GLOSSARY

A

absolute advantage *(page 606)* Situation in which Country 1 has an advantage over Country 2 in producing a good because the cost of producing the good in 1 is lower than the cost of producing it in 2.

accounting cost *(page 222)* Actual expenses plus depreciation charges for capital equipment.

actual return *(page 178)* Return that an asset earns.

actuarially fair *(page 173)* Characterizing a situation in which an insurance premium is equal to the expected payout.

adverse selection *(page 620)* Form of market failure resulting when products of different qualities are sold at a single price because of asymmetric information, so that too much of the low-quality product and too little of the high-quality product are sold.

advertising elasticity of demand *(page 426)* Percentage change in quantity demanded resulting from a 1-percent increase in advertising expenditures.

advertising-to-sales ratio *(page 426)* Ratio of a firm's advertising expenditures to its sales.

agent *(page 631)* Individual employed by a principal to achieve the principal's objective.

amortization *(page 226)* Policy of treating a one-time expenditure as an annual cost spread out over some number of years.

anchoring *(page 188)* Tendency to rely heavily on one prior (suggested) piece of information when making a decision.

antitrust laws *(page 381)* Rules and regulations prohibiting actions that restrain, or are likely to restrain, competition.

arbitrage *(page 8)* Practice of buying at a low price at one location and selling at a higher price in another.

arc elasticity of demand *(page 39)* Price elasticity calculated over a range of prices.

asset *(page 177)* Something that provides a flow of money or services to its owner.

asset beta *(page 566)* A constant that measures the sensitivity of an asset's return to market movements and, therefore, the asset's nondiversifiable risk.

asymmetric information *(page 618)* Situation in which a buyer and a seller possess different information about a transaction.

auction markets *(page 509)* Markets in which products are bought and sold through formal bidding processes.

average expenditure curve *(page 530)* Supply curve representing the price per unit that a firm pays for a good.

average expenditure *(page 374)* Price paid per unit of a good.

average fixed cost (AFC) *(page 228)* Fixed cost divided by the level of output.

average product *(page 199)* Output per unit of a particular input.

average total cost (ATC) *(page 227)* Firm's total cost divided by its level of output.

average variable cost (AVC) *(page 228)* Variable cost divided by the level of output.

B

bad *(page 77)* Good for which less is preferred rather than more.

bandwagon effect *(page 136)* Positive network externality in which a consumer wishes to possess a good in part because others do.

barrier to entry *(page 368)* Condition that impedes entry by new competitors.

Bertrand model *(page 456)* Oligopoly model in which firms produce a homogeneous good, each firm treats the price of its competitors as fixed, and all firms decide simultaneously what price to charge.

bilateral monopoly *(page 380)* Market with only one seller and one buyer.

block pricing *(page 396)* Practice of charging different prices for different quantities or "blocks" of a good.

bond *(page 556)* Contract in which a borrower agrees to pay the bondholder (the lender) a stream of money.

budget constraints *(page 83)* Constraints that consumers face as a result of limited incomes.

budget line *(page 83)* All combinations of goods for which the total amount of money spent is equal to income.

bundling *(page 413)* Practice of selling two or more products as a package.

C

Capital Asset Pricing Model (CAPM) *(page 565)* Model in which the risk premium for a capital investment depends on the correlation of the investment's return with the return on the entire stock market.

cardinal utility function *(page 81)* Utility function describing by how much one market basket is preferred to another.

cartel *(page 444)* Market in which some or all firms explicitly collude, coordinating prices and output levels to maximize joint profits.

chain-weighted price index *(page 104)* Cost-of-living index that accounts for changes in quantities of goods and services.

Coase theorem *(page 671)* Principle that when parties can bargain without cost and to their mutual advantage, the resulting outcome will be efficient regardless of how property rights are specified.

Cobb-Douglas production function *(page 267)* Production function of the form $q = AK^{\alpha}L^{\beta}$, where q is the rate of output, K is the quantity of capital, and L is the quantity of labor, and where A, α, and β are constants.

