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AP Microeconomics
27 October 2011

Chapter 3: Demand, Supply, and Market Equilibrium

- 3-1: What is demand?
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- 3-3: How do government-set prices cause product surpluses and shortages?
- 3-3: How can supply and demand analysis add insights on actual-economy situations?

3.1: Demand

- **Markets**
  - Bring together buyers (demanders) and sellers (suppliers)
  - All markets involve demand, supply, price, and quantity
- **Demand**
  - Demand – a schedule or a curve that shows the various amounts of a product that consumers are willing and able to purchase at each of a series of possible prices during a specified period of time
    - Shows the quantities of a product that will be purchased at various possible prices, *other things equal*
  - Demand table
    - Shows relationship between various prices of corn and the quantity of corn a particular consumer would be willing and able to purchase at each of these prices
    - Table does not tell which of the possible price will actually exist in the corn market
      - Depends on the interaction between demand and supply
  - Demand is simply a statement of a buyer's plans, or intentions, with respect to the purchase of a product
  - Time period is necessary
  - **Law of Demand**
    - Other things equal, as price falls, the quantity demanded rises, and as price rises, the quantity demanded falls
    - Negative or inverse relationship between price and quantity demanded
    - Other things equal
      - Relative price of Nikes rises, fewer Nikes will be bought
    - Common sense: People do buy more of a product at a low price than at a high price

        - Each successive unit of the product consumed → consumer will derive less satisfaction (or benefit, or utility)
            - Diminishing marginal utility
        - Income and substitution effects
            - Income effect: indicates that a lower price increases the purchasing power of a buyer's money income, enabling the buyer to purchase more of the product than before
            - Substitution effect: at a lower price buyers have the incentive to substitute what is now a less expensive product for similar products that are now relatively more expensive
    - **The Demand Curve**
        - Inverse or negative relationship between quantity demanded (horizontal axis) and price (vertical axis)
        - Downward slope – law of demand; people buy more of a product, service, or resource as its price falls
    - Market Demand
        - Individual demand to market demand
            - Add the quantities demanded by all consumers at each of the various possible prices
        - Too many buyers so just suppose that all buyers in a market are willing and able to buy the same amounts at each of the possible prices
        - Price is most important influence on the amount of any product purchased
        - Determinants of demand = other factors that can and do affect purchases
            - Demand curve shifts left of right when these change
    - Change in Demand
        - Increase in demand – desire to buy more corn → right
        - Decrease in demand – desire to buy less corn → left
        - Consumers' tastes (preferences)
            - Favorable change in consumer tastes for a product → demand increase → right
                - Concern over health hazards of cholesterol and obesity … increase demand for broccoli, low-calorie beverages and fresh fruit
            - Unfavorable change in consumer tastes for a product → demand decrease → left
                - Digital cameras come out … decrease demand for film cameras
        - Number of Buyers
            - Increase in number of buyers → increase product demand
                - Rising number of older persons … increase demand for motor homes, medical care, and retirement communities
                - Large scale immigration from Mexico … increase demand for a range of goods and services in the Southwest
            - Decrease in number of buyers → decrease product demand

        - Emigration from many small rural communities reduce the population … decrease the demand for housing, home appliances, and auto repair in those towns
- Income
    - Rise in income … increase in demand
    - Decline in income … decline in demand
    - Normal goods (superior goods) – products whose demand varies directly with money income
        - Most products … iPods, clothes, speakers
    - Inferior goods – goods whose demand varies inversely with money income
        - Charcoal grills as opposed to gas grills, second hand clothes, etc.
- Prices of Related Goods
    - Change in price of a related good may either increase or decrease the demand for a product
    - Substitutes
        - One that can be used in place of another good
        - Haagen-Dazs ice cream price increases… Ben&Jerry's price is relatively lower so Ben&Jerry's demand increases
        - Substitutes in consumption
    - Complements
        - Goods that are used together (and are typically demanded jointly)
        - Computers and software, Cell phones and cellular service, and snowboards and lift tickets
        - Price of a complement goes up, the demand for the related goods will decline
            - Lettuce price goes up, salad dressing demand will go down
        - Price of a complement good goes down, the demand for the related goods will increase
            - Tuition prices fall, demand for textbooks will increase
- Unrelated Goods
    - Independent goods that are not related to one another
    - Butter and gold balls
    - Potatoes and automobiles
    - Bananas and wristwatches
- Consumer Expectations
    - Newly formed expectation of higher future prices may cause consumers to buy now in order to "beat" the anticipated price rises, thus increasing current demand
        - Ex. Housing market
    - Change in expectations concerning future income may prompt consumers to change their current spending

