demanded / Percentage change in income

Cross-price elasticity of demand = Percentage change in quantity demanded of good X / Percentage change in price of Y

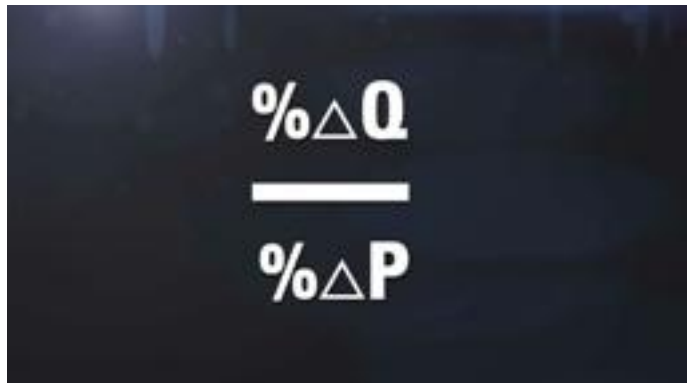
PRICE ELASTICITY OF DEMAND

Price elasticity of demand = Percentage change in quantity demanded / Percentage change in price

Demand is elastic when the quantity demanded responds substantially to price changes.¹⁰

Demand is inelastic when the quantity demanded responds only slightly to price changes.

If demand is "perfectly inelastic", quantity demanded does not change with price, thus the demand curve is a vertical line. An easy way to remember that "inelastic" demand corresponds to a vertical line is to think of that vertical line as a letter "I" which is the first letter in the word "inelastic".



¹⁰ Real World Economics video: "Elastic Goods" - www.textbookvideos.com

If demand is “perfectly elastic”, at a given price suppliers will supply an infinite amount, so the demand curve is a horizontal line. An easy way to remember that “elastic” demand corresponds to a horizontal line is to think of the graph as looking a bit like the letter “e” which is the first letter in the word “elastic”.

Goods with close substitutes usually have more elastic demand because consumers can easily purchase substitutes when there are price increases.

Necessities usually have inelastic demand, while superior goods (also called luxury goods) usually have elastic demand.

Demand is considered elastic when elasticity is greater than one.

Demand is inelastic when elasticity is less than one.

Demand has "unit elasticity" when elasticity equals one.

Total Revenues and Price Elasticity of Demand

Since Total Revenues = Price × Quantity, business people need to know how Total Revenues change at different prices.

1. When demand is inelastic (elasticity is less than one), total revenues increased when prices increase and revenues decrease when prices decrease
2. When demand is elastic (elasticity greater than one), total revenues decrease when prices increase and revenues increase when prices decrease
3. When demand is unity elastic (equals one) total revenues stay the same when prices change.

INCOME ELASTICITY OF DEMAND

Income elasticity of demand = $\text{Percentage change in quantity demanded} / \text{Percentage change in income}$

Normal good is one whose consumption rises with a rise in income. Therefore, the income elasticity for such goods is positive. Most goods are normal goods. Higher incomes raise demand for "normal goods".¹¹

"Normal goods" can be further divided into Necessary goods and Superior goods.

Mathematically, any good that you purchase more as your income increases is a "normal



¹¹ Real World Economics video: “Income Elasticity of Demand” - www.textbookvideos.com

good”, but to be a “superior good” the income elasticity of demand of the good has to be greater than 1. In other words, if your income goes up by 10% and your purchases of a good go up by 10% or higher than it is a “superior good”.

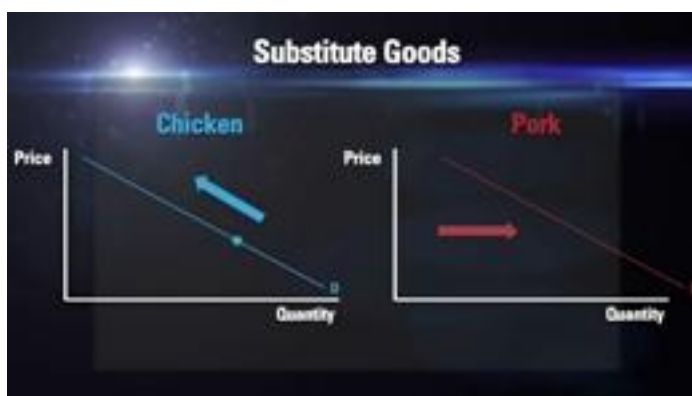
Inferior good is one whose consumption falls with a rise in income. Therefore, the income elasticity for such goods is negative. Some goods are inferior goods. This means that higher income causes lower quantity demanded.