Cobb-Douglas utility function *(page 153)* Utility function $U(X,Y) = X^{a}Y^{1-a}$, where X and Y are two goods and a is a constant.

common property resource *(page 673)* Resource to which anyone has free access.

common-value auction *(page 510)* Auction in which the item has the same value to all bidders, but bidders do not know that value precisely and their estimates of it vary.

company cost of capital *(page 566)* Weighted average of the expected return on a company's stock and the interest rate that it pays for debt.

comparative advantage *(page 606)* Situation in which Country 1 has an advantage over Country 2 in producing a good because the cost of producing the good in 1, relative to the cost of producing other goods in 1, is lower than the cost of producing the good in 2, relative to the cost of producing other goods in 2.

complements *(page 24)* Two goods for which an increase in the price of one leads to a decrease in the quantity demanded of the other.

completely inelastic demand *(page 35)* Principle that consumers will buy a fixed quantity of a good regardless of its price.

constant returns to scale *(page 215)* Situation in which output doubles when all inputs are doubled.

constant-cost industry *(page 299)* Industry whose long-run supply curve is horizontal.

Consumer Price Index *(page 12)* Measure of the aggregate price level.

consumer surplus *(page 132)* Difference between what a consumer is willing to pay for a good and the amount actually paid.

contract curve *(page 593)* Curve showing all efficient allocations of goods between two consumers, or of two inputs between two production functions.

cooperative *(page 275)* Association of businesses or people jointly owned and operated by members for mutual benefit.

cooperative game *(page 480)* Game in which participants can negotiate binding contracts that allow them to plan joint strategies.

corner solution *(page 90)* Situation in which the marginal rate of substitution of one good for another in a chosen market basket is not equal to the slope of the budget line.

cost function *(page 256)* Function relating cost of production to level of output and other variables that the firm can control.

cost-of-living index *(page 101)* Ratio of the present cost of a typical bundle of consumer goods and services compared with the cost during a base period.

Cournot equilibrium *(page 452)* Equilibrium in the Cournot model, in which each firm correctly assumes how much its competitor will produce and sets its own production level accordingly.

Cournot model *(page 451)* Oligopoly model in which firms produce a homogeneous good, each firm treats the output of its competitors as fixed, and all firms decide simultaneously how much to produce.

cross-price elasticity of demand *(page 36)* Percentage change in the quantity demanded of one good resulting from a 1-percent increase in the price of another.

cyclical industries *(page 42)* Industries in which sales tend to magnify cyclical changes in gross domestic product and national income.

D

deadweight loss *(page 313)* Net loss of total (consumer plus producer) surplus.

decreasing returns to scale *(page 215)* Situation in which output less than doubles when all inputs are doubled.

decreasing-cost industry *(page 302)* Industry whose long-run supply curve is downward sloping.

degree of economies of scope (SC) *(page 250)* Percentage of cost savings resulting when two or more products are produced jointly rather than individually.

demand curve *(page 23)* Relationship between the quantity of a good that consumers are willing to buy and the price of the good.

derived demand *(page 522)* Demand for an input that depends on, and is derived from, both the firm's level of output and the cost of inputs.

deviation *(page 161)* Difference between expected payoff and actual payoff.

diminishing marginal utility *(page 96)* Principle that as more of a good is consumed, the consumption of additional amounts will yield smaller additions to utility.

discount rate *(page 561)* Rate used to determine the value today of a dollar received in the future.

diseconomies of scale *(page 246)* Situation in which a doubling of output requires more than a doubling of cost.

diseconomies of scope *(page 250)* Situation in which joint output of a single firm is less than could be achieved by separate firms when each produces a single product.

diversifiable risk *(page 564)* Risk that can be eliminated either by investing in many projects or by holding the stocks of many companies.

diversification *(page 170)* Practice of reducing risk by allocating resources to a variety of activities whose outcomes are not closely related.

dominant firm *(page 468)* Firm with a large share of total sales that sets price to maximize profits, taking into account the supply response of smaller firms.

dominant strategy *(page 482)* Strategy that is optimal no matter what an opponent does.

duality *(page 154)* Alternative way of looking at the consumer's utility maximization decision: Rather than choosing the highest indifference curve, given a budget constraint, the consumer chooses the lowest budget line that touches a given indifference curve.

duopoly *(page 450)* Market in which two firms compete with each other.

Dutch auction *(page 510)* Auction in which a seller begins by offering an item at a relatively high price, then reduces it by fixed amounts until the item is sold.

