

Advanced placement microeconomics

[Economics](#), [Microeconomics](#)



Advanced Placement Microeconomics Instructor, Mrs. Peggy Pride Study
Notes to accompany Economics Principles, Problems and Policies, 15th Ed.
Campbell McConnell Stanley Brue AP MICROECONOMICS SEMESTER PLAN
Instructor, Mrs.

Peggy Pride TEXT: Economics, Principles, Problems and Policies, 15th Edition,
McConnell and Brue Video: Econ U\$A series with discussion Class Activities:
APIP workbook activities, reinforcement and writing activities and other
teacher-developed materials This semester-long course gives students a
thorough understanding of the principles of economics that apply to the
function of individual decision-makers, both consumers and producers, within
larger economic systems. It places primary emphasis on the nature and
function of product markets.

It also examines factor markets and the role of government in promoting
greater efficiency and equity in the economy. Topic Timing (days) Chapters
1, 2, 4, 6 Unit One 8-12% of AP Basic Economic Concepts 9 Micro Exam
Scarcity and Opportunity Cost Economic Systems: the Market System
Specialization and Comparative Advantage 3, 20, 21 20-30% of AP Micro
Exam Unit Two Nature and Function of Product Market Supply and Demand
Ceilings and floors Elasticity and applications Models of consumer choice 15
2, 23, 24, 25 Unit Three 40-50% of AP Firm production, costs, revenues 30
Micro Exam Production costs Product Pricing within different market
structures Efficiency and government policy toward imperfect markets 27, 28
10-15% of AP Micro Exam 5, 30, 31 8-12% of AP Micro Exam Unit Four Factor
Markets Derived Demand for labor Resource Market Pricing Unit Five
Efficiency, income equity, the role of government Externalities Public Goods
<https://assignbuster.com/advanced-placement-microeconomics/>

Distribution of Income 10 12 • There will be 6 major tests during the semester (two on third topic).

There will be a final comprehensive semester exam. There will be no exemptions. Writing and reinforcement activities will be a part of the course work. You can expect “ quizzes” on each chapter during the course of each unit study. • It is expected that students will take the AP Microeconomics Exam scheduled in May. There will be a review material package with review sessions in the month of April to recall the concepts and practice test materials. AP Microeconomics Chapter One p. -14 Economics: social science concerned with the efficient use of limited or scarce resources to achieve maximum satisfaction of human material wants. • Economic perspective: a unique way of thinking about economic issues v Scarcity and Choice v Rational Behavior v Marginal Thinking: Costs and Benefits • Why Study Economics? “ The ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed the world is ruled by little else.

Practical men, who believe themselves to be quite exempt from any intellectual influences, are usually the slaves of some defunct economist. ” John Maynard Keynes (1883-1946) v Economics for Citizenship Well-informed citizens will vote intelligently Well-informed politicians will choose wisely among alternatives v Professional and Personal Application Businessmen need an understanding of economy Problems are examined from social rather than personal viewpoint Economic Methodology POLICIES Policy

economics is concerned with controlling or influencing economic behavior or its consequences.

THEORETICAL ECONOMICS Theoretical economics involves generalizing about economic behavior. **THEORIES** **FACTS** Developing hypotheses which are Gathering facts and testing hypotheses then tested against facts against the facts to validate theories **Deductive Method** **Induction Method** **Descriptive Economics** v Based on facts—observable and verifiable behavior of certain data or subject matter v Economists examine behavior of individuals and institutions engaged in the production, exchange, and consumption of goods and services.

Economic Principles (laws, models) v Task of analysis is to systematically arrange, interpret, and generalize upon facts v Principles and theories bring order and meaning to facts by tying them to together, putting them in correct relationship to one another and generalizing. Principles are expressed as the tendencies of typical or average consumers, workers, or business firms v **Generalizations** • “Other things equal” assumption—controlling all variables except one • **Abstractions**—do not mirror the complexity of real world • **Graphic Expressions**—models used to show theory **Policy Economics** v **Applied Economics** that recognizes the principles and data which can be used to formulate policies. v Determining a course of action to resolve a problem or to further a nation’s economic goals **1 Steps in Policy Economics** State the goal Determine the policy options

A clear, specific statement List specific policies to achieve goal with an assessment of possible effects Implement and Evaluate the policy which was

selected Monitor steps in implementing the policy initiatives taken Principles Are Derived At Two Levels: Macroeconomics: economy as a whole and its basic subdivisions such as government, business and households. Macro looks at totals or aggregates to examine the “ big picture”. Microeconomics: looks at specific units or segments of the economy, a particular firm or household.

Micro looks at the “ trees not the forest”. ECONOMIC GOALS • POSITIVE economics collects and presents facts. It avoids value judgments—“ just the facts, madam”! Positive economics concerns WHAT IS—what the economy is really like. • Every able-bodied individual should have opportunity to work • Fund vocational training programs in high schools and junior colleges • Create job training and subsidy to business firms willing to take on new workers • Survey statistics on employment • Do follow-up on job placements and training programs NORMATIVE economics involves value judgments about what the economy should be like or which policies are best. Normative economics embodies subjective feelings about WHAT OUGHT TO BE—examining the desirability of certain conditions or aspects of the economy. • GOALS are general objectives that we try to achieve. The nation’s policy makers use these goals so that they can make better use of scarce resources. Goals make it easier to determine the tradeoffs involved in each choice. Economic Growth—increase in the production capacity of the economy to increase the standard of living v Full Employment—provide suitable jobs for all citizens willing and able to work v Economic Efficiency—maximum satisfaction of wants with the available but scarce resources v Price-level Stability—stable price level avoiding inflation and deflation v

Economic Security—providing for those unable to earn an income v

Economic Freedom—guarantee that consumers, workers and business

owners have freedom in economic activity v Equitable Distribution of Income

—ensure that no citizen faces stark poverty while others enjoy extreme

luxury v Balance of trade—seek a reasonable balance of trade with the world

- Complementary goals when one goal is achieved, some other goal or goals will also be realized. For example, the achieving of Full Employment means elimination of low incomes and economic insecurity.
- Conflicting goals some goals are mutually exclusive. Economic Growth may be in conflict with

Economic Equity; some argue that efforts to achieve greater equal

distribution of income may weaken incentives to work, invest, innovate and take business risks, all of which promote rapid Economic Growth.

Establishment of Job Security may lessen strive for high productivity. Micro

or Macro? US GDP grew 5% in 1997. • Freeze in FL reduces supply of

oranges • FED lowers interest rates • GM hires 1000 new workers to produce

trucks. • The rate of inflation rose 4% 2 Positive or Normative? • Today's

rainfall total was 1.6 inches • Interest rates are too high for consumers. •

Congress should give taxpayers a tax break. • There ought to be a place for

homeless to live. • AT&T lost \$475 M last year. • CEO's should be required to

personally verify their company's financial reports. AP Microeconomics

Chapter Two p. 22-25 Foundation of Economics: • Social Science concerned with how resources are used to satisfy wants—the economizing problem.