CROSS PRICE ELASTICITY OF DEMAND FORMULA

Cross-price elasticity of demand = % change in quantity demanded of good X / % change in price of good Y

The cross price elasticity of substitute goods is positive.¹²

The cross price elasticity of complementary goods is negative.



ELASTICITY OF SUPPLY

The elasticity of supply measures how changes in price affect quantity supplied.

Price elasticity of supply = Percent change in quantity supplied / Percent change in price

Supply of the good is elastic if the quantity supplied responds substantially to a price change. Percent change in quantity supplied > Percent change in price (Price elasticity of supply > 1)

Supply of a good is inelastic if the quantity supplied responds slightly to a price change. Percent change in quantity supplied < Percent change in price (Price elasticity of supply < 1)

Because many firms have limited production capacity, elasticity of supply can be very low (inelastic) at high levels of quantity supplied and very high (elastic) at low levels of quantity supplied.

¹² Real World Economics video: “Cross-Price Elasticity of Demand” - www.textbookvideos.com

PRICE CONTROLS

Buyers want lower prices. Sellers want higher prices.

A price ceiling is a legal maximum price for a good or service.

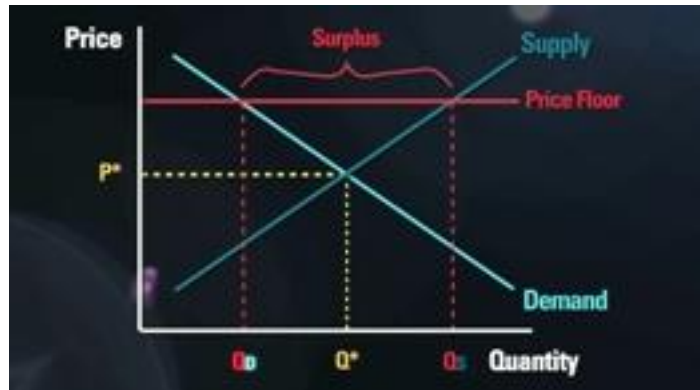
A price floor is a legal minimum price for a good or service.¹³

When the price ceiling (e.g. rent control) is below the equilibrium price, the price ceiling is binding, quantity demanded exceeds quantity supplied, and there is a shortage.

When the price ceiling is above equilibrium price, the price ceiling is not binding, and market supply and demand curves determine the equilibrium price.

When a price floor (e.g. minimum wage) is below the equilibrium price, the price floor is not binding and market supply and demand forces determine the equilibrium price and quantity.

When a price floor is above the equilibrium price, the price floor is binding, quantity supplied exceeds quantity demanded, and there is a surplus.



TAXES

A tax on buyers shifts the demand curve down by the amount of the tax.

A tax on sellers shifts the supply curve up by the amount of the tax.

Even though the tax may be levied on buyers, both buyers and suppliers share the tax burden. The relative tax burden borne by buyers and sellers is determined by the elasticity of supply and demand curves.

Both the law of supply and demand and law implemented by government impact the economy.

¹³ Real World Economics video: "Price Controls" - www.textbookvideos.com

CONSUMER SURPLUS

Consumer surplus is the amount that a buyer is willing to pay for a good or service, less the amount actually paid.

Consumer surplus in a market is the total area below the demand curve and above the price.

PRODUCER SURPLUS

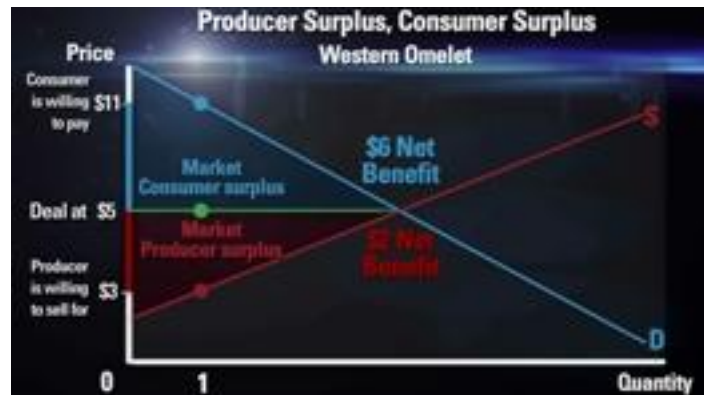
Producer surplus is the amount that the seller is paid less the cost of production.