E

economic cost *(page 222)* Cost to a firm of utilizing economic resources in production, including opportunity cost.

economic efficiency *(page 315)* Maximization of aggregate consumer and producer surplus.

economic rent *(page 297)* Amount that firms are willing to pay for an input less the minimum amount necessary to obtain it.

economies of scale *(page 246)* Situation in which output can be doubled for less than a doubling of cost.

economies of scope *(page 250)* Situation in which joint output of a single firm is greater than output that could be achieved by two different firms when each produces a single product.

Edgeworth box *(page 591)* Diagram showing all possible allocations of either two goods between two people or of two inputs between two production processes.

effective yield (or rate of return) *(page 558)* Percentage return that one receives by investing in a bond.

efficiency wage *(page 640)* Wage that a firm will pay to an employee as an incentive not to shirk.

efficiency wage theory *(page 639)* Explanation for the presence of unemployment and wage discrimination which recognizes that labor productivity may be affected by the wage rate.

efficient (or **Pareto efficient**) **allocation** *(page 590)* Allocation of goods in which no one can be made better off unless someone else is made worse off.

elasticity *(page 34)* Percentage change in one variable resulting from a 1-percent increase in another.

emissions fee *(page 653)* Charge levied on each unit of a firm's emissions.

emissions standard *(page 652)* Legal limit on the amount of pollutants that a firm can emit.

endowment effect *(page 186)* Tendency of individuals to value an item more when they own it than when they do not.

Engel curve *(page 116)* Curve relating the quantity of a good consumed to income.

English (or **oral**) **auction** *(page 510)* Auction in which a seller actively solicits progressively higher bids from a group of potential buyers.

equal marginal principle *(page 97)* Principle that utility is maximized when the consumer has equalized the marginal utility per dollar of expenditure across all goods.

equilibrium (or **market-clearing**) **price** *(page 25)* Price that equates the quantity supplied to the quantity demanded.

equilibrium in dominant strategies *(page 483)* Outcome of a game in which each firm is doing the best it can regardless of what its competitors are doing.

excess demand *(page 596)* When the quantity demanded of a good exceeds the quantity supplied.

excess supply *(page 596)* When the quantity supplied of a good exceeds the quantity demanded.

exchange economy *(page 590)* Market in which two or more consumers trade two goods among themselves.

expansion path *(page 241)* Curve passing through points of tangency between a firm's isocost lines and its isoquants.

expected return *(page 178)* Return that an asset should earn on average.

expected utility *(page 165)* Sum of the utilities associated with all possible outcomes, weighted by the probability that each outcome will occur.

expected value *(page 161)* Probability-weighted average of the payoffs associated with all possible outcomes.

extensive form of a game *(page 495)* Representation of possible moves in a game in the form of a decision tree.

extent of a market *(page 9)* Boundaries of a market, both geographical and in terms of range of products produced and sold within it.

externality *(pages 315, 646)* Action by either a producer or a consumer which affects other producers or consumers, but is not accounted for in the market price.

F

factors of production *(page 196)* Inputs into the production process (e.g., labor, capital, and materials).

first-degree price discrimination *(page 393)* Practice of charging each customer her reservation price.

first-price auction *(page 510)* Auction in which the sales price is equal to the highest bid.

fixed cost (FC) *(page 224)* Cost that does not vary with the level of output and that can be eliminated only by shutting down.

fixed input *(page 198)* Production factor that cannot be varied.

fixed-proportions production function *(page 211)* Production function with L-shaped isoquants, so that only one combination of labor and capital can be used to produce each level of output.

fixed-weight index *(page 103)* Cost-of-living index in which the quantities of goods and services remain unchanged.

free entry (or exit) *(page 272)* Condition under which there are no special costs that make it difficult for a firm to enter (or exit) an industry.

free rider *(page 678)* Consumer or producer who does not pay for a nonexclusive good in the expectation that others will.

G

game *(page 480)* Situation in which players (participants) make strategic decisions that take into account each other's actions and responses.

general equilibrium analysis *(page 586)* Simultaneous determination of the prices and quantities in all relevant markets, taking feedback effects into account.