Study of how people and countries use their resources to produce, distribute and consume goods and services. • An examination of behavior related to

how goods and services are acquired. • A study of how people decide who

will get the goods and services. Scarcity: • Society's material wants are unlimited and unsatiable; economic resources are limited or scarce. v Demand for goods and services exceeds the supply • Material wants means that consumers want to obtain products that provide utility. v Necessity vs. wants v Wants multiply over time with new products and incomes v Human wants tend to be unlimited, but human, natural, and capital resources are limited • Resources are materials from which goods and services are produced.

Four types of resources are: v Land —All Natural Resources v Labor— Human Resources • Fields • Manual • Forests • Clerical • Sea • Technical • Mineral deposits • Professional • Gifts of nature • Managerial v Capital—Means of production v Entrepreneurship— a particular type of • factories • business innovator human resource • office buildings • sees opportunity to make profit • machinery • uses unexploited raw materials • tools and equipment • takes risk with new product or process • use of technology • brings together land, labor, capital • use of available information • Resource Payments—note the special terms used Land-Rent Labor-wages and salaries Capital-Interest Entrepreneurship-Profit

Economic Efficiency—Using limited resources to derive the maximum satisfaction and usefulness • Full employment and full production must be realized to achieve this goal Full Employment Full Production v All available resources used v Resources used to maximize satisfaction v Employment for all willing v Allocative Efficiency-resources used to produce and able society's most wanted goods & services. v No idle capital v Productive

Efficiency–goods & services are produced v No idle arable land in least costly ways. Think About This! 1. Evaluate: “ If resources were unlimited and freely available, there would be no subject called Economics”. 2. Analyze: “ Wants are not insatiable. I can prove it. I get all the coffee I want to drink every morning at breakfast”. 3 AP Microeconomics Chapter Two p. 25-33

Production Possibility Tables and Curves • PPC is an economic model to demonstrate opportunity costs and tradeoffs.

The curve diagrams the various combinations of goods/services an economy can produce when all productive resources are employed. • There are 4 assumptions regarding the model: v Efficiency: full employment and productive efficiency v Fixed Resources: no more available, but they are shiftable v Fixed Technology: state of technology does not change in the period v Two Products: producing just two products (hypothetical, of course) • Necessity of Choice is created. Limited Resources means a Limited Output.

TABLE: A B C D E PIZZA (000, 000) 0 1 2 3 4 ROBOTS (000) 10 9 7 4 0 Points on the curve: A Attainable & Efficient with these resources B R o b o t s C F Points inside curve: Inefficiency D

W Points outside curve: Not Attainable with these resources v See page 26 for a Key Graph Quiz! E Pizza • Each point on the curve represents some maximum output of any two products. Limited resources (or supplies of the specific resource to produce the goods shown) will make any combination lying outside of the curve unattainable. • Choice is reflected in the need for society to select among the various attainable combinations lying on the curve. • The concave shape of the curve implies the notion of opportunity

costs, defined, as some amount of one good must be sacrificed to obtain more of the other. The amount of robots, which must be foregone or given up to get another unit of pizza, is the opportunity cost of that unit.

The slope of the PPC curves becomes steeper as we move from A to E. The reason lies in the fact that economic resources are not completely adaptable. This curved line shows the adaptability and increasing opportunity cost. A straight line would mean constant opportunity cost. • Points inside the curve may signal unemployment or underemployment of labor and other resources. • Points outside the curve are unattainable with the available resources. More resources or higher productivity is needed to the curve to include those points outside the curve. • Allocative Efficiency (or determining the best or optimal output-mix) will relate to the concept of Marginal Cost versus Marginal Benefit.

MC MC The point where $MC = MB$ is & allocative efficiency since neither underallocation or overallocation MB of resources occurs. MB Q 4 R o b o t s
 Pizza New TABLE: PIZZA (000, 000) ROBOTS (000) • Economic growth (and a movement outward of the curve) occurs because of expanding resource supplies, improved resource quality, and technological advances. These stimuli might include new discoveries of raw materials (diamonds in Australia, or oil on the North Slope of Alaska), improving the educational level or training of labor (Job Corps or company-sponsored job training), and new technology (robots in factories or the microchip). A' 0 14 B' 2 12 C' 4 9 D' 6 5 E' 8 0 • Consumer Goods vs.

Capital Goods: Consumer goods directly satisfy our wants, while capital goods satisfy indirectly since they permit more efficient production of consumer goods. v Think about what a nation must sacrifice in terms of its consumer good consumption (opportunity costs) in order to be able to add to its capacity (by currently producing capital goods) in the future. • A current choice favoring more consumer goods will result in only a modest movement to the right in the future. • A current choice to produce a greater portion of capital goods with the available resources can result in a greater rightward movement in the future. F u t u r e G o o d s F u t u r e G o o d s Current Position Current Position Present Goods Current position favoring present goods results in only moderate growth

Present Goods Current position favoring future goods results in accelerated growth • International Trade-a Preview! Its own resources limit an individual nation, but through specialization and trade, the output limits of a nation can be increased. When nations specialize and produce a surplus of goods that use resources more efficiently (comparative advantage), they can trade for what they are not as efficient producing. This will enable a nation to obtain more goods than its PPC indicates. Think About This! 1. Examine the three applications on pages 32-33 and think about the movements of the PPC. 2. Explain the effects on the PPC from these situations: a. standardized test scores of high school students decline greatly b. unemployment falls from 9 to 6 % of the labor force c. Defense spending is reduced to allow government to spend more on health care d. Society decides it wants compact discs rather than new tools for factories e. A new technique improves the efficiency of extracting copper from ore f. A maturing of mini baby boom generation (born

1976-1982) increases the nation's workforce 5 AP Microeconomics Chapter Two p. 33-34 Basic Economic Questions (every economic system must answer) • What to Produce? Allocation of the Factors of Production • How to Produce? Methods of production capital intensive or labor intensive • How Much to Produce? Quantities of goods and services • For Whom to Produce?

Distribution of goods and services Comparisons of Economic Systems •

Traditional System v questions answered by custom, habit, religion or law v use of trial and error, past decisions on resource allocation and production retained v choices are limited, change comes slowly, often with opposition v family values are key to social structure Economic goals emphasized:

Security, Equity Economic goals de-emphasized: Efficiency, Freedom •

Command System v Central Planning Authority regulates production.

Nationalization means that the government owns the factors of production. v

Central planners examine historical demand and estimate future quantities.

Central planners dictate to firms the production quotas and provide the set of resources v The theoretical goal “from each according to his ability; to each according to his needs” guides the allocation of goods and services.

