MINISTRY OF HIGHER EDUCATION, SCIENCE AND INNOVATION OF THE REPUBLIC OF UZBEKISTAN

NAMANGAN ENGINEERING-CONSTRUCTION INTITUTE

DEPARTMENT OF ACCOUNTING AND AUDIT

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MICROECONOMICS

STUDY-METHODICAL COMPLEX ON DISCIPLINE

for lecture

Namangan - 2024

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I.Sirojiddinov. Study-methodical complex on discipline “Microeconomics” For lecture - Namangan: NamECI, 2024, 170 page.

Reviewers:

B. Mullaboyev – Head of the Department of “Accounting and Audit” of NamECI
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Discussed at the 11th meeting of the Department of Accounting and Auditing of the Namangan Engineering and Construction Institute on June 26, 2024.

The educational and methodological complex is recommended for implementation in the educational process in accordance with the resolution of the Educational Methodological Council of the Namangan Engineering and Construction Institute No. 1004 dated July 3, 2024.

STRUCTURE OF STUDY-METHODICAL COMPLEX
(*for lecture*)

ANNOTATION OF STUDY-METHODICAL COMPLEX

The study-methodical complex on a subject "Microeconomics" designed taking into account rules modern of requirements methodical of training is published: didactic principles, ways and workings out of technologies of lecture, practical and seminar employment.

It is planed for teachers of the higher school and professional establishments of system additional profession.

The given educational technology on a subject "Microeconomics", is developed for training of bachelors and masters, the experts who have been dealt with by a problem of development of a control system in sphere of economy, wildlife management and preservation of the environment in Uzbekistan. It is designed taking into account modern approaches to training process in a part methodical lecture, seminar and a practical training, development at listeners of concrete skills and abilities on effective formation and use of budgetary funds. Inculcation of skills of practical works under the analysis is natural - scientific and main bases of education, definition of the basic concepts and the categories which knowledge it is necessary for understanding of all questions considered in studied discipline as much as possible approached their real inquiry question and problem.

The presented educational technology can be used teachers of high schools on a subject "Microeconomics", can be realised also in system of additional education under condition of performance in technology of training of entry conditions educational profession and presence of the specified means.

The student within the limits of the problems which are carried out in the course of development of a subject matter "Microeconomics"

should know:

- theoretical bases of function and development of modern market economy; the mechanizm of distribution of scarce resources on the basis of supply and demand model; the basic properties of the competitive and not competitive markets and a rule of behaviour of firms in this market; formation of the prices in market conditions; directions of the state intervention in market economy and its consequences; the mechanism of functioning of the labour, capital and ground markets;

to have skills (to own skills):

- about efficiency of functioning of the market and the factors influencing it; about rules of behaviour of firms in different market structures; about the mechanism of formation of the price in the conditions of the market; about the competitive and not competitive markets; about principles of distribution of scarce resources; about the mechanism of functioning of market economy.

THE CURRICULUM

Introduction

The discipline "Microeconomics" plays an important role in studying of theoretical and practical aspects of development of national economy as a whole, in particular branches and spheres of economy, scale business and private business, the questions connected with deepening of economic reforms and modernization of economy of Republic Uzbekistan.

And in it the important place occupies microeconomic at studying and the analysis of changes of cumulative supply and demand, formation of the prices for the goods and services; the risks connected with manufacture and realization of the goods; industrial costs in the conditions of proceeding world financial and economic crisis.

The microeconomics studies theoretical and practical aspects of Economy economy. Methods macroeconomics play an important role in revealing, the analysis and the decision of the arisen economic problems practice, and are the tool for acceptance of economic decisions. "Microeconomics" as one of fundamental sciences is base for studying of other economic disciplines.

Special requirements shown to the experts working in such difficult sphere, as economy. That with success to provide corresponding conditions for optimum use of all having resources and steady growth - the head, the economist working on macroeconomic, and also on микро level, should understand well economic processes, be able to do correct economic conclusions and to make competent decisions. In formation of experts the important role belongs to course teaching “microeconomics”.

The purpose and problems of curriculum

The subject matter purpose to form concepts, knowledge and skills at students on studying of economic activities of the country as a whole, and in particular subjects of the Economy, to train theoretical and to practical sides of functioning and development of modern Economy economy.