Producer surplus in a market is the area below the price and above the supply curve.¹⁴

Total Surplus = Value to Buyers - Cost to Sellers

It is possible for a surplus to exist for both consumer and producer. A good place to see this in real life is on TV on the many reality shows featuring pawn shops. The seller (producer) will usually state, on camera, the minimum amount that they would accept before entering the pawn shop. Typically, the price that they ask is higher. When a deal is made, it is because the price that the pawn store owner is willing to pay is higher than the minimum amount that the seller was willing to take.

As an example, let's say that a seller wants to sell a civil-war era sword that belonged to his great-grandfather. The seller's minimum price is \$500, but he starts by asking \$1,000. The pawn shop owner knows that he can sell the sword for \$1500 and in order to make enough profit on the sword, the most he will pay is \$1000. When the two make a deal for \$750, both have a surplus of \$250. The seller made \$250 more than the least he was willing to accept, and the buyer made \$250 less than the most he was willing to pay.



¹⁴ Real World Economics video: "Producer Surplus Consumer Surplus" - www.textbookvideos.com

PRICE DISCRIMINATION

Price discrimination occurs when firms try to sell the same good or service to different customers at different prices even though the cost of production is the same for each customer.

Price discrimination is a rational strategy for a seller, but the seller must be able to identify and separate customers based on their willingness to pay.

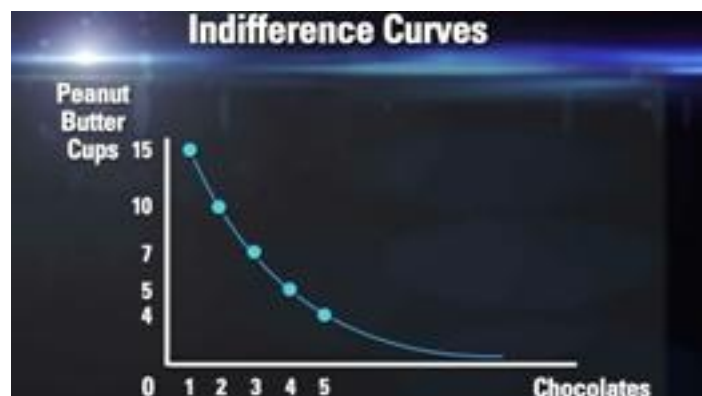
You can see price discrimination at work any time you step on a bus. There is a fare for the average person - say \$2 a ticket. And, there is a reduced fare for seniors and students - say \$1.50. In order to qualify for the reduced fare, students and seniors usually need to have their ID accepted by the bus company. There also may be a reduced price for customers who buy a bundle of tickets at once, or for customers who pay for the right to ride an unlimited number of times for a period of time like a weekend or a month.

CONSUMER CHOICE

Buyers consume less than they desire because spending is constrained.

An indifference curve shows consumption bundles that give the consumer the same level of satisfaction.

The slope at any point on the indifference curve is the marginal rate of substitution, and equals the rate at which a consumer will substitute one good for another (the quantity of goods shown on each axis).¹⁵



1. Since consumers prefer higher levels of consumption, higher indifference curves are preferred to lower ones. Any point on the higher indifference curve is preferred to all points on the lower indifference curve.
2. Indifference curves slope downward because they measure the rate at which a consumer is willing to substitute one good for another good.
3. Indifference curves do not cross because consumers always prefer more of both goods shown on each axis.
4. Indifference curves are bowed inwards, because consumers happily trade away goods that they have in abundance for goods that are scarce.

PERFECT SUBSTITUTES. When the marginal rate of substitution between two goods is constant, the indifference curve is straight and the goods are "perfect substitutes".

¹⁵ Real World Economics video: "Consumer Choice" - www.textbookvideos.com

PERFECT COMPLEMENTS. In a case where the indifference curve is being plotted for goods that are both required (e.g. left winter glove and right glove), the indifference curve is a right angle.

A consumer will choose the point on the budget constraint that lies on the highest indifference curve. This is the point at which the marginal rate of substitution = relative price

UTILITY

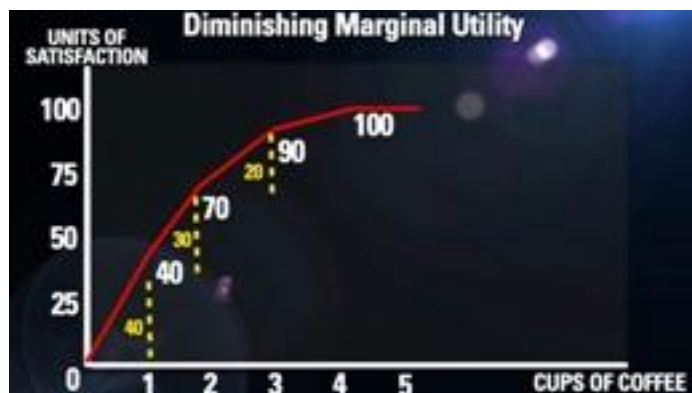
Utility is the amount of satisfaction the consumer receives from a bundle of goods. Utility is usually measured by economists using a unit of satisfaction called “Utils”.