Limited set of goods produced. Economic goals emphasized: Price Stability, Equity, Full employment, and Security Economic goals de-emphasized:

Efficiency, Freedom, Growth of consumer goods/services • Market System v

Private firms produce goods and services to sell in the market. Consumers make choices based on their own needs and wants. v Private producers decide how much to produce with the economic incentive of profit

maximization based on buying decisions of consumer v Private producers

decide production methods in order to maximize profits. v The market (the invisible hand) results in a distribution of goods and services.

Economic goals emphasized: Efficiency, Freedom, Price Stability, Growth

Economic goals de-emphasized: Equity, Security, Full-employment • Mixed

Market Systems v Government acts as stabilizer of economic activity and

provider of goods and services v large unions and large corporations can

dominate the market v private ownership mixed with public ownership of

resources and factors of production v regulation of private economy may be

strong or weak Traditional: North American Indians Command: North Korea

and Cuba Mixed Market: Market socialism in China relies on free markets for

distribution Sweden provides many social welfare services; high tax rates

USA mixes private property with public goods Japan stresses cooperation and

coordination between govt and bs 6 AP Microeconomics Chapter Two p. 34-

37 The Circular Flow Model Economists use the circular flow diagram to show

the high degree of economic interdependence in our economy. Money flows

in one direction while goods, services, and the factors of production flow in

the opposite direction. • This simple circular flow model shows two groups of

decision-makers—households (or individuals) and businesses. (Later

government will be added). The coordinating mechanism which brings

together these decisions is the market system. • Resource (or factor)

markets operate as the points of exchange when individuals sell their

resources (land, labor, capital, and entrepreneurial ability) to businesses in

exchange for money incomes. Businesses will demand these resources to

produce goods and services.

Prices paid for the use of resources are determined in this market, and will create the flow of rent, wages, interest and profit income to the households. Examples are hiring of workers by a business firm, savings and investments in stocks and bonds. Here the money incomes would be interest and dividends.

- Product markets operate as the points of exchange between consumers who use money incomes to buy these goods and services produced by businesses. Money income itself does not have value, since money must be used in exchange for the goods and services that satisfy our wants.

Land, Labor, Capital & Entrepreneurial Ability Resource Market

Resource Money Payments Businesses See Key graph on page 35 of text.

Households Money Payments for goods and services Product Market Goods and Services

Households create the demand for goods and services, while businesses can fill the demand with the supply that they produce with the resources sold. The interaction of demand for goods and services with the supply of available products determines the price for the products. The flow of consumer expenditures represents the sales revenues or receipts of the businesses. Examples are the retail stores and other outlets for products.

- Individuals or households function as both providers of resources and as consumers of finished products. Businesses function as buyers of resources and sellers of finished products. Each group of economic units both buys and sells. Scarcity plays a role in this model because households will only possess limited amounts of resources to supply to businesses, and hence, their money incomes will be limited. This limits their demand for goods and services. Because resources are scarce, the output of finished goods and services is also necessarily limited.
- Limitations to this model include: v

Intrahousehold and Intrabusiness transactions are ignored. v Government and the financial markets are ignored. v The model implies constant flow of output and income; the fact is that these flows are unstable over time. v Production expends resources and human energy and can cause environmental pollution. 7 AP Microeconomics Chapter 4 p. 59-63 Capitalism There really is no generally acceptable definition of “ capitalism”. A market system is sometimes described as being based on capitalism, a system in which private citizens own the factors of production. A market economy is based on free enterprise, because businesses are allowed to compete for profit with a minimum of governmental interference. • Both terms— capitalism and free enterprise —describe the US Economy. Our economy is often defined as MIXED MARKET due to the role that government plays. In the US, individuals are free to exchange their goods and services, use their resources as they wish, seek jobs of their own choosing, and own and operate businesses.

A Free Enterprise system is one in which business can be conducted freely with only limited government interference. • The list of characteristics of Capitalism: Private property Freedom of Enterprise and Choice Role of Self-Interest Competition Markets and Prices Limited Government • Consider: v What incentives does private property give people? v What about rights of inheritance? v Is self-interest really selfishness? v Are there social advantages in freedom to choose? v What is government’s limited role? Legal framework? Regulation of business? Protection of consumer? Subsidizing production? Protection from foreign trade or unfair competition? The other characteristics include: Extensive use of Capital Specialization and

Efficiency Division of Labor Use of Money • Consider: v What if the labor force is unskilled? v What if there are no real regional, occupational, or resource specializations? v Why does money place an important role in a large economy? • The market economy is very popular because of a concept called Voluntary Exchange. Who benefits when you buy something—you or seller? As long as the transaction involves dual benefit, the exchange will take place. • The market system is a means of communicating and implementing decisions concerning allocation of the economy's resources.

Think About This! 1. Evaluate these statements a. The capitalistic system is a profit and loss economy. b. Competition is the indispensable disciplinarian of the market system. 8 AP Microeconomics Chapter 4 p. 64-68 Competitive Market System The theory of Capitalism must have some guidance if society desires to get what it wants in terms of goods and services. The Competitive Market System functions mostly efficiently because it relies on its answers to the Five Fundamental Questions—ideas driven by the economizing problem of scarcity: 1. How much of a society's resources should be used? v How much is a macro question! 2. What is to be produced? Driven by costs—all costs including non-monetary opportunity costs v Driven by profits—normal and economic profits v Profits are signals to new firms to enter an industry to “catch the profits” v Losses are signals to firms to exit an industry to “cut their losses” v Consumer Sovereignty means that consumer demand drives the market because ultimately they pay and use their dollar votes to alert the sellers what is demand. 3. How is that output to be produced? v Organizing production covers three areas: * How should resources be allocated among industries? * What specific firms should do the producing? *

What combinations of resources—what technology should each firm employ?

Most efficient production will mean use of available technology

(combinations of resources) and the prices of the needed resources. v Most efficient production is the least cost method. 4. Who is to receive the output? v Prices perform a rationing function in the distribution of goods and services. v Distribution to those willing and able to purchase depends on the income of buyers. v Size of Income depends on supply and prices in the resource market and the quantity of resources the buyer possess. 5. Can the system adapt to change? v Markets are dynamic because demand and supply are constantly changing. Consumer demand shifts with tastes, incomes, and prices of other goods.

Supply changes as the quantity of resources changes v Price perform a guiding function as it directs firms to see the changes that occur in both demand and supply. v Market system provides incentive for technological progress which lowers consumer prices and make more efficient use of resources. Entrepreneurs use their “ dollar votes” for capital goods to spur these gains from technology. In summary: • Adam Smith’s idea of the “ invisible hand” in The Wealth of Nations means that there is a unity between private and social interests. • Businesses use the most efficient means of production by choosing the least-cost combination of resources in their pursuit of profit. Consumers allocate their limited income to best satisfy their own self-interest expressed as utility. • Efficiency, incentives and freedom are the essential virtues of the market system. 9 AP Microeconomics Chapter 6 p. 98-101 Specialization and Comparative Advantage Specialization and international trade increases the productivity of a nation’s resources and

allows for larger total output. Why do people trade? v Both parties gain. Just as individual specialize so do nations and the result is greater output and income. v Why does a school hire a teacher who has a degree in teaching? To gain the greatest benefit for the students in their educational pursuit.