The primary aims of a subject matter to train students to do conclusions and the conclusions on the basis of the analysis of consequences of the state intervention in Economy economy, to the analysis of national economy, the Economy on the basis of the statistical data about supply and demand in the Economy, to such questions: as economy state regulation, behavour of consumers the Economy, activity of subjects of the Economy in different Economy structures; to studying of the factors influencing their activity; Economy economy laws.

Studying of the basic microeconomic categories, the reasons of occurrence and forms of display of microeconomic problems, essence of microeconomic models, the purposes and tools of a microeconomic policy, features of a microeconomic policy in open economy, and training of students to methods of calculation of microeconomic indicators, ways of the analysis of microeconomic processes and concepts.

Requirements shown to knowledge, skills on discipline

The student within the limits of the problems which are carried out in the course of development of a subject matter "Microeconomics"

should know:

- theoretical bases of function and development of modern Economy economy; the mechanizm of distribution of scarce resources on the basis of supply and demand model; the basic properties of the competitive and not competitive Economys and a rule of behaviour of firms in this Economy; formation of the prices in Economy conditions; directions of the state intervention in Economy economy and its consequences; the mechanism of functioning of the labour, capital and ground Economys;

should know and be able to use:

- to carrying out of the analysis and a formulation of conclusions of consequences of economic policy of the state; to carrying out of the analysis of behaviour of firms in the competitive and not competitive Economys; to working out of functions of supply and demand on the basis of the statistical data; to the analysis and carrying out of look-ahead calculations of consequences of change of Economy parametres, formulation of conclusions; to the analysis and a formulation of conclusions of activity of labor Economys, the capital and the earth; to the analysis of change of Economy conditions with application of functions of supply and demand.

to have skills (to own skills):

- about efficiency of functioning of the Economy and the factors influencing it; about rules of behaviour of firms in different Economy structures; about the mechanism of formation of the price in the conditions of the Economy; about the competitive and not competitive Economys; about principles of distribution of scarce resources; about the mechanism of functioning of Economy economy.

Relationship with other sciences

"Microeconomics" is interconnected with all the disciplines of the curriculum prepared on the basis of the state standard of education is their theoretical and pedagogical foundation. It is closely linked with the functional economic sciences (finance, credit, banking, taxes, taxation, accounting and auditing, insurance and customs business, mathematics, etc.).

There is a close relationship with the public (philosophy, political science, history) and the specific economic disciplines.

Discipline place in manufacture

Functioning and development of Economy structures, economic activities of manufacturers, behaviour of consumers in the Economy, methods of state regulation of the Economy, modelling of microeconomic policy for regulation of microeconomic processes in the country, strategy of microeconomic development for the separate taken countries, training of students to innovative thinking, adaptation to new processes occurring in economic, political and other fields of activity of the person for development of a microeconomic policy on short-run, intermediate term and long-run prospects make structure of discipline microeconomics.

Therefore the discipline “microeconomic” is one their basic disciplines of the block professional disciplines.

New pedagogical and information technology At discipline training

Application of the newest information-pedagogical technologies, use of the advanced and modern methods of training plays an important role for students at development of discipline "microeconomics".

In course development textbooks, educational and study-methodical grants, texts of lectures, distributing materials, electronic materials, stands are widely used. On lecture and a practical training corresponding advanced pedagogical technologies, a study and texts of lectures, distributing materials, reasurses are used.

Educational technologies: Interactive methods «brain storm», “insert”, a blitz - poll.

References: M1; A2; A3; A4; M5; A1; Q2; Q3; Q4; Q5; Q6; Q8; Q9; Q10.

THE MAIN PART

Lecture and the practical training

Unit 1. Introduction: Economys and prices. Preliminaries

The themes of microeconomics. Theories and models. Positive analysis. Normative analysis. Competitive Economys. Noncompetitive Economys. Economy price. Economy definition. Real prices. Nominal prices.

Unit 2. The basics of supply and demand

Supply. Demand. The supply curve. The demand curve. The Economy mechanism. Economy equilibrium. Changes in Economy equilibrium. Elasticity of supply. Elasticity of demand. Short-run elasticity. Long-run elasticity. The effects of changing Economy conditions. Effects of government intervention. Price controls.