Utils are an ordinal measurement, not a cardinal measurement. An “ordinal measurement” is a ranking system. A gold medal is better than a silver medal which is better than a bronze medal. A cardinal measurement is made up of incremental units that are constant and consistent. The sprinter from Georgia won gold because she ran 100 metres in 9.8 seconds, the sprinter from Texas got silver for running 100 metres in 10 seconds and the sprinter from Rhode Island got bronze for running 100 metres in 10.1 seconds. Cardinal measurements are always ordinal, but ordinal measurements are not always cardinal.

As an example, if you were ranking your levels of satisfaction after each sip of a cup of coffee, you could rank whether you were more satisfied or less than after the previous sip, but you couldn’t measure exactly how much more.¹⁶

Marginal utility is the increase in utility that a consumer gets from an additional unit of the good.

Most goods have diminishing marginal utility since the consumer with more goods receives less marginal utility from an extra unit of the good.



Income effect is the changing consumption that results from the movement to a higher indifference curve.

Substitution effect is the changing consumption arising from a move along the indifference curve to another point that has a different marginal rate of substitution.

Normally, demand for a good declines as its price increases. A Giffen good, however, experiences increased demand as its price increases.

Rice in the developing world is a good example of a Giffen good. Normally, consumers of rice split their food budget between rice and meat, but when the price of rice increases, they can no longer afford to buy both rice and meat, so they choose to buy only rice, increasing the demand.

¹⁶ Real World Economics video: “Diminishing Marginal Utility” - www.textbookvideos.com

PART II - PRODUCER BEHAVIOR AND COST CURVES

Firm's Profit = Total Revenues - Total Cost

Total revenue is the amount of money a firm receives for the sale of its output.

Total cost is the market value of the inputs that a firm uses in production.

Note that economists count the market value of the input rather than the actual cost of the input that accountants use.

Explicit costs require that the firm pay money out. Implicit costs do not require such an outlay.

The production function is a relationship between the quantity of inputs used to make a good and the quantity output of the good.

DIMINISHING MARGINAL PRODUCT

Diminishing Marginal Product is the decline of the marginal product of an input as quantity of the input increases.¹⁷

Diminishing Marginal Returns to a factor refers to a decreasing level of output derived from each additional unit of a variable factor, as the number of units of the variable factor is increased holding the fixed factor constant.

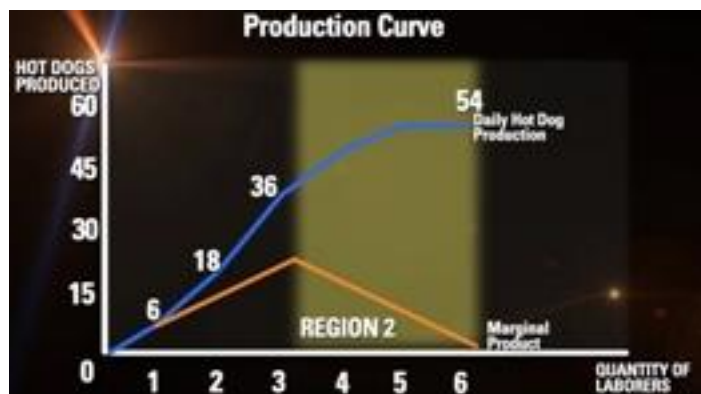
Diminishing Returns to scale refers to a decreasing level of additional output received from expanding the scale of production.

Total Product is the total amount of output produced

Average Product is the total product divided by the number of units of input used to produce that output.

Marginal Product is the amount of output produced by each additional unit of input.

NOTE: When the average product curve rises, the marginal product curve rises faster. When the average product curve falls, the marginal product curve falls faster.



¹⁷ Real World Economics video: "Diminishing Marginal Product" - www.textbookvideos.com

MARGINAL COST CURVE

For many firms, marginal cost rises (after experiencing increasing marginal product) with quantity produced, demonstrating the property of diminishing marginal product.