The teacher teaches to satisfy a need for income and to gain a good feeling about the employment. v Why does the U. S. import bananas? U. S. farmers could grow bananas but it would be very expensive. They gain more by growing wheat and trading for bananas. Our resources are better suited to growing wheat so we specialize. What is comparative advantage? v Comparative Advantage is the ability to produce an item at a lower opportunity cost. Resources are scarce, so that one can only produce more of one product by taking the resources away from another. v Example with data: Chiplace and Entertainia are the two nations that currently produce their own Computer Chips and CD Players.

Production without Trade

Product	Chiplace	Entertainia
1 Computer Chip	5 hours	24 hours
1 CD Player	10 hours	12 hours
Total	15 hours	36 hours

Note that Chiplace uses less time (15 hours) to produce both and Entertainia uses more time (36 hours) to produce both. Chiplace enjoys an Absolute Advantage, an ability to produce an item with fewer resources. Why would Chiplace care about trade? Opportunity Cost of production

	Chiplace	Entertainia
1 Computer Chip	1/2 CD Player	2 CD Players
1 CD Player	2 Computer Chips	1/2 Computer Chip

The table shows that Chiplace has a comparative advantage in Computer Chip production while Entertainia has

the comparative advantage in the production of CD Players. These nations can benefit from trade.

Production With Trade
Chipland: 1 Computer Chip for 5 hours, 1 CD Player for 12 hours
Entertainia: 1 Computer Chip for 5 hours, 1 CD Player for 12 hours
Total: 10 hours, 24 hours

In summary: Specialization based on comparative advantage improves global resource allocation. The same total inputs of world resources and technology result in a larger global output. Read the example in text about Mexico and USA and production of Avocados and Soybeans, all of these examples work the same way: where is the least opportunity cost?

10 AP Microeconomics Chapter 3 p. 40-52

Markets and Prices

Product Markets: v A product market is the different transactions through which finished goods and services are exchanged for consumption expenditures. v In the circular flow diagram, the flow of products from businesses to consumers constitutes the product market. v Businesses are the suppliers of the products and households are the demanders for the products. Sellers of consumer goods and services meet those who want to buy finished goods and services.

Factor Markets: v A factor market involves businesses and the resources they need to purchase to produce goods and services. v In the consumer flow diagram, the resources owned by households are exchanged with businesses for income. v Businesses are the demanders of the resources and households are the suppliers of the resources.

The sellers of land, labor, capital and entrepreneurship meet the people who need their resources. In both markets, buyers and sellers determine certain

price and certain quantity that are mutually acceptable. DEMAND v Demand is one side of a product or factor market. v The buyers (business in factor, households in product) exhibit both willingness and ability to purchase goods and services. Their willingness and ability to purchase vary in response to price. v Demand is a record of how people's buying habits change in response to price. It is a whole series of quantities that consumers will buy at the different prices level at which they will make these purchases. Hence, a demand schedule: FYI: In future graphs P PRICE QUANTITY \$5 drawn without data, the \$ 5 9 demand curve will be a 4 10 straight line. 4 3 12 D 3 2 15 1 20 2 Demand Next, a demand curve can be derived. The 1 axes of the graph are price (vertical) and quantity (horizontal). Each price and quantity 9 10 12 15 20 Q pair becomes a pair of coordinates for a demand curve. Foundation of the Law of Demand v For most goods and services, demand tendencies are predictable. As the price goes down, quantity goes up. This inverse relationship is called the law of downward -sloping demand. v Three arguments to apply for the reasoning behind this law are: • Price is an obstacle to most and it makes sense to buy less at higher prices. The fact of " sales" is the key. In any time period, consumer will derive less satisfaction (utility) from each successive unit of a good consumed. This is Diminishing Marginal Utility. Marginally, that is, each successive unit brings less utility and consumer will only buy more at lower prices. 11 • At higher prices, consumers are more willing and able to look for substitutes. The substitution effect suggests that at a lower price, consumers have the incentive to substitute the cheaper good for the more expensive. • A decline in the price of a good will give more purchasing power to the consumer and he can buy

more now with the same amount of income. This is the income effect.

Changes in Quantity demanded: Movement along the same demand curve caused by a change in Price!

P Economists \$5 As the price changes, the quantity demanded assume that among the horizontal axis changes. PRICE is the 4 A movement from \$5 to \$4 causes the most Quantity demanded to move from 9 to 10 3 important units. determinant 2 of quantity Demand demanded. 1 9 10 12 15 20 Q

Change in Demand: The introduction of new price-quantity pairs on a demand schedule caused by a change in one or several demand determinants. The entire demand curve moves (left or right) to a new position because a different demand schedule was written. P \$5 4 3 2 1 D Decrease Increase Now notice that a larger quantity is available than before at \$5—15 units. This means that buyers have changed their thinking about price-quantity combinations.

D3 1 D2 9 10 12 15 20 Q What causes these changes? Non-price determinants of demand are: 1) Change in Income—having more or less to spend affects individual demand schedules. For normal goods, an increase in income leads to a rightward shift in the demand curve. For inferior goods, an increase in income leads to a leftward shift since these are usually low-quality items that people will avoid when they have more to spend. 2) Change in taste and preference—the use that a good or service provides can easily change and affect demand. What was once perceived as useful or useless, stylish or ugly, healthy or dangerous now can become its opposite.) Change in Price of Complementary goods—the linkage of products' demand

because they “work” with each other can affect demand for each 4) Change in Price of Substitutes—when the prices of or preference for a substitute changes, demand for both products will change. 5) Change in Number of buyers –demand depends on the size of the market. 6) Change in Price Expectations of Buyers—purchases may be postponed or rushed dependent on the expectations of future price changes This discussion has concentrated on the individual buyer’s demand for a good or service. By summing up all quantities demanded by buyers at each of the prices, we create the market demand for the good or service. 12 SUPPLY v Supply is also one side of a product or factor market. The sellers (business in product, households in factor) are selling finished goods or resources. v Supply is the amount of goods and services that businesses are willing and able to produce at different prices during a certain period of time. Supply is a record of how business’s production habits change in response to price. It is a whole series of quantities that businesses will offer at the different price levels. v Hence, a supply schedule: PRICE QUANTITY P \$ 5 20 \$5 4 15 3 12 4 2 10 1 9 3 Next, a supply curve can be derived. The axes of the graph are price (vertical) and quantity (horizontal). Each price and quantity pair becomes a pair of coordinates for a supply curve. 2 1 9 10 12 15 20 Supply Q For most goods and services, supply tendencies are predictable. As the price goes down, quantity offered decreases. From a business perspective, profit-seeking activities by businesses are logical. Hence, sellers will pull back from a market where prices are low. This direct relationship is called the law of upward-sloping supply. Changes in Quantity supplied: Movement along the same supply curve caused by a change in Price! P As the price changes, the