        - First-round NFL draft choices may splurge on new luxury cars in anticipation of a lucrative professional football contract
        - Workers who become fearful of losing their jobs may reduce their demand for vacation travel
    - SUMMARY: an increase in demand may be caused by
        - A favorable change in consumer tastes
        - An increase in the number of buyers
        - Rising incomes if the product is an ormal good
        - Falling incomes if the product is an inferior good
        - An increase in the price of a substitute good
        - A decrease in the price of a complementary god
        - A new consumer expectation that either price sof income will be higher in the future
  - **Changes in Quantity Demanded**
    - A change in demand – a shift of the demand curve to the right (an increase in demand) or to the left (A decrease in demand)
        - Occurs because the consumer's state of mind about purchasing the product has been altered in response to a change in one or more of the determinants of demand
    - A change in quantity demanded – a movement from one point to another point on a fixed demand schedule or demand curve
        - Caused by an increase or decrease in the price of the product under consideration
        - CAUSED BY CHANGE IN PRICE
- QUICK REVIEW 3.1:
  - Demand is a schedule or a curve showing the amount of a product that buyers are willing and able to purchase, in a particular time period, at each possible price in a series of prices
  - The law of demand states that, other things equal, the quantity of a good purchased varies inversely with its price
  - The demand curve shifts because of change sin a, consumer tastes, b, the number of buyer sin the market, c, consumer income, d, the prices of substitute or complementary goods, and e, consumer expectations
  - A change in demand is a shift of the demand curve; a change in the quantity demanded is a movement from one point to another on a fixed demand curve

3.2: Supply

- **Supply**
  - Schedule or curve showing the various amounts of a product that producers are willing and able to maker available for sale at each of a series of possible prices during a specific period
  - **Law of Supply**
    - As price rises, the quantity supplied rises; as price falls, the quantity supplied falls
    - Direct or positive relationship

    - Other things equal, a firm will produce and offer for sale more of their product at a high price than at a low price
    - To a supplier, price is revenue
    - Manufacturers usually encounter increases in marginal cost – the added cost of producing one more unit of output
        - Each added worker produces less output due to less access to machines
        - Marginal cost of successive units of output rises accordingly
        - Firm will not produce the more costly units unless it receives a higher price for them
- **The Supply Curve**
    - Upward slope – law of supply – producers offer more of a good, service, or resource for sale as its price rises
    - Positive or direct relationship
- **Market Supply**
    - Derived from individual supply in the same way that market demand is derived from individual demand
    - Sum the quantities supplied by each producer at each price
- **Determinants of Supply**
    - Price is most significant influence on the quantity supplied of any product
    - Changes in determinants of supply will cause the entire supply curve to shift
- **Changes in Supply**
    - Resource Prices
        - Higher resource prices help determine the costs of production incurred by firms
        - Higher resource prices raise production costs and assuming a particular product price, squeeze profits
        - Lower prices reduce production costs and increase profits
            - Resource prices fall, firms supply greater output at each product price
            - Decrease in flat-panel glass → increase in supply of big-screen television sets
    - Technology
        - Improvements in technology enable firms to produce units of output with fewer resources
        - Technological advances in producing flat-panel computer monitors greatly reduced their cost → supply is increased
    - Taxes and Subsidies
        - Increase in sales or property tax → increase production costs → reduce supply
        - Subsidies (taxes in reverse)
            - Government subsidizes production of a good → lowers producers' costs → increases supply
    - Prices of Other Goods