Fixed Cost is that amount of cost which does not vary with changes in output.

Variable Cost is that amount of cost that varies with a change in the level of output.

Total Cost is the sum of the fixed costs and variable costs.

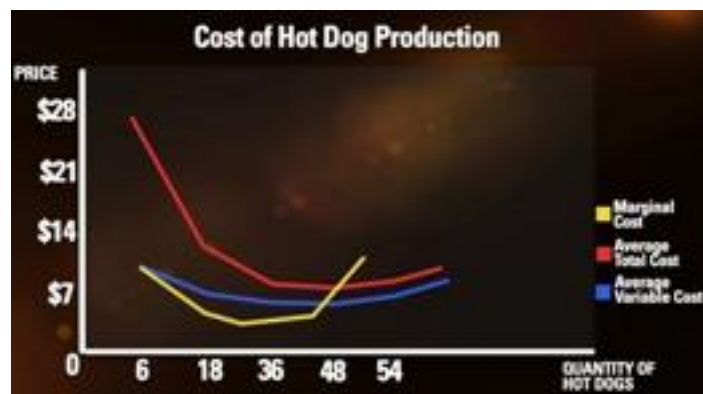
Total Cost Curve plots the relationship between quantity of output produced and total cost of production

Average Total Cost = Total Cost / Output¹⁸

Average Fixed Cost = Fixed Cost / Output

Average Variable Cost = Variable Cost / Output

Marginal Cost = Change in Total Cost / Change in Output



NOTE: The marginal cost curve cuts the average cost from below, at the minimum point of the average cost curve.

When the average cost curve falls, the marginal cost curve falls faster. When the average cost curve rises, the marginal cost curve rises faster.

Average Fixed Cost curve always declines as the fixed cost is spread out over a larger number of units.

Average Variable Cost curve (like many marginal cost curves) falls for a while before increasing. The average variable cost usually rises with output due to the diminishing marginal product (Average Variable Cost = Marginal Cost at first unit of output)

When marginal cost is less than average variable cost, average total cost is falling

When marginal cost is greater than average variable cost, the average total cost is rising
Therefore, the marginal cost curve crosses the average total cost curve at the ATC's minimum.

SHORT RUN VERSUS LONG RUN

The division of total costs between variable and fixed depends upon the time horizon.
A factory, for example, is a fixed cost in the short run, but a variable cost in the long run.

Economies of Scale: when long-run average total cost declines with quantity produced

Diseconomies of Sale: when long-run average total cost increases with quantity produced

Constant returns to scale: when long-run average total cost remains the same with quantity produced

¹⁸ Real World Economics video: "Diminishing Marginal Product" - www.textbookvideos.com

MARKETS FOR FACTORS OF PRODUCTION

WHY WAGES VARY

Supply and demand for labor determines prices paid to workers.

Demand for a factor of production, like labor, is a derived demand meaning that the demand is derived from the firm's decision to supply a good or service.

In competitive markets, buyers and sellers are price takers, meaning that both have little influence over the prices paid.

The factors that go into deciding wages are the same for janitors as they are for CEOs, as they are for professional athletes. The wage is based on how many people can do the job (many for the janitor, a handful for the CEO, and few for the professional athlete) and how much extra money (marginal revenue) the firm will make by hiring that person.¹⁹



Another important factor is how many people want to do the job. “Sanitation Workers” make more than one would expect, because many people are qualified to pick up garbage, but few actually want to do it.

LABOR DEMAND CURVE

Marginal product of labor is the increase in the output from an additional unit of labor.

The labor production function is the relationship between the quantity produced and the labor input.

Since firms want to maximize profits, as long as the value of the marginal product exceeds the wage paid, more labor will be demanded.

Factors That Cause the Demand Curve for Labor to Shift

1. Price of output good or service. As prices increase, the labor demand curve shifts right.
2. As technology improves, the labor demand curve shifts right.
3. Other factors that affect the marginal product of labor

¹⁹ Real World Economics video: “Why Wages Vary” - www.textbookvideos.com

LABOR SUPPLY CURVE

An upward slope in the labor supply curve means that an increase in wages will cause workers to increase the quantity of labor supplied.

LABOR SUPPLY CURVE SHIFTS DUE TO:

Changing Attitudes of the Work Force. E.g. women working

Alternative Labor Markets. Moving from one labor market to another

Immigration and Labor Flow. Movement of workers regionally or between countries

LABOR MARKET EQUILIBRIUM

Firms have hired workers until the value of the marginal product of labor equals the wage.