Giffen good *(page 122)* Good whose demand curve slopes upward because the (negative) income effect is larger than the substitution effect.

H

Hicksian substitution effect *(page 157)* Alternative to the Slutsky equation for decomposing price changes without recourse to indifference curves.

horizontal integration *(page 636)* Organizational form in which several plants produce the same or related products for a firm.

human capital *(page 570)* Knowledge, skills, and experience that make an individual more productive and thereby able to earn a higher income over a lifetime.

I

ideal cost-of-living index *(page 102)* Cost of attaining a given level of utility at current prices relative to the cost of attaining the same utility at base-year prices.

import quota *(page 331)* Limit on the quantity of a good that can be imported.

income effect *(page 121)* Change in consumption of a good resulting from an increase in purchasing power, with relative prices held constant.

income elasticity of demand *(page 36)* Percentage change in the quantity demanded resulting from a 1-percent increase in income.

income-consumption curve *(page 114)* Curve tracing the utility-maximizing combinations of two goods as a consumer's income changes.

increasing returns to scale *(page 215)* Situation in which output more than doubles when all inputs are doubled.

increasing-cost industry *(page 300)* Industry whose long-run supply curve is upward sloping.

indifference curve *(page 70)* Curve representing all combinations of market baskets that provide a consumer with the same level of satisfaction.

indifference map *(page 72)* Graph containing a set of indifference curves showing the market baskets among which a consumer is indifferent.

individual demand curve *(page 113)* Curve relating the quantity of a good that a single consumer will buy to its price.

infinitely elastic demand *(page 35)* Principle that consumers will buy as much of a good as they can get at a single price, but for any higher price the quantity demanded drops to zero, while for any lower price the quantity demanded increases without limit.

interest rate *(page 553)* Rate at which one can borrow or lend money.

intertemporal price discrimination *(page 403)* Practice of separating consumers with different demand functions into different groups by charging different prices at different points in time.

isocost line *(page 236)* Graph showing all possible combinations of labor and capital that can be purchased for a given total cost.

isoelastic demand curve *(page 128)* Demand curve with a constant price elasticity.

isoquant *(page 208)* Curve showing all possible combinations of inputs that yield the same output.

isoquant map *(page 209)* Graph combining a number of isoquants, used to describe a production function.

K

kinked demand curve model *(page 465)* Oligopoly model in which each firm faces a demand curve kinked at the currently prevailing price: at higher prices demand is very elastic, whereas at lower prices it is inelastic.

L

labor productivity *(page 205)* Average product of labor for an entire industry or for the economy as a whole.

Lagrangian *(page 150)* Function to be maximized or minimized, plus a variable (the *Lagrange multiplier*) multiplied by the constraint.

Laspeyres price index *(page 102)* Amount of money at current year prices that an individual requires to purchase a bundle of goods and services chosen in a base year divided by the cost of purchasing the same bundle at base-year prices.

law of diminishing marginal returns *(page 202)* Principle that as the use of an input increases with other inputs fixed, the resulting additions to output will eventually decrease.

learning curve *(page 252)* Graph relating amount of inputs needed by a firm to produce each unit of output to its cumulative output.

least-squares criterion *(page 688)* Criterion of "best fit" used to choose values for regression parameters, usually by minimizing the sum of squared residuals between the actual values of the dependent variable and the fitted values.

Lerner Index of Monopoly Power *(page 363)* Measure of monopoly power calculated as excess of price over marginal cost as a fraction of price.

linear demand curve *(page 35)* Demand curve that is a straight line.

linear regression *(page 687)* Model specifying a linear relationship between a dependent variable and several independent (or explanatory) variables and an error term.

long run *(page 198)* Amount of time needed to make all production inputs variable.

long-run average cost curve (LAC) *(page 245)* Curve relating average cost of production to output when all inputs, including capital, are variable.

long-run competitive equilibrium *(page 296)* All firms in an industry are maximizing profit, no firm has an incentive to enter or exit, and price is such that quantity supplied equals quantity demanded.

long-run marginal cost curve (LMC) *(page 245)* Curve showing the change in long-run total cost as output is increased incrementally by 1 unit.

loss aversion *(page 187)* Tendency for individuals to prefer avoiding losses over acquiring gains.