quantity supplied \$5 Economists among the horizontal axis changes. assume that A movement from \$5 to \$4 causes the 4 PRICE is the Quantity supplied to move from 20 to 15 3 most units. important 2 Supply determinant 1 of quantity supplied. 10 12 15 20 Q Change in Supply: The introduction of new price-quantity pairs on a supply schedule caused by a change in one or several supply determinants. The entire supply curve moves (left or right) to a new position because a different supply schedule was written. Now notice that a larger S1 P S2 quantity is available \$5 3 than before at \$3—20 Decrease 5 units. This means that Increase 4 sellers have changed their thinking about 3 price-quantity 2 combinations. 1 9 10 12 15 20 Q 13 What causes these changes? The non-price determinants of supply are: 1) Changes in resource prices—most important and most typical reason for change. The price of ingredients and other capital goods, rent or labor could rise or fall. New technology could make productions more or less expensive. The law could relate to minimum wage or taxes. 2) Changes in Prices of Goods that use same Resources—a demand for a specific resource is increased when other producers bid up the price in response to increased demand for their product 3) Change in Technology—new innovations in capital resources can change the average cost of production. 4) Changes in Taxes and Subsidies—taxes increase costs; subsidies lower costs. 5) Change in Price Expectations—producers' confidence in the future, difficult to quantify or justify 6) Numbers of Sellers—businesses enter and exit a market regularly based on a variety of reasons. More or less producers will affect the supply of the product..

This discussion has concentrated on the individual seller's supply of a good or service. By summing up all quantities supplied by sellers at each of the prices, we create the market supply for the good or service. ACHIEVING EQUILIBRIUM The prices at which both demand and supply curves intersect is the equilibrium price. Supply P r i c p e See Key Graph p. 51 in text.

Equilibrium Demand q Quantity v Equilibrium is the price toward which market activity moves. v If the market price is below equilibrium, the individual decisions of buyers and sellers will eventually push it upward. If the market price is above equilibrium, the opposite will tend to happen. Depending on market conditions, immediately or in the future, price and quantity will move toward equilibrium as buyers and sellers intuitively and logically carry out the laws of demand and supply. • The ability of the competitive forces of demand and supply to establish a price at which selling and buying decisions are consistent is called the Rationing Function of Prices.

14 AP Microeconomics Chapter 3 p. 52-55 Changes in Supply, Demand and Equilibrium Demand Only Changes 1 P S pe P P2 pe S1 P pe S1 D2 P 2 D1 Qe D Qe Q2 1 D1 D2 Q2 Qe Q Q Q Equilibrium P = Pe Q = Qe Demand Increases Supply Constant v P increases v Q increases Demand Decreases Supply Constant v P decreases v Q decreases Supply Only Changes P pe S1 P pe P2 S 1 2 S2 S P 2 pe P S1 D Qe 1 D1 Qe Q2 D1 Q2 Qe Q Q Q Equilibrium P = Pe Q = Qe

Supply Increases Demand Constant v P decreases v Q increases Supply Decreases Demand Constant v P increases v Q decreases Specific demand and supply curves show relationships between price and quantity, other things equal. If prices increase and quantity demanded increases, be aware

that some other thing (like a change in taste and preference) may have caused the greater quantity. This is not a violation of the law of demand. See example on page 54. 15 Complex Cases— you draw the scenarios given and show the effect on P and Q! Be careful to change D and S by the same distance—remember this is the theory! Be aware of Prices or Quantity

Change as Indeterminate! $P = P_e$ S_1 $P = P_e$ S_1 $P = P_e$ S_1 D_1 Q_e D_1 Q_e D_1 Q_e Q Q Q
Equilibrium $P = P_e$ $Q = Q_e$ Demand Increases Supply Increases P _____ Q

_____ S_1 $P = P_e$ Demand Decreases Supply Decreases P _____ Q

_____ S_1 $P = P_e$ D_1 Q_e D_1 Q_e Q Q Demand Decreases Supply Increases P

_____ Q _____ Demand Increases Supply Decreases P _____ Q

_____ This chart will summarize the effects on P_e and Q_e Change in

Supply Increase Decrease Increase Decrease Change in Demand Increase

Decrease Decrease Increase Effect on P_e Effect on Q_e 16 AP Microeconomics

Chapter 20 p. 374-380 Elasticity ϵ is a measure of how much buyers and

sellers respond to changes in market conditions. allows us to analyze supply

and demand with greater precision. Price elasticity of demand ϵ is the

responsiveness of consumers to a change in the price of a product ϵ The

price elasticity of demand is computed as: $E_d = \frac{\text{percentage change in the}}$

quantity demanded the percentage change in price. $E_d = \frac{\% \text{ change in } Q}{\% \text{ change in } P}$

Q and P are the original amounts ϵ Be sure to use absolute values and ignore

the — sign; useful for comparing different products. ϵ Interpretation of E_d :

see graphs on page 20 • Inelastic Demand —% Quantity demanded does

not respond strongly to price changes. E_d : is less than one. • Elastic Demand

—% Quantity demanded responds strongly to changes in price.

Ed: is more than one. • Perfectly Inelastic—% Quantity demanded does not respond to price changes at all. • Perfectly Elastic—% Quantity demanded changes infinitely with any change in price. • Unit Elastic—% Quantity demanded changes by the same percentage as the price. Ed: is equal to one.

v Demand tends to be more elastic . . . • if the good is a luxury. • the longer the time period. • the larger the number of close substitutes. • the more narrowly defined the market. v Demand tends to be more inelastic . . . • if the good is a necessity. • the shorter the time period. • the fewer the number of close substitutes. • the more broadly defined the market.