                - Firms that produce volleyballs can use their plants to produce alternative goods like basketballs
                - Higher prices of other goods may cause production of other goods to increase for higher profits
                - Substitution in production
            - Producer Expectations
                - Farmers anticipating a higher wheat price in the future might withhold some of their current wheat harvest from the market, thereby causing a decrease in the current supply of wheat
                - Newly formed expectations that price will increase may induce firms to add another shift of workers or to expand their production facilities, causing current supply to increase
            - Number of Sellers
                - More firms entering industry, more supply
                - Less number of firms in the industry, less market supply
        - **Changes in Quantity Supplied**
            - Change in supply – a change in the schedule and a shift of the curve
            - Change in quantity supplied – movement from one point to another on a fixed supply curve
                - Change in price
- QUICK REVIEW 3.2:
    - A supply schedule or curve shows that, other things equal, the quantity of a good supplied varies directly with its price
    - The supply curve shifts because of change sin a, resource prices, b, technology, c, taxes or subsidies, d, prices of other goods, e, expectations of future prices, and f, the number of suppliers
    - A change in supply is a shift of the supply curve; a change in quantity supplied is a movement from one point to another on a fixed supply curve

3.3: Market Equilibrium

- **Market Equilibrium**
    - Interaction between demand and supply
    - Assume that this is a competitive market so that neither buyers nor sellers can set the price
    - **Equilibrium Price and Quantity**
        - Also called market-clearing price; price where the intentions of buyers and sellers match
        - Price where quantity demanded equals quantity supplied
        - No shortage or surplus of product
        - Graphically indicated by intersection of supply curve and demand curve
        - Above-equilibrium price: quantity supplied exceeds quantity demanded
            - Now at a surplus
            - Surplus drives prices down
                - Price falls so incentive to produce corn decreases and the incentive to buy corn increases
        - Below-equilibrium price – quantity supply is below quantity demanded

        - Now at a shortage
        - Shortage drives prices up
            - Consumers desire more bushels than available, competition among these buyers will drive up the price to equilibrium
- **Rationing Function of Prices**
    - The ability of the competitive forces of supply and demand to establish a price at which selling and buying decisions are consistent
- **Efficient Allocation**
    - A competitive market allocates society's resources efficiently to the particular product
    - Productive efficiency – the production of any particular good *in the least costly way*
        - When society produces corn at the lowest achievable per-unit cost, it is expending the least-valued combination of resources to produce that product and therefore is making available more-valued resources to produce other desired goods
    - Allocative efficiency – the particular mix of goods and services *most highly valued by society*
        - Society wants fields used for growing corn, not dandelions
    - Demand essentially reflects the marginal benefit of the good, based on the utility received
    - Supply reflects the marginal cost of producing the good
    - Market ensures that firms produce all units of goods for which marginal benefit exceeds marginal cost and no units for which marginal cost exceeds marginal benefit
    - At intersection, marginal benefit equals marginal cost and Allocative efficiency results
        - No under allocation of resources nor an over allocation of resources
- **Changes in Supply, Demand, and Equilibrium**
    - Changes in Demand
        - Supply is constant and demand increases
            - Higher values on both price and quantity for the intersection
    - Changes in Supply
        - Demand is constant but supply increases
            - Lower value on equilibrium price but at a higher equilibrium quantity
    - Complex Cases
        - Supply Increase; Demand Decrease
            - Supply increases and demand decreases on apples
            - Price drop is greater than having the price change alone. Always. Price. Drops.
            - Equilibrium quantity is indeterminate
                - If decrease in demand is greater than increase in supply, equilibrium quantity will decrease