M

macroeconomics *(page 4)* Branch of economics that deals with aggregate economic variables, such as the level and growth rate of national output, interest rates, unemployment, and inflation.

marginal benefit *(page 88)* Benefit from the consumption of one additional unit of a good.

marginal cost *(pages 88, 227)* Cost of one additional unit of a good.

marginal expenditure *(page 374)* Additional cost of buying one more unit of a good.

marginal expenditure curve *(page 530)* Curve describing the additional cost of purchasing one additional unit of a good.

marginal external benefit *(page 648)* Increased benefit that accrues to other parties as a firm increases output by one unit.

marginal external cost *(page 647)* Increase in cost imposed externally as one or more firms increase output by one unit.

marginal product *(page 199)* Additional output produced as an input is increased by one unit.

marginal rate of substitution (MRS) *(page 75)* Maximum amount of a good that a consumer is willing to give up in order to obtain one additional unit of another good.

marginal rate of technical substitution (MRTS) *(page 210)* Amount by which the quantity of one input can be reduced when one extra unit of another input is used, so that output remains constant.

marginal rate of transformation *(page 602)* Amount of one good that must be given up to produce one additional unit of a second good.

marginal revenue *(pages 276, 350)* Change in revenue resulting from a one-unit increase in output.

marginal revenue product *(page 522)* Additional revenue resulting from the sale of output created by the use of one additional unit of an input.

marginal social benefit *(page 649)* Sum of the marginal private benefit plus the marginal external benefit.

marginal social cost *(page 647)* Sum of the marginal cost of production and the marginal external cost.

marginal utility (MU) *(page 96)* Additional satisfaction obtained from consuming one additional unit of a good.

marginal value *(page 374)* Additional benefit derived from purchasing one more unit of a good.

market *(page 7)* Collection of buyers and sellers that, through their actual or potential interactions, determine the price of a product or set of products.

market basket (or bundle) *(page 69)* List with specific quantities of one or more goods.

market definition *(page 8)* Determination of the buyers, sellers, and range of products that should be included in a particular market.

market demand curve *(page 125)* Curve relating the quantity of a good that all consumers in a market will buy to its price.

market failure *(page 315)* Situation in which an unregulated competitive market is inefficient because prices fail to provide proper signals to consumers and producers.

market mechanism *(page 25)* Tendency in a free market for price to change until the market clears.

market power *(page 350)* Ability of a seller or buyer to affect the price of a good.

market price *(page 8)* Price prevailing in a competitive market.

market signaling *(page 623)* Process by which sellers send signals to buyers conveying information about product quality.

maximin strategy *(page 487)* Strategy that maximizes the minimum gain that can be earned.

method of Lagrange multipliers *(page 150)* Technique to maximize or minimize a function subject to one or more constraints.

microeconomics *(page 4)* Branch of economics that deals with the behavior of individual economic units—consumers, firms, workers, and investors—as well as the markets that these units comprise.

mixed bundling *(page 418)* Selling two or more goods both as a package and individually.

mixed strategy *(page 488)* Strategy in which a player makes a random choice among two or more possible actions, based on a set of chosen probabilities.

monopolistic competition *(page 444)* Market in which firms can enter freely, each producing its own brand or version of a differentiated product.

monopoly *(page 350)* Market with only one seller.

monopsony *(page 350)* Market with only one buyer.

monopsony power *(page 374)* Buyer's ability to affect the price of a good.

moral hazard *(page 628)* When a party whose actions are unobserved can affect the probability or magnitude of a payment associated with an event.

multiple regression analysis *(page 687)* Statistical procedure for quantifying economic relationships and testing hypotheses about them.

mutual fund *(page 171)* Organization that pools funds of individual investors to buy a large number of different stocks or other financial assets.