The equilibrium wage always equals the value of the marginal product.

NEGATIVE EXTERNALITY

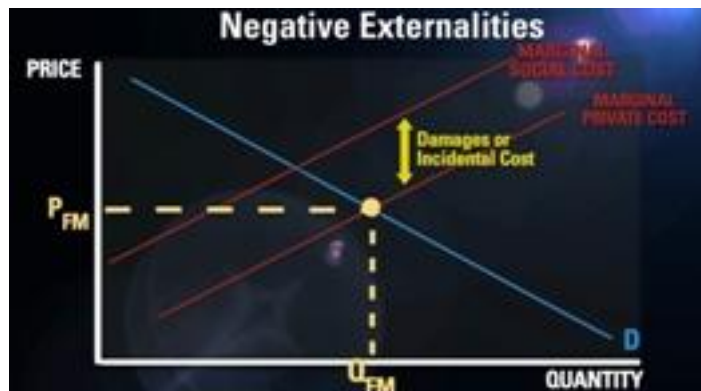
Pollution is an example of a negative externality.²⁰

Social cost curve = Private cost + Cost to those adversely affected

Since the social cost curve lies above the supply curve, the socially optimal quantity produced is less than the free market quantity produced.

Government often attempts to achieve optimal outcomes by taxing firms, who then take the cost of tax into account when determining quantity produced.

As an example of a negative externality, think about a commercial street that the city decides to tear up and rebuild. The construction activity is a negative externality to the stores on that street. One way for the city to rectify this negative externality is to reduce or eliminate the taxes that they normally charge to the affected businesses while the construction is going on. While cities might be reluctant to do this, it might be in their best interest, because if a store on the street loses too much money and has to close because of the negative externality caused by the construction, the city loses all future tax revenues from that store rather than some of the tax revenues lost by offering a limited rebate.

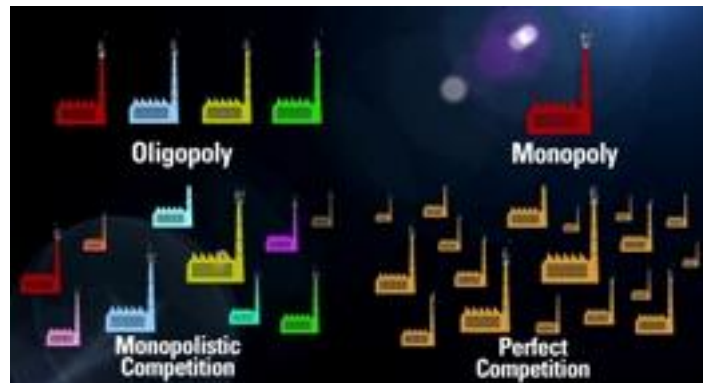


²⁰ Real World Economics video: "Negative Externalities" - www.textbookvideos.com

PART III – MARKET STRUCTURES

Market structures can be thought of as a spectrum from most competitive (perfect competition) to least competitive (monopoly).

In a related way, the spectrum of market structures also ranges from no barriers to enter the market (perfect competition) to very high barriers to enter the market (monopoly).²¹



PERFECT COMPETITION

Characteristics of Perfect Competition:

1. There are many buyers and sellers.
2. Homogeneous goods. Goods are largely the same.
3. Firms are price takers
4. Firms freely enter and exit the market

One easy way to spot a perfectly competitive market is through advertising. Pork producers are in a perfectly competitive market. Individual pig farms do not advertise -- there would be no point. But the pork industry, as a whole, advertises pork in general (“The Other White Meat”) to maintain or improve pork’s position against its competition – chicken, lamb, beef.

By comparison, turkey producers do have specific brands like Butterball, which advertise the value of their specific brand of turkey. Thus, the turkey market is not a perfectly competitive market.

Firms continue to increase quantity while marginal revenue is greater than marginal cost.²²

The firm can maximize profit by producing the quantity at which marginal revenue equals marginal cost (which is also the Price in perfectly competitive markets)



²¹ Real World Economics video: “Market Structure Characteristics” - www.textbookvideos.com

²² Real World Economics video: “Perfect Competition – Profit Scenario” - www.textbookvideos.com

Profit Maximization occurs when $\text{Marginal Revenue} = \text{Marginal Cost}$

Each individual firm faces a horizontal demand curve. $\text{Marginal Revenue} = \text{Average Revenue} = \text{Price}$

The market demand curve is downward sloping. The price is determined by the demand and supply in the market (industry) as a whole. Each individual firm accepts the price, but cannot affect it.