Unit 3. Consumer behavior

Consumer preferences. Economy baskets. Basic assumptions about preferences. Indifference curves. Indifference maps. The shapes of indifference curves. The marginal rate of substitution. Perfect substitutes. Perfect complements. Budget constraints. The budget line. The effects of changes in income and prices. Consumer choice. Corner solutions. Revealed preference. Marginal utility. Consumer choice. Cost-of-living indexes. Ideal cost-of-living index. Laspeyres index. Paasche index. Chain-weighted.

Unit 4. Individual and Economy demand

Individual demand. Price changes. The individual demand curve. Income changes. Normal goods. Inferior goods. Engel curve. Substitutes and complements. Substitution effect. Income effect. A special case: the Giffen good. Economy demand. Individual demand. Elasticity of demand. Consumer surplus. Network externalities. The bandwagon effect. The snob effect. Empirical estimation of demand. Demand determination. Demand estimation. Demand relationship.

Unit 5. Choice under uncertainty

Risk description. Probability. Expected value. Variability. Decision making. Preferences toward risk. Reducing risk. Diversification. Insurance. The value of information. The demand for risky assets. Assets. Risky and riskless assets. Asset returns. The trade-off between risk and return. The investors choice problem.

Unit 6. Production

The technology of production. The production function. Isoquants. Input flexibility. The short run production. The long run production. Variable input (labor). Average and marginal products. The slopes of the product curve. The average product of labor curve. The marginal product of labor curve. The law of diminishing marginal returns. Labor productivity. Production with two variable inputs. Diminishing marginal returns. Substitution among inputs. Production functions. Returns to scale. Increasing returns to scale. Constant returns to scale. Decreasing returns to scale.

Unit 7. The cost of production

Measuring cost. Economic cost. Accounting cost. Opportunity cost. Sunk costs. Fixed costs. Variable costs. Fixed cost. Sunk cost. Cost in the short run. The shapes of the cost curves. Cost in the long run. The user cost of capital. The cost-minimizing input choice. The isocost line choosing inputs. Cost minimization with varying. Output levels. The expansion path and long-run costs. Long-run cost curves. Short-run cost curves. The inflexibility of short-run production. Long-run average cost. Economies and diseconomies of scale. The relationship between short-run and long-run cost. Production with two outputs. Transformation curve. Economies and diseconomies of scope. The degree of economies of scope. Dynamic changes in costs. Graphing the learning curve. Learning of scale. Economies of scale. Estimating and predicting cost. Cost functions and the measurement of scale economies.

Unit 8. Profit maximization and competitive supply

Perfectly competitive Economys. Highly competitive Economy. Profit maximization. Marginal revenue. Marginal cost. Demand and marginal revenue for a competitive firm. Profit maximization. Choosing output in the short run. Short-run profit maximization. The short-run profit. The competitive firms. Short-run supply curve. Input price change. The short-run Economy supply curve. Elasticity of Economy supply. Producer surplus in the short run. Output in the long run. Long-run profit maximization. Long-run competitive equilibrium. Economic rent. Producer surplus in the long run. The industry's long-run supply curve. Constant-cost industry. Increasing-cost industry. Decreasing-cost industry. Tax. Long-run elasticity of supply.

Unit 9. The analysis of competitive Economys

Evaluation of the gains and losses. Review of consumer surplus. Review of producer surplus. Application of consumer and producer surplus. The efficiency of a competitive Economy. Minimum prices. Price supports and production quotas. Price

supports. Production quotas. Import quotas and tariffs. The impact of a tax. The effects of a subsidy.

Unit 10. Economy power: monopoly and monopsony

Monopoly. Average revenue. Marginal revenue. The monopolists output decision. Rule of thumb for pricing. Shifts in demand. The effect of a tax. The multiplant firm. Monopoly power. Measuring monopoly power. The elasticity of Economy demand. The interaction among firms. Rent seeking. Price regulation. Natural monopoly regulations. Monopsony. Monopsony power. Sources of monopsony power. The social costs of monopsony power. Bilateral monopoly. Limiting Economy power. The antitrust laws.