N

Nash equilibrium *(page 450)* Set of strategies or actions in which each firm does the best it can given its competitors' actions.

natural monopoly *(page 372)* Firm that can produce the entire output of the market at a cost lower than what it would be if there were several firms.

negatively correlated variables *(page 171)* Variables having a tendency to move in opposite directions.

net present value (NPV) criterion *(page 560)* Rule holding that one should invest if the present value of the expected future cash flow from an investment is larger than the cost of the investment.

network externality *(page 136)* Situation in which each individual's demand depends on the purchases of other individuals.

nominal price *(page 12)* Absolute price of a good, unadjusted for inflation.

noncooperative game *(pages 462, 480)* Game in which negotiation and enforcement of binding contracts are not possible.

nondiversifiable risk *(page 564)* Risk that cannot be eliminated by investing in many projects or by holding the stocks of many companies.

nonexclusive good *(page 676)* Good that people cannot be excluded from consuming, so that it is difficult or impossible to charge for its use.

nonrival good *(page 676)* Good for which the marginal cost of its provision to an additional consumer is zero.

normative analysis *(page 7)* Analysis examining questions of what ought to be.

O

oligopoly *(page 444)* Market in which only a few firms compete with one another, and entry by new firms is impeded.

oligopsony *(page 374)* Market with only a few buyers.

opportunity cost *(page 222)* Cost associated with opportunities that are forgone when a firm's resources are not put to their best alternative use.

opportunity cost of capital *(page 561)* Rate of return that one could earn by investing in an alternate project with similar risk.

optimal strategy *(page 480)* Strategy that maximizes a player's expected payoff.

ordinal utility function *(page 80)* Utility function that generates a ranking of market baskets in order of most to least preferred.

P

Paasche index *(page 103)* Amount of money at current-year prices that an individual requires to purchase a current bundle of goods and services divided by the cost of purchasing the same bundle in a base year.

parallel conduct *(page 382)* Form of implicit collusion in which one firm consistently follows actions of another.

partial equilibrium analysis *(page 586)* Determination of equilibrium prices and quantities in a market independent of effects from other markets.

payoff *(pages 161, 480)* Value associated with a possible outcome.

payoff matrix *(page 462)* Table showing profit (or payoff) to each firm given its decision and the decision of its competitor.

peak-load pricing *(page 403)* Practice of charging higher prices during peak periods when capacity constraints cause marginal costs to be high.

perfect complements *(page 77)* Two goods for which the MRS is zero or infinite; the indifference curves are shaped as right angles.

perfect substitutes *(page 77)* Two goods for which the marginal rate of substitution of one for the other is a constant.

perfectly competitive market *(page 8)* Market with many buyers and sellers, so that no single buyer or seller has a significant impact on price.

perpetuity *(page 556)* Bond paying out a fixed amount of money each year, forever.

point elasticity of demand *(page 37)* Price elasticity at a particular point on the demand curve.

positive analysis *(page 6)* Analysis describing relationships of cause and effect.

positively correlated variables *(page 171)* Variables having a tendency to move in the same direction.

predatory pricing *(page 382)* Practice of pricing to drive current competitors out of business and to discourage new entrants in a market so that a firm can enjoy higher future profits.

present discounted value (PDV) *(page 553)* The current value of an expected future cash flow.

price discrimination *(page 393)* Practice of charging different prices to different consumers for similar goods.

price elasticity of demand *(page 34)* Percentage change in quantity demanded of a good resulting from a 1-percent increase in its price.

price elasticity of supply *(page 37)* Percentage change in quantity supplied resulting from a 1-percent increase in price.

price leadership *(page 466)* Pattern of pricing in which one firm regularly announces price changes that other firms then match.

price of risk *(page 180)* Extra risk that an investor must incur to enjoy a higher expected return.

price rigidity *(page 465)* Characteristic of oligopolistic markets by which firms are reluctant to change prices even if costs or demands change.

price signaling *(page 465)* Form of implicit collusion in which a firm announces a price increase in the hope that other firms will follow suit.

price support *(page 324)* Price set by government above free-market level and maintained by governmental purchases of excess supply.

price taker *(page 272)* Firm that has no influence over market price and thus takes the price as given.

price-consumption curve *(page 113)* Curve tracing the utility-maximizing combinations of two goods as the price of one changes.

principal *(page 631)* Individual who employs one or more agents to achieve an objective.

principal-agent problem *(page 631)* Problem arising when agents (e.g., a firm's managers) pursue their own goals rather than the goals of principals (e.g., the firm's owners).

prisoners' dilemma *(page 462)* Game theory example in which two prisoners must decide separately whether to confess to a crime; if a prisoner confesses, he will receive a lighter sentence and his accomplice will receive a heavier one, but if neither confesses, sentences will be lighter than if both confess.

private-value auction *(page 510)* Auction in which each bidder knows his or her individual valuation of the object up for bid, with valuations differing from bidder to bidder.

probability *(page 160)* Likelihood that a given outcome will occur.