Elasticity Varies with Price Range—more elastic toward top left; less elastic at lower right P Slope does not measure Elastic Ed ; 1 Elasticity—slope measures absolute changes; elasticity Unit elastic Ed = 1 measures relative changes. Inelastic Ed ; 1 Q 17 v Total Revenue is the amount the seller receives from the buyer from the sale of a product; $P \times Q = TR$ v Elasticity and total revenue are related; observe the effect on total revenue when product price changes • In 1992 people purchased about 20 million videos of Walt Disney's Beauty and the Beast at a price of about \$25. P Total Revenue (A & B) was \$500 million. \$25 A B Total Revenue Test for Elasticity Q 20 • Suppose the price increases, causing Q to drop. P \$30 C A 12 B Q Now TR is A & C and is equal to \$360 million. A If demand is elastic, then a decrease in price will increase total revenue; an increase in price will decrease total revenue. v If demand is inelastic, then a decrease in price will reduce total revenue; an increase in price will increase total revenue. v If demand is unit elastic, any change in price will leave total revenue unchanged. Unit T o t a l R e v e n u e E l a s t i c I n e l a s t i c Total Revenue Curve Quantity

Demanded 18 AP Microeconomics Chapter 20 p. 383-384 Elasticity of Supply (Es) – measures the responsiveness of quantity supplied to changes in price of the good. $Es = \frac{\text{percentage change in quantity supplied}}{\text{percentage change in price}}$ $Es = \frac{\% \Delta Q_s}{\% \Delta P}$ Law of Supply tells us this number is generally positive. Interpretation of Es: see graphs on page 21

- Inelastic Supply—% Quantity supplied does not respond strongly to price changes. Es is less than one.
- Elastic Supply—% Quantity supplied responds strongly to changes in price. Es is more than one.
- Perfectly Inelastic—% Quantity supplied does not respond to price changes at all.
- Perfectly Elastic—% Quantity supplied changes infinitely with any change in price.
- Unit Elastic—% Quantity supplied changes by the same percentage as the price. Es is equal to one.

More (or less) elastic supply says that the firms can change supply in larger (or smaller) quantities when price changes.

- Generally, anything that can effect a firm's ability to change production easily will effect the elasticity of supply.

the market period occurs when the time immediately after a change in price is too short for producers to respond with a change in quantity supplied. The supply will be perfectly inelastic-supply is fixed and there is no response to the price change.

- the short run implies that the plant capacity will be fixed, but variable costs (labor, materials) can be added to increase production if price rises. Supply will have some degree of elasticity depending on the mix of resource needed to produce, since there can be some change in response to the price change.
- the long run is a time period long enough for the firm to adjust both its fixed plant capacity as well as variable resources.

The ability to be responsive means that a smaller price rise can bring forth a larger output increase than in the short run. To consider: what would the supply curve of Picasso paintings look like? 19 A Variety of Demand Curves showing different elasticities P D An increase in price leaves Q_d unchanged P D At any price above the Price noted, Q_d is unlimited. Perfectly Inelastic Demand $E_d = 0$ Q P Perfectly Elastic Demand $E_d = \text{Infinity}$ Q P % change in Q_d is less than % change in P % change in Q_d is greater than % change in P D D Relatively Inelastic Demand $E_d < 1$ Q Relatively Elastic Demand $E_d > 1$ Q P D % change in Q_d is equal to % change in P Unit Elastic Demand $E_d = 1$ Q 20 P

A Variety of Supply Curves showing different elasticities S P An increase in price leaves Q_s unchanged S At any price above the Price noted, Q_s is unlimited. Perfectly Inelastic Supply $E_s = 0$ Q S Perfectly Elastic Supply Q $E_s = \text{Infinity}$ P P S % change in Q_s is less than % change in P % change in Q_s is greater than % change in P Relatively Inelastic Supply $E_s < 1$ Q Relatively Elastic Supply $E_s > 1$ Q P S % change in Q_s is equal to % change in P Unit Elastic Supply $E_s = 1$ Q 21 AP Microeconomics Chapter 20 p. 386-389

Government-controlled prices: v Not all markets are allowed to function freely. Supply and Demand may result in prices that are unfair to buyers or to sellers.

Government may set a price and it may differ from the equilibrium price that the market sets. v This action will interfere with the “clearing function” which equilibrium conditions create. A shortage (as in the case of a price that is below equilibrium) or a surplus (as in the case of a price that is above

equilibrium) is the result of these government price setting actions. •

Economic behavior does not change when price floors and ceilings are set.

People will continue to make their best choices as they respond to the changes that alter the costs and benefits of the decision. Since people make decisions usually in predictable ways, we can predict consequences of the price-setting laws.

Price Ceilings v A maximum legal price below the equilibrium price $S \ P \ P_e$
 shortage v Creates a shortage since amount demanded will be greater than the amount supplied
 CEILING $D \ Q_s \ Q_e \ Q_d \ Q$ v Examples: essential goods, rent controls, interest rates, price controls v Read examples p. 387-388 v

Solutions to alleviate shortage? • First-come/first-served • favoritism •

Rationing • black markets Price Floors v A minimum legal price above equilibrium price v Supported by authority like government $P \ P_e \ D \ S$ surplus

FLOOR v Creates surplus since the amount supplied is greater than the amount demanded $Q_d \ Q_e \ Q_s \ Q$ v Examples: minimum wage, price supports on agricultural products v Solutions to alleviate surplus? Government give-

away programs • Incentive not to plant crops The use of price floors and

ceilings is a cost-benefit dilemma-both anticipated and unanticipated

benefits and costs result. Rent controls may discourage housing construction and repair or interest-rate ceilings may deny credit to low-income families.

22 AP Microeconomics Chapter 21 p. 394-397 Explanations of the Law of

Demand 1. The Income and Substitution Effect combine to make a consumer able and willing to buy more of a specific good at a low price than at a high

price. • Income effect is the Impact on a consumer's real income of a change

in the price of a product and consequently the quantity of the produce demanded.

When the price of a good decreases, people can buy more with the same income. We buy more with the same income. • Substitution effect is the impact has on its relative expansiveness of a change in the product's price and consequently on the quantity demanded. When the price decreases, the good is less expensive relative to other similar goods. We substitute with the now lower priced good. 2. Law of Diminishing Marginal Utility can be stated as the more a specific product consumer obtain, the less they will want more units of the same product. • Utility is want-satisfying power— it is the satisfaction or pleasure one gets from consuming a good or service.

This is subjective notion. How? • Total Utility is the total amount of satisfaction or pleasure a person derives from consuming some quantity • Marginal Utility is the EXTRA satisfaction a consumer realizes from an additional unit of that product. Total Utility Marginal Utility
Total Utility increases at a diminishing rate, reaches a maximum and then TU declines. Unit Consumed Marginal Utility diminishes with increased consumption, becomes zero where total utility is at a maximum, and is negative when Total Utility declines. MU Unit Consumed See Key Graph p. 396 in Text. When Total Utility is at its peak, Marginal Utility becomes zero.

Marginal Utility reflects the change in total utility so it is negative when Total Utility declines. 23 AP Microeconomics Chapter 21 p. 397-400 Theory of Consumer Behavior Consumer Choice and Budget Restraints • Rational Behavior—derive the greatest satisfaction • Preferences—based on marginal

utility • Budget Restraints—money income is limited • Prices—signal scarcity, consumer must compromise Utility-Maximizing Rule—Consumer Equilibrium • The consumer's money income should be allocated so that the last dollar spent on each product purchased yields the same amount of marginal utility. • The rational consumer must compare the extra utility with its added cost.