Unit 11. Pricing with Economy power

Capturing consumer surplus. Price discrimination. First-derive price discrimination. Second-degree price discrimination. Third-degree price discrimination. Intertemporal price discrimination. Peak-load pricing. The two-part tariff bundling. Relative valuations. Mixed bundling. Bundling in practice. Tying. Advertising. Rule of thumb for advertising.

Unit 12. Monopolistic competition and oligopoly

Monopolistic competition. Equilibrium in the short run. Equilibrium in the long run. Economic efficiency. Oligopoly. Equilibrium in an oligopolistic Economy. The Cournot model. The linear demand curve. First mover advantage. The Stackelberg model. Price competition. The Bertrand model. Differentiated products. Collusion. The prisoners dilemma. Price rigidity. Price signaling and price leadership. The dominant firm model. Cartels. Analysis of cartel pricing.

Unit 13. Game theory and competitive strategy

Gaming and strategic decisions. Noncooperative games. Cooperative games. Dominant strategies. The Nash equilibrium revisited. Maximin strategies. Mixed strategies. Repeated games. Sequential gaines. The extensive form of a game. Threats, commitments, and credibility. Empty threats. Entry deterrence. Strategic trade policy and international competition. Bargaining strategy. Auctions. Auction formats valuation. Information private-value auctions. Common-value auctions. Maximizing auction revenue.

Unit 14. Economys for factor inputs

Competitive factor Economys. Demand for a factor input. The Economy demand curve. The supply of inputs to a firm. The Economy supply of inputs. Equilibrium in a competitive factor Economy. Economic rent. Factor Economys with monopsony power. Marginal expenditure. Average expenditure. The input

purchasing decision. Factor Economys with monopoly power. Monopoly power over the wage rate. Unionized workers. Nonunionized workers. Bilateral monopoly in the labor Economy.

Unit 15. Investment, time, and capital Economy

Stocks. Flows. Present discounted value. Valuing payment streams. The value of a bond perpetuities. The net present value criterion. Capital investment decisions. The electric motor factory. Real discount rates. Nominal discount rates. Negative future cash flows. Adjustments for risk. Diversifiable risk. Non diversifiable risk. The capital asset pricing model. Investment decisions by consumers. resources. The production decision of an individual resource producer. The behavior of Economy price. User cost. Resource production by a monopolist. Interest rates determination. A variety of interest rates.

Unit 16. General equilibrium and economic efficiency

General equilibrium analysis. Two interdependent Economys. The attainment of general equilibrium. Efficiency in exchange. The advantages of trade. The edge worth box diagram. Efficient allocations. The contract curve. Consumer equilibrium in a competitive Economy. The economic efficiency of competitive Economys. Equity and efficiency. The utility possibilities frontier. Equity and perfect competition. Efficiency in production. Production in the edge worth box. Input efficiency. Producer equilibrium in a competitive input Economy. The production possibilities frontier. Output efficiency. Efficiency in output Economys. The gains from free trade. Comparative advantage. An expanded production possibilities frontier. Economys' failing reasons. Economy power. Incomplete information. Externalities. Public goods.

Unit 17. Economy and asymmetric information

Quality uncertainty. The Economy for lemons. The Economy for used cars. Asymmetric information. Reputation. Standardization. Economy signaling. A model of job Economy signaling. Guarantees and warranties. Moral hazard. The principal-agent problem. The principal-agent problem in private enterprises. The principal-agent problem in public enterprises. The principal-agent framework. Managerial incentives in an integrated firm. Incentive design. The integrated firm. Applications. Asymmetric information in labor Economys. Efficiency wage theory.

Unit 18. Externalities and public goods

Externalities. Negative externalities. Inefficiency. Positive externalities. Economy failure. An emissions standard. An emissions fee. Transferable emissions permits. Recycling. Property rights. Bargaining and economic efficiency. Costly bargaining. Strategic behavior. Suing for damages. Common property resources. Public goods. Private preferences for public goods.

Information-methodological maintenance of the program

For development of discipline "micro-economics" students, the great value has application of the advanced interactive methods, pedagogical and information-communication technologies of training. At discipline training presentations, multimedia and technologies are widely used. On a practical training it is widely used such methods and technicians as: brainstorming, кластер, quiz, work in groups, insert, presentations, tests.