An individual firm may make profits or losses in the short run, but will continue to produce in the long-run as long as it can cover its variable costs.

For competitive firms, the marginal cost curve is the same as its supply curve.

Firms operate to maximize profits or minimize losses. Firms do this by following two simple rules. First, the firm should operate where $\text{Marginal Revenue} = \text{Marginal Cost}$. Second, the firm should shutdown if the firm loses more money by operating. In short, shutdown occurs if marginal revenue is below average variable cost at the profit-maximizing output.

Exit means that the firm has left the market for the long term.

Fixed costs are considered to be sunk costs.

A sunk cost is a cost that cannot be avoided no matter what the level of output may be.

LONG RUN DECISION TO EXIT

A firm exits if the price of its good or service is less than the average total cost of production.

A firm enters the market if the price of its good or service is greater than its average total cost of production

Although a firm realizes zero profit condition in an industry in the long term, remember that the cost inputs are at market value and reflect the opportunity costs of time and money.

In perfect competition:²³

1. Profits are zero in the long run
2. Price equals average total cost minimum
3. Firms produce at efficient scale
4. The number of firms in the market changes



²³ Real World Economics video: "Perfect Competition with Shutdown" - www.textbookvideos.com

MONOPOLY

Characteristics of a monopoly:

1. Single firm
2. The firm is a price maker
3. The good sold has no close substitutes

A monopoly can be created either because a producer has sole access to a resource, or due to economies of scale, or due to legal barriers to entry like licenses, patents etc.

In many cases, government gives a firm the exclusive right to sell a good or service thus creating a monopoly.

Government awarded patents and copyrights also facilitate the establishment of monopolies.

A monopoly firm is a price maker

A monopoly's demand curve is the market demand curve.

To increase the amount sold, a monopoly needs to lower price. By definition, the firm's marginal revenue is less than its price.

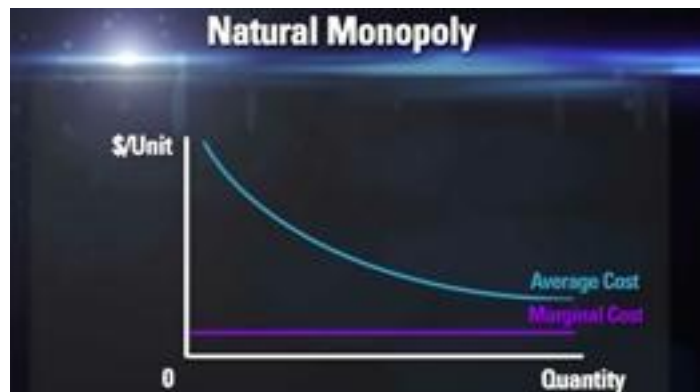
A monopoly maximizes profit at the quantity where marginal revenue equals marginal cost.

In monopolies, price exceeds marginal cost. In competitive markets, price equals marginal costs.

NATURAL MONOPOLY

A firm has a natural monopoly when it can supply a good or service to an entire market at a lower cost than two or more firms could. Usually natural monopolies have large fixed costs, but very low (and flat) variable costs.²⁴

This means that the more customers that a natural monopoly has, the lower its average cost is. It also means that natural monopolies can drop their prices to fight off competitors.



As an example, a firm that supplies electricity has a large fixed cost – a power plant – but once the plant is built, the cost of adding one more customer (the marginal cost) is negligible. If another firm wanted to enter the marketplace and was willing to build another power plant, the original firm could make this even more difficult by simply dropping their prices to their marginal cost. The new firm would then have no way to make back their investment (the fixed cost) and would probably choose not to enter the market.

²⁴ Real World Economics video: “Natural Monopoly” - www.textbookvideos.com

OLIGOPOLY

Characteristics of an oligopoly: Few firms who are interdependent such that their actions have an impact on each other

A duopoly is an oligopoly with two competitors.

If firms colluded on price and quantity, they could act as a monopoly and extract monopoly profits.

Anti-trust laws prohibit such collusion in the public interest.²⁵

Game theory explains most of this behavior where each player acts in their own self interest.

A small number of sellers make strong competition unlikely.

The oligopoly price is greater than the price in a competitive market, but less than the price in a monopolistic market.

As the number of sellers in an oligopoly increases, it begins to look like a competitive market.