Units First Second Third Fourth Fifth Sixth Seventh Utility-Maximizing with
Income of \$10 Product A \$1 Product B \$2 MU or utils MU/\$ MU or utils 10 10
24 8 20 8 7 7 18 6 6 16 5 5 12 4 4 6 3 3 4 MU/\$ 12 10 9 8 6 3 2 Allocation
Rule: consumer will maximize satisfaction when he allocates money income
so that the last dollar spent on A, on B, etc. will yield equal amounts of
marginal utility. MU of Product A = MU of Product B Price of A Price of B How
many of A and how many of B? What is the combinations of A and B that can
be had with \$10? Answer: 2 units of A and 4 units of B MU of Product A = MU
of Product B Price of A Price of B $8 = 16$ $\$1 = \2 Think About this! v Reading
the applications and extensions on page 402-404, think in terms of marginal
utility and consumer choice. In the last decade or so there has been a
dramatic expansion of small retail convenience stores (7-Eleven, Qt's,
Casey's for example), although their prices are generally higher than those
at large supermarkets. Can you explain their success? 24 AP Microeconomics
Chapter 22 p. 415-417 Costs of Production v All firms incur costs and those
costs help determine how much a firm will produce as well as how high the
price of the good or service will be. The area of economics which deals with
production and pricing decisions firms make as well as other conditions in
markets is called Industrial Organization. What are Costs? The goal of a firm

is to maximize its Profits. Profits are Total Revenue minus Total Costs. Total Revenue is Price times Quantity. ECONOMIC COSTS—payments a firm must make, or income it must pay to resource suppliers to attract those resources from alternative uses. This would mean all the opportunity costs. • EXPLICIT payments to outsiders for labor, materials, services, fuel, transportation services, power, etc. Usually means an outlay of money. • IMPLICIT costs of self-owned, self-employed resources ACCOUNTING PROFIT Revenues — Explicit Costs ECONOMIC PROFIT Revenue—Explicit and Implicit Costs Economic Profit is often called “ the pure profit”. It keeps the entrepreneur in place and is the real reward for the risk-taking aspect of Entrepreneurship. Economic Profit E C O N O M I C I O C S T S Implicit costs inc. Normal Profit

T O T A L R E V E N U E Accounting Profit Explicit costs Accounting Cost Explicit costs only Short Run—FIXED PLANT v Period of time too brief for firm to alter its plant capacity v Output can be varied by adding larger or smaller amounts of labor, materials, and other resources. v Existing plant capacity can be used more or less intensively Long Run—VARIABLE PLANT v Period of time extensive enough to change the quantities of ALL resources employed, including plant capacity. v Enough time for existing firms to dissolve and exit the industry OR for new firms to form and enter the industry. 25 AP Microeconomics Chapter 22 p. 418-421 Short Run Relationships

Terms v Total Product • total quantity or total output of a good produced v Marginal Product • extra output or added product associated with adding a unit of a variable resource • change in total product OR ? in TP change in labor input ? in labor input v Average Product • the output per unit of input ,

also called labor productivity • equals total product units of labor Law of Diminishing Returns v as successive units of a variable resource are added to a fixed resource beyond some point the extra or the marginal product will decline v if more workers are added to a constant amount of capital equipment, output will eventually rise by smaller and smaller amount. 1) Units of a variable resource (labor) (2) Total Product (3) Marginal Product ? in 2 / ? in 1 (4) Average Product 2 / 1 TP 0 1 2 3 4 5 6 7 8 0 10 25 45 60 70 75 75 70 10 15 20 15 10 5 0 -5 Increasing 10 Marginal Returns Diminishing Marginal Returns Negative Marginal Returns —See Key Graph p. 420 in Text TP 12. 5 15 15 14 12. 5 10. 71 8. 75 Quantity of Labor MP Increasing Marginal Returns Negative Marginal Returns Diminishing Marginal Returns Note that the marginal product intersects the average product at its maximum average product. When the TP has reached its maximum, the MP is at zero. As TP declines, MP is negative. AP Quantity of Labor MP 26 AP Microeconomics Chapter 22 p. 421-432 Short Run Costs FIXED COSTS costs which in total do not vary with changes in the output; costs which must be paid regardless of output; constant over the output examples—interest, rent, depreciation, insurance, management salary v VARIABLE COSTS costs which change with the level of output; increases in variable costs are not consistent with unit increase in output; law of diminishing returns will mean more output from additional inputs at first, then more and more additional inputs are needed to add to output; easier to control these types of costs examples —material, fuel, power, transport services, most labor v TOTAL COSTS are the sum of fixed and variable. Most opportunity costs will be fixed costs. PER UNIT OR AVERAGE COSTS can be used to compare to product price AFC =

TFC/Q $AVC = TVC/Q$ $ATC = TC/Q$ (or $AFC + AVC$) v MARGINAL COSTS the extra or additional cost of producing one more unit of output; these are the costs in which the firm exercises the most control $MC = \text{Change in } TC / \text{Change in } Q$ • AFC declines as output increases P/C MC ATC • AVC declines initially, then reaches a minimum, then increases (a U-shaped curve) • ATC will be U-shaped as well • MC declines sharply, reaches a minimum and then rises sharply. AVC AFC See Key Graph p. 424 Q • MC intersects with AVC and ATC at minimum points v When $MC < ATC$, ATC is falling v When $MC > ATC$, ATC is rising There is no relationship between MC and AFC

Long Run relationships Firms in the long run can make all the resource adjustment they desire. As these changes are made, ATC changes and set of possible plant sizes produces varying sets of short run cost curves. If the number of possible plant sizes is large, the long-run ATC creates a smooth curve. A T C Economies Diseconomies of of Scale Scale See Key Graph p. 428 Constant Returns to Scale Q v Economies of scale (downsloping portion)—as plant size increases a number of factors will lead, for a time, to average costs declining. Labor specialization, managerial specialization, efficient capital and certain other kinds of cost like “start-up” and advertising. Constant Returns to Scale—long run-costs due not change v Diseconomies of Scale (upsloping portion)—caused generally by the difficulty of efficiently controlling a firm’s operations as it becomes a large-scale producer. Read the applications on page 431-432 to understand economies of scale. 27 AP MicroEconomics Chapter 23 p. 437-438 Characteristics of Markets Purely Competitive Number of firms Type of Product Ability to Set Price Very large number of businesses Standardized None. Market determines price and the

seller is the Price Taker. Monopolistic Competitive Large number of businesses Differentiated Oligopoly Pure Monopoly Product Differentiation None. Products are identical. Ease of Entry Relatively easy to start a new business.