The recommended literature

The basic literature

1. Salimov B.T., Muxitdinova U.S., Mustafakulov Sh.I., Salimov B.B. Mikroiqtisodiyot: Darslik. – T.: TDIU, 2014. - 230 b.
2. Апалькова Т.Г. Микроэкономика: учеб.пособ. М.: МГОУ, 2012. – 81с.
3. Максимова В.Ф. Микроэкономика: учеб. М.: Маркт ДС, 2010. – 368с.
4. Маховникова Г.А. Микроэкономика : учеб.пособ. М.: Эксмо, 2009. – 224с.
5. Микроэкономика: учеб. / Под.ред. Грязновой А.Г. и Юданова А.Ю. М.: КНОРУС, 2009. – 704с.
6. Нуреев Р.М. Курс Микроэкономики: Учебник для вузов. – М.: Норма, 2008. – 561 стр.
7. Pindyck, Robert S.Microeconomics. – Copyright 2012, Macmillan Publishing Company, a division of Macmillan, Inc.
8. Campbell R. McConnell. Microeconomics.- Copyright 2014, Macmillan Publishing Company, a division of Macmillan, Inc.

The additional literatures

1. Атамонова В.С., Иванова С.А., Микроэкономика . Москва, 2012, - 320 с.
2. Нуреев Р.М. Сборник задач по Микроэкономике, Норма. Москва, 2013.
3. Пиндайк Р., Д. Рубинфельд. Микроэкономика. 5-е международное изд.- СПб.: Питер, 2011, – 350 с.
4. Просветов Г.И. Стратегия предприятии. Учеб. практическое пособ. – М.: «Альфа-Пресс», 2010. – 184 с.

The Internet sites

1. www.stat.uz.
2. www.gov.uz
3. www.Lex.uz
4. www.ziyonet.uz

COURSE PROGRAMM (SYLLABUS)

MICROECONOMICS
COURSE PROGRAMM (SYLLABUS)
(2023/2024 academic year)_____

Name of discipline	**Microeconomics**		
Hours	**total:**	120	
	lecture	36	
	tutorial		
	seminar	36	
	self-study	48	
Education and direction	6030100 - Economics (by sectors and industries)		
Teacher	I.Sirojiddinov		
Status of discipline	Core		
Primary disciplines	Discipline is connected with economic theory, statistics, quantitative economics, macroeconomics, economics of organizations, management and etc.		

Aim of discipline: Aim of the discipline involves determining and explanation main ideas related to micro Economy subjects and their behavior. To learn how to react in different types of economical situations associated with the themes of the book. To ease students' approach to the further economical-scientific research.

Units of disciplines

	Unit	Lecture	Seminar (Tutorial)	Self-study
1.	Introduction: Economys and prices. Preliminaries.	2	2	2
2.	The basics of supply and demand	2	2	2
3.	Consumer behavior	2	2	2
4.	Individual and Economy demand	2	2	2
5.	Choice under uncertainty	2	2	2
6.	Production	2	2	2
7.	The cost of production	2	2	2
8.	Profit maximization and competitive supply	2	2	2
9.	The analysis of competitive Economys	2	2	2
10.	Economy power: monopoly and monopsony	2	2	2
11.	Pricing with Economy power	2	2	2
12.	Monopolistic competition and oligopoly	2	2	2
13.	Game theory and competitive strategy	2	2	4
14.	Economys for factor inputs	2	2	4
15.	Investment, time, and capital Economys	2	2	4
16.	General equilibrium and economic efficiency	2	2	4
17.	Economy and asymmetric information	2	2	4
18.	Externalities and public goods	2	2	4
Total: 120		36	36	48

Unit 1. Introduction: Economys and prices. Preliminaries

The themes of microeconomics. Theories and models. Positive analysis. Normative analysis. Competitive Economys. Noncompetitive Economys. Economy price. Economy definition. Real prices. Nominal prices.

Unit 2. The basics of supply and demand

Supply. Demand. The supply curve. The demand curve. The Economy mechanism. Economy equilibrium. Changes in Economy equilibrium. Elasticity of supply. Elasticity of demand. Short-run elasticity. Long-run elasticity. The effects of changing Economy conditions. Effects of government intervention. Price controls.