One good example of an oligopoly is the airline industry. There are a small number of firms. Entering the market is difficult, but not impossible. Firms try to differentiate their goods, but mainly compete on price. Firms pay close attention to what their competitors are doing and try to match it. That's why every airline has its own loyalty program.



²⁵ Real World Economics video: "Oligopoly" - www.textbookvideos.com

MONOPOLISTIC COMPETITION

Monopolistic Competition demonstrates some of the characteristics of monopoly and some of competition.

Characteristics of Monopolistic Competition:

1. There are a large number of firms in the market, though not as large as in perfect competition.
2. The products have close substitutes.
3. Given the differentiation in products, firms have some control over their prices.

Each competitor's product is different from those of other firms; therefore, the demand curve is downward sloping.

Monopolistic competitors maximize profits when marginal revenue equals marginal cost.

In the short run, the price they receive can be either greater or less than marginal cost, meaning they can operate at a profit or a loss.

The firms can partially control the price. Therefore, they set prices above marginal cost.

Though the short run profits may be positive, the long run results in zero economic profits.

In the long run this does not last, since competitors will enter the market when firms are making profits.

If firms are losing money, some will exit and prices will rise as each individual firm's demand curve shifts to the right.

This process continues until firms make zero economic profit.²⁶



At zero economic profit, the firm's demand curve is tangent to its average total cost curve.

Because average total cost is not at its lowest point, the firms have excess capacity.

Monopolistically competitive firms always want more customers since price exceeds marginal cost.

In perfect competition, firms do not make more profit with each additional customer since marginal revenue equals marginal cost.

One good example of monopolistic competition is fast food restaurants. There are a large number of firms of varying sizes. They each offer very similar but differentiated products. (E.g. Big Mac vs. Whopper) They

²⁶ Real World Economics video: "Monopolistic Competition" - www.textbookvideos.com

have some control over prices, but not total control. They have to pay very close attention to what their competitors are doing and will frequently try to match their competitors. If the downtown McDonald's decides to stay open 24 hours, the nearby Burger King will probably do the same and vice-versa.

As you would expect, fast food restaurants fight very hard for each possible customer. Because of the intense competition and the differentiated goods, markets that are monopolistic competition spend a lot of money on advertising.

INTERNATIONAL TRADE

The world price for a good is the price of that good in the world market.

Trade is good because countries can specialize in what they do best and activities in which they have comparative advantage.

Absolute advantage is the ability to produce a good with fewer inputs than another producer.

Opportunity cost is what must be given up to get something else.

Comparative advantage is the ability to produce a good at a lower opportunity cost than another producer.

It is possible for a producer to have an absolute advantage in the production of two goods; however, it is not possible to have a comparative advantage in both.

Gains from trade are based on comparative advantage. For both parties to gain they must trade at a price that is between each party's opportunity cost.

As an example of comparative advantage, think about Babe Ruth, the baseball player. When he started playing, Babe Ruth was a pitcher -- one of the best in baseball. For decades, he held a World Series record for pitching. Babe Ruth was also the best hitter in baseball. Even though Babe Ruth was as good or better a pitcher than anyone who played for his team, there was no one even close to being as good at hitting as Ruth. Although Ruth had an absolute advantage over other players in both hitting and pitching, Ruth's comparative advantage in hitting caused the team manager to play Ruth as an outfielder so that the team would have the best chance of winning.

A NOTE OF THANKS

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The Real World Economics videos bring this text to life and feature exceptional instructors who are dedicated to helping students learn Economics. Visit our web site at www.textbookvideos.com to see what we mean.

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Jay Moulton is the president of YoungCuts Inc., a film production company specializing in the development of short educational videos that help students, businesspeople and consumers learn key concepts in minutes. Jay wrote The TextbookVideos Microeconomics Study Guide - Text Version to accompany the TextbookVideos Real World Economics video series, which can be found at www.textbookvideos.com.

During his career as a film producer, Jay has produced more than 500 videos, covering a spectrum that ranges from education to entertainment. Since 2004, he and his festival team have annually produced one of the world's most popular film festivals for great young filmmaking talent - The YoungCuts Film Festival. Jay's front-row seat at the film festival made it easy to see that professional filmmaking techniques could be applied to educational video. Students can learn and be entertained at the same time.

Jay's business career has provided lots of real world, applied economics experiences. He has worked as a professional engineer, as Vice-President of Sales for a financial institution, as President of a plastics manufacturing company, and as an owner, director and investor in many private companies. Jay graduated in electrical engineering from the Royal Military College of Canada and earned an MBA at the Harvard Business School.