Producer Price Index *(page 12)* Measure of the aggregate price level for intermediate products and wholesale goods.

producer surplus *(page 291)* Sum over all units produced by a firm of differences between the market price of a good and the marginal cost of production.

product transformation curve *(page 249)* Curve showing the various combinations of two different outputs (products) that can be produced with a given set of inputs.

production function *(page 197)* Function showing the highest output that a firm can produce for every specified combination of inputs.

production possibilities frontier *(page 601)* Curve showing the combinations of two goods that can be produced with fixed quantities of inputs.

profit *(page 276)* Difference between total revenue and total cost.

property rights *(page 669)* Legal rules stating what people or firms may do with their property.

public good *(pages 613, 676)* Nonexclusive and nonrival good: the marginal cost of provision to an additional consumer is zero and people cannot be excluded from consuming it.

pure bundling *(page 418)* Selling products only as a package.

pure strategy *(page 488)* Strategy in which a player makes a specific choice or takes a specific action.

R

rate-of-return regulation *(page 373)* Maximum price allowed by a regulatory agency is based on the (expected) rate of return that a firm will earn.

reaction curve *(page 452)* Relationship between a firm's profit-maximizing output and the amount it thinks its competitor will produce.

real price *(page 12)* Price of a good relative to an aggregate measure of prices; price adjusted for inflation.

real return *(page 178)* Simple (or nominal) return on an asset, less the rate of inflation.

reference point *(page 186)* The point from which an individual makes a consumption decision.

rent seeking *(page 370)* Spending money in socially unproductive efforts to acquire, maintain, or exercise monopoly.

rental rate *(page 236)* Cost per year of renting one unit of capital.

repeated game *(page 490)* Game in which actions are taken and payoffs received over and over again.

reservation price *(page 393)* Maximum price that a customer is willing to pay for a good.

return *(page 178)* Total monetary flow of an asset as a fraction of its price.

returns to scale *(page 215)* Rate at which output increases as inputs are increased proportionately.

risk averse *(page 167)* Condition of preferring a certain income to a risky income with the same expected value.

risk loving *(page 167)* Condition of preferring a risky income to a certain income with the same expected value.

risk neutral *(page 167)* Condition of being indifferent between a certain income and an uncertain income with the same expected value.

risk premium *(pages 167, 564)* Maximum amount of money that a risk-averse individual will pay to avoid taking a risk.

riskless (or **risk-free) asset** *(page 178)* Asset that provides a flow of money or services that is known with certainty.

risky asset *(page 177)* Asset that provides an uncertain flow of money or services to its owner.

R-squared (R^2) *(page 691)* Percentage of the variation in the dependent variable that is accounted for by all the explanatory variables.

S

sample *(page 689)* Set of observations for study, drawn from a larger universe.

sealed-bid auction *(page 510)* Auction in which all bids are made simultaneously in sealed envelopes, the winning bidder being the individual who has submitted the highest bid.

second-degree price discrimination *(page 396)* Practice of charging different prices per unit for different quantities of the same good or service.

second-price auction *(page 510)* Auction in which the sales price is equal to the second-highest bid.

sequential game *(page 494)* Game in which players move in turn, responding to each other's actions and reactions.

shirking model *(page 640)* Principle that workers still have an incentive to shirk if a firm pays them a market-clearing wage, because fired workers can be hired somewhere else for the same wage.

short run *(page 198)* Period of time in which quantities of one or more production factors cannot be changed.

short-run average cost curve (SAC) *(page 245)* Curve relating average cost of production to output when level of capital is fixed.

shortage *(page 26)* Situation in which the quantity demanded exceeds the quantity supplied.

Slutsky equation *(page 156)* Formula for decomposing the effects of a price change into substitution and income effects.

snob effect *(page 137)* Negative network externality in which a consumer wishes to own an exclusive or unique good.

social rate of discount *(page 667)* Opportunity cost to society as a whole of receiving an economic benefit in the future rather than the present.

social welfare function *(page 598)* Measure describing the well-being of society as a whole in terms of the utilities of individual members.

specific tax *(page 336)* Tax of a certain amount of money per unit sold.