            - If increase in supply is larger than decrease in demand, equilibrium quantity will increase
    - Supply Decrease; Demand Increase
        - Decrease in a supply and an increase in demand for gasoline
        - Will always increase price
        - Equilibrium quantity is indeterminate
            - Decrease in supply is larger than the increase in demand, equilibrium quantity will decrease
            - Increase in demand is greater than the decrease in supply, the equilibrium quantity will increase
    - Supply Increase; Demand Increase
        - Supply and demand both increase for cell phones
        - Equilibrium price is indeterminate
            - Supply increase drops equilibrium price while demand increase boosts it
            - Increase in supply is greater than increase demand, the equilibrium price will fall
            - Increase in supply is less than increase in demand, equilibrium price will rise
        - Equilibrium quantity will increase always. It will increase by a greater amount than that caused by either change alone
    - Supply Decrease; Demand Decrease
        - Decrease in supply and in demand for houses
            - Equilibrium price is indeterminate
                - Decrease in supply is greater than decrease in demand, equilibrium price will rise
                - Decrease in supply is less than decrease in demand, equilibrium price will decrease
            - Equilibrium price will always fall

- **Application: Government-Set Prices**
    - Price Ceilings on Gasoline
        - Price ceiling – sets the maximum legal price a seller may charge for a product or service
        - Purpose: enables consumers to obtain some “essential” good or service that they could not afford at the equilibrium price
        - Examples: rent controls and usury laws
        - Graphical Analysis
            - Price ceilings are always below the equilibrium price
            - Lasting shortage on gasoline
            - Unregulated shortage does not lead to an equitable distribution of gasoline
        - Rationing Problem
            - Possible option: issue ration coupons
        - Black Markets

        - Demand curve shows that many buyers are willing to pay more than the ceiling price
  - **Rent Controls**
    - Goal: to protect low-income families from escalating rents caused by perceived housing shortages and to make housing more affordable to the poor
    - Essentially, rent control distort market signals and thus resources are misallocated
  - **Price Floors on Wheat**
    - Price floor – minimum price fixed by the government
    - Price floors above equilibrium prices are usually invoked when society feels that the free functioning of the market system has not provided a sufficient income for certain groups of resource suppliers or producers
    - Causes a surplus
    - Graphical Analysis
      - How governments may cope with the surplus resulting from a price floor
        - It can restrict supply (by instituting acreage allotments by which farmes agree to take a certain amount of land out of production) or increase demand (by researching new uses for the product involved)
          - →reduce difference between the equilibrium price and the price floor
        - Government can purchase the surplus output at $3 price and store it or dispose of it
    - Additional Consequences
      - Disrupt rationing ability of prices
      - Distort resource allocation
        - Society does not achieve Allocative efficiency
      - Consumers of wheat-based products pay higher prices because of the price floor
        - Tax payers pay higher taxes to finance the government's purchase of the surplus
      - Price floor causes potential environmental damage by encouraging wheat farmers to bring hilly, erosion-prone marginal land into production
      - Higher price prompts imports of wheat
        - Tariffs are created
- QUICK REVIEW 3.3:
  - In competitive markets, prices adjust to the equilibrium level at which quantity demanded equals quantity supplied.
  - The equilibrium price and quantity are those indicated by the intersection of supply and demand curves for any product or resource
  - An increase in demand increases equilibrium price and quantity; a decrease in demand decreases equilibrium price and quantity

- An increase in supply reduces equilibrium price but increases equilibrium quantity; a decrease in supply increases equilibrium price but reduces equilibrium quantity
- Over time, equilibrium price and quantity may change in directions that seem at odds with the laws od demand and supply because the other-things-equal assumption is violated
- Government-controlled prices in the form of ceilings and floors stifle the rationing function of prices, distort resource allocations, and cause negative side effects