Unit 3. Consumer behavior

Consumer preferences. Economy baskets. Basic assumptions about preferences. Indifference curves. Indifference maps. The shapes of indifference curves. The marginal rate of substitution. Perfect substitutes. Perfect complements. Budget constraints. The budget line. The effects of changes in income and prices. Consumer choice. Corner solutions. Revealed preference. Marginal utility. Consumer choice. Cost-of-living indexes. Ideal cost-of-living index. Laspeyres index. Paasche index. Chain-weighted.

Unit 4. Individual and Economy demand

Individual demand. Price changes. The individual demand curve. Income changes. Normal goods. Inferior goods. Engel curve. Substitutes and complements. Substitution effect. Income effect. A special case: the Giffen good. Economy demand. Individual demand. Elasticity of demand. Consumer surplus. Network externalities. The bandwagon effect. The snob effect. Empirical estimation of demand. Demand determination. Demand estimation. Demand relationship.

Unit 5. Choice under uncertainty

Risk description. Probability. Expected value. Variability. Decision making. Preferences toward risk. Reducing risk. Diversification. Insurance. The value of information. The demand for risky assets. Assets. Risky and riskless assets. Asset returns. The trade-off between risk and return. The investors choice problem.

Unit 6. Production

The technology of production. The production function. Isoquants. Input flexibility. The short run production. The long run production. Variable input (labor). Average and marginal products. The slopes of the product curve. The average product of labor curve. The marginal product of labor curve. The law of diminishing marginal returns. Labor productivity. Production with two variable inputs.

Diminishing marginal returns. Substitution among inputs. Production functions. Returns to scale. Increasing returns to scale. Constant returns to scale. Decreasing returns to scale.

Unit 7. The cost of production

Measuring cost. Economic cost. Accounting cost. Opportunity cost. Sunk costs. Fixed costs. Variable costs. Fixed cost. Sunk cost. Cost in the short run. The shapes of the cost curves. Cost in the long run. The user cost of capital. The cost-minimizing input choice. The isocost line choosing inputs. Cost minimization with varying. Output levels. The expansion path and long-run costs. Long-run cost curves. Short-run cost curves. The inflexibility of short-run production. Long-run average cost. Economies and diseconomies of scale. The relationship between short-run and long-run cost. Production with two outputs. Transformation curve. Economies and diseconomies of scope. The degree of economies of scope. Dynamic changes in costs. Graphing the learning curve. Learning of scale. Economies of scale. Estimating and predicting cost. Cost functions and the measurement of scale economies.

Unit 8. Profit maximization and competitive supply

Perfectly competitive Economys. Highly competitive Economy. Profit maximization. Marginal revenue. Marginal cost. Demand and marginal revenue for a competitive firm. Profit maximization. Choosing output in the short run. Short-run profit maximization. The short-run profit. The competitive firms. Short-run supply curve. Input price change. The short-run Economy supply curve. Elasticity of Economy supply. Producer surplus in the short run. Output in the long run. Long-run profit maximization. Long-run competitive equilibrium. Economic rent. Producer surplus in the long run. The industry's long-run supply curve. Constant-cost industry. Increasing-cost industry. Decreasing-cost industry. Tax. Long-run elasticity of supply.

Unit 9. The analysis of competitive Economys

Evaluation of the gains and losses. Review of consumer surplus. Review of producer surplus. Application of consumer and producer surplus. The efficiency of a competitive Economy. Minimum prices. Price supports and production quotas. Price supports. Production quotas. Import quotas and tariffs. The impact of a tax. The effects of a subsidy.

Unit 10. Economy power: monopoly and monopsony

Monopoly. Average revenue. Marginal revenue. The monopolists output decision. Rule of thumb for pricing. Shifts in demand. The effect of a tax. The multiplant firm. Monopoly power. Measuring monopoly power. The elasticity of

Economy demand. The interaction among firms. Rent seeking. Price regulation. Natural monopoly regulations. Monopsony. Monopsony power. Sources of monopsony power. The social costs of monopsony power. Bilateral monopoly. Limiting Economy power. The antitrust laws.