A few large businesses Standardized or Differentiated Some. The More. Sellers can degree of act as monopoly differentiation setting price or will affect the sellers can act ability of the independently seller to set and ability to set price. price is determined by differentiation. Varies Varies. Some depending on the industries may be industry. identical; others Differences may may be be subtle. differentiated. Relatively easy Difficult. High to start a new start-up costs. business A single producer Unique; no substitutions Most. Seller is only source of product and can act like Price Maker. None. Product is unique. Very difficult. Significant barriers to entry. 28

AP Microeconomics Chapter 23 p. 438-447 A Competitive Market is one with many sellers trading identical (standardized) products so that each buyer and seller is a price taker. There are no barriers so firms can freely enter and exit the industry and there is not non-price competition. Pure competition is very rare in the real world, yet by studying the model we can see how it creates efficiency in the market, while imperfect competition does not. Demand as seen by a Purely Competitive Firm v PC firms are price takers; they are one firm among thousands and they have no effect on the price—they are price-takers. These firms must accept the price predetermined by the market. Technically, the demand curve of the individual firm is perfectly elastic—the firm cannot obtain a higher price by restricting its output; it does

They can sell any or none of the product for the given price. v This table shows that in columns 1 and 2. The Total Revenue derived is shown in Column 3. v Marginal Revenue is the change in total revenue from an additional unit sold in Column 4. The Revenue of a Competitive Firm $TR = P \times Q$ because each additional sale brings the price as revenue—never more, never less. \$131 D = MR Quantity Demanded (sold) 29 Profit Maximization in the Short Run Total Revenue, Total Cost Approach v A PC firm can maximize its profits only by adjusting its output. In the short run, only variable costs can be changed, not fixed costs. v Profit is the difference between TC and TR. See the data in this table.

Quantity	2	3	4	5	6	7	8	9	10
Total Fixed Costs	Q x P	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100
Total Variable Costs	TC	\$0	90	170	240	300	370	450	540
Total Costs	FC+VC	\$100	190	270	340	400	470	550	640
Total Revenue	TR	\$0	131	262	393	524	655	786	917
Profit or Loss	TR—TC	\$—100	—59	—8	53	124	185	236	277

298 299 280 T R Q 0 1 2 3 4 5 6 7 8 9 10 Profit is maximized at 9 units of output where \$299 is earned. Total Costs are \$880; Total Revenue is \$1179. P=\$131 Greatest Profit \$1179 \$880 9 Q demanded (sold) Think About This! v Why does the purely competitive firm not sell

above the market price? v Why does the purely competitive firm not sell below the market price? 30 Profit Maximization in the Short Run Marginal Revenue, Marginal Cost Approach v Marginal Analysis as noted in Chapter 1 is a better, more precise approach to discovery of the profit maximizing output. The $MR = MC$ rule will determine the profit maximizing output.

Observe the data in the table: 1 Quantity 2 Average Fixed Costs AFC 3 Average Variable Costs AVC 4 Average Total Costs ATC 5 Marginal cost MC 6 Price= Marginal Revenue $P = MR$ 7 Profit or Loss $TR - TC$ \$—100 —59 —8 53 124 185 236 277 298 299 280 Q 0 1 2 3 4 5 6 7 8 9 10 \$100 50 33. 33 25 20 16. 67 14. 29 12. 50 11. 11 10 \$90 85 80 75 74 75 77. 14 81. 25 86. 67 93 \$190 135 113. 33 100 94 91. 67 91. 43 93. 75 97. 78 103 \$90 80 70 60 70 80 90 110 130 150 \$131 \$131 \$131 \$131 \$131 \$131 \$131 \$131 \$131 \$131

v Note here that the firm can maximize its profits where $MR = MC$. This is the point of intersection. v This determines the output of 9 units.

This position also determines the Price of \$131 and the cost per unit of \$97. 78. This is per unit profit of \$33. 22. That makes the total profit \$299. v This is the short run since there is an AVC curve shown. $P = MR = MC$ MC ATC

$P = \$131$ ATC = \$97. 78 Profit $P = MR = AR$ AV C \$97. 78 See Key Graph p. 445 Q = 9 % Q 31 Loss Minimizing for the Competitive Firm v Is there a situation that a firm will choose to produce at a loss? v The firm will produce at any output for which it covers all of its variable costs even if it does not cover its fixed costs. Think about the reason why? • Suppose the price dropped to \$81, but the costs were the same. MR now is \$81 and MC is the same for each quantity of output.

How long will the firm choose to produce at a loss? As long as it covers its variable costs and at least some of its fixed costs! 32 v Drop the price to \$71 and find that no quantity can bring enough revenue to cover cost P MC ATC Shut Down Case AV C P=\$71 P= MR= AR MR= MC Q v The price of \$71 is below every ATC. There is no level of output at which the firm can produce and realize a loss smaller than its total fixed costs of \$100. 1 Quantity 2 Average Fixed Costs AFC \$100 50 33. 33 25 20 16. 67 14. 29 12. 50 11. 11 10 3 Average Variable Costs AVC \$90 85 80 75 74 75 77. 14 81. 25 86. 67 93 4 Average Total Costs ATC \$190 135 113. 33 100 94 91. 67 91. 43 93. 75 97. 8 103 5 Marginal cost MC \$90 80 70 60 70 80 90 110 130 150 6 Price= Marginal Revenue P= MR \$71 \$71 \$71 \$71 \$71 \$71 \$71 \$71 \$71 \$71 7 Profit or Loss TR—TC \$—100 —119 —128 —127 —116 —115 —124 —143 —182 —241 —320 Q 0 1 2 3 4 5 6 7 8 9 10 Think About This v Why is the equality of marginal revenue and marginal cost essential for profit maximization in all market structures? v Explain why price can be substituted in the MR= MC

rule when an industry is purely competitive. 33 AP Microeconomics Chapter 23 p. 447-448 Marginal Cost and SR Supply Curve—Purely competitive firm v Any price below the minimum AVC as in the Shutdown case (below \$74. 00) will force the firm to shutdown. (such as point a) v At a price of \$74. 00 a firm will just cover the AVC, yet still lose the Fixed Cost.

Here the firm would be indifferent as to operating or not. (point b) v A price where the MC crosses the ATC (about 91. 00) shows the break-even point for the firm (point d). Here the total revenue covers the total costs (including normal profit). v At any MC point above the ATC, profits will be generated. (such as point e). v Each of the various $MR = P = D$ intersection points indicates a possible production price and corresponding quantity. These points locate the supply curve of the competitive firm. See Key Graph p. 448 in Text MC C o s t s & R e v e n u e s P5 P4 P3 P2 P1 c Shutdown Point a b MR2 MR1 Break-even Point Normal Profit e d AVC MR4 MR3 MR5 ATC Q1 Q2 Q3 Q4

Quantity supplied v Because nothing will be produced at any price below the minimum AVC, we conclude that the portion of the firm's MC curve which lies above its AVC curve is the SHORT-RUN SUPPLY CURVE. v Because of the law of diminishing returns, marginal costs eventually rise as more units are produced. So...a PC firm must get higher and higher prices to entice it to produce additional units of output. v Higher product prices and marginal revenue encourage a PC firm to expand output. As it expands, its MC rises