Stackelberg model *(page 455)* Oligopoly model in which one firm sets its output before other firms do.

standard deviation *(page 162)* Square root of the weighted average of the squares of the deviations of the payoffs associated with each outcome from their expected values.

standard error of the regression *(page 691)* Estimate of the standard deviation of the regression error.

stock of capital *(page 206)* Total amount of capital available for use in production.

stock externality *(page 664)* Accumulated result of action by a producer or consumer which, though not accounted for in the market price, affects other producers or consumers.

strategic move *(page 491)* Action that gives a player an advantage by constraining his behavior.

strategy *(page 480)* Rule or plan of action for playing a game.

subsidy *(page 339)* Payment reducing the buyer's price below the seller's price; i.e., a negative tax.

substitutes *(page 24)* Two goods for which an increase in the price of one leads to an increase in the quantity demanded of the other.

substitution effect *(page 121)* Change in consumption of a good associated with a change in its price, with the level of utility held constant.

sunk cost *(page 222)* Expenditure that has been made and cannot be recovered.

supply curve *(page 22)* Relationship between the quantity of a good that producers are willing to sell and the price of the good.

surplus *(page 26)* Situation in which the quantity supplied exceeds the quantity demanded.

T

tariff *(page 331)* Tax on an imported good.

technical efficiency *(page 600)* Condition under which firms combine inputs to produce a given output as inexpensively as possible.

technological change *(page 206)* Development of new technologies allowing factors of production to be used more effectively.

theory of consumer behavior *(page 68)* Description of how consumers allocate incomes among different goods and services to maximize their well-being.

theory of the firm *(page 196)* Explanation of how a firm makes cost-minimizing production decisions and how its cost varies with its output.

third-degree price discrimination *(page 397)* Practice of dividing consumers into two or more groups with separate demand curves and charging different prices to each group.

tit-for-tat strategy *(page 490)* Repeated-game strategy in which a player responds in kind to an opponent's previous play, cooperating with cooperative opponents and retaliating against uncooperative ones.

total cost (TC or C) *(page 224)* Total economic cost of production, consisting of fixed and variable costs.

transfer prices *(page 433)* Internal prices at which parts and components from upstream divisions are "sold" to downstream divisions within a firm.

tradeable emissions permits *(page 656)* System of marketable permits, allocated among firms, specifying the maximum level of emissions that can be generated.

two-part tariff *(page 406)* Form of pricing in which consumers are charged both an entry and a usage fee.

tying *(page 423)* Practice of requiring a customer to purchase one good in order to purchase another.

U

user cost of capital *(page 234)* The annual cost of owning and using a capital asset, equal to economic depreciation plus forgone interest.

user cost of production *(page 576)* Opportunity cost of producing and selling a unit today and so making it unavailable for production and sale in the future.

utility *(page 79)* Numerical score representing the satisfaction that a consumer gets from a given market basket.

utility function *(page 79)* Formula that assigns a level of utility to individual market baskets.

utility possibilities frontier *(page 598)* Curve showing all efficient allocations of resources measured in terms of the utility levels of two individuals.

V

value of complete information *(page 174)* Difference between the expected value of a choice when there is complete information and the expected value when information is incomplete.

variability *(page 161)* Extent to which possible outcomes of an uncertain event differ.

variable cost (VC) *(page 224)* Cost that varies as output varies.

variable profit *(page 393)* Sum of profits on each incremental unit produced by a firm; i.e., profit ignoring fixed costs.

vertical integration *(page 636)* Organizational form in which a firm contains several divisions, with some producing parts and components that others use to produce finished products.

W

welfare economics *(page 597)* Normative evaluation of markets and economic policy.

welfare effects *(page 311)* Gains and losses to consumers and producers.

winner's curse *(page 512)* Situation in which the winner of a common-value auction is worse off as a consequence of overestimating the value of the item and thereby overbidding.

Z

zero economic profit *(page 294)* A firm is earning a normal return on its investment—i.e., it is doing as well as it could by investing its money elsewhere.