Unit 11. Pricing with Economy power

Capturing consumer surplus. Price discrimination. First-derive price discrimination. Second-degree price discrimination. Third-degree price discrimination. Intertemporal price discrimination. Peak-load pricing. The two-part tariff bundling. Relative valuations. Mixed bundling. Bundling in practice. Tying. Advertising. Rule of thumb for advertising.

Unit 12. Monopolistic competition and oligopoly

Monopolistic competition. Equilibrium in the short run. Equilibrium in the long run. Economic efficiency. Oligopoly. Equilibrium in an oligopolistic Economy. The Cournot model. The linear demand curve. First mover advantage. The Stackelberg model. Price competition. The Bertrand model. Differentiated products. Collusion. The prisoners dilemma. Price rigidity. Price signaling and price leadership. The dominant firm model. Cartels. Analysis of cartel pricing.

Unit 13. Game theory and competitive strategy

Gaming and strategic decisions. Noncooperative games. Cooperative games. Dominant strategies. The Nash equilibrium revisited. Maximin strategies. Mixed strategies. Repeated games. Sequential gaines. The extensive form of a game. Threats, commitments, and credibility. Empty threats. Entry deterrence. Strategic trade policy and international competition. Bargaining strategy. Auctions. Auction formats valuation. Information private-value auctions. Common-value auctions. Maximizing auction revenue.

Unit 14. Economys for factor inputs

Competitive factor Economys. Demand for a factor input. The Economy demand curve. The supply of inputs to a firm. The Economy supply of inputs. Equilibrium in a competitive factor Economy. Economic rent. Factor Economys with monopsony power. Marginal expenditure. Average expenditure. The input purchasing decision. Factor Economys with monopoly power. Monopoly power over the wage rate. Unionized workers. Nonunionized workers. Bilateral monopoly in the labor Economy.

Unit 15. Investment, time, and capital Economys

Stocks. Flows. Present discounted value. Valuing payment streams. The value of a bond perpetuities. The net present value criterion. Capital investment decisions. The electric motor factory. Real discount rates. Nominal discount rates. Negative future cash flows. Adjustments for risk. Diversifiable risk. Nondiversifiable risk. The capital asset pricing model. Investment decisions by consumers. Depletable resources. The production decision of an individual resource producer. The behavior of Economy price. User cost. Resource production by a monopolist. Interest rates determination. A variety of interest rates.

Unit 16. General equilibrium and economic efficiency

General equilibrium analysis. Two interdependent Economys. The attainment of general equilibrium. Efficiency in exchange. The advantages of trade. The edge worth box diagram. Efficient allocations. The contract curve. Consumer equilibrium in a competitive Economy. The economic efficiency of competitive Economys. Equity and efficiency. The utility possibilities frontier. Equity and perfect competition. Efficiency in production. Production in the edge worth box. Input efficiency. Producer equilibrium in a competitive input Economy. The production possibilities frontier. Output efficiency. Efficiency in output Economys. The gains from free trade. Comparative advantage. An expanded production possibilities frontier. Economys' failing reasons. Economy power. Incomplete information. Externalities. Public goods.

Unit 17. Economy and asymmetric information

Quality uncertainty. The Economy for lemons. The Economy for used cars. Asymmetric information. Reputation. Standardization. Economy signaling. A model of job Economy signaling. Guarantees and warranties. Moral hazard. The principal-agent problem. The principal-agent problem in private enterprises. The principal-agent problem in public enterprises. The principal-agent framework. Managerial incentives in an integrated firm. Incentive design. The integrated firm. Applications. Asymmetric information in labor Economys. Efficiency wage theory.

Unit 18. Externalities and public goods

Externalities. Negative externalities. Inefficiency. Positive externalities. Economy failure. An emissions standard. An emissions fee. Transferable emissions permits. Recycling. Property rights. Bargaining and economic efficiency. Costly bargaining. Strategic behavior. Suing for damages. Common property resources. Public goods. Private preferences for public goods.

THE PLAN OF LECTURE TRAINING

THE PLAN OF LECTURE TRAINING

Unit 1. Introduction to Microeconomics (2 hours)

1.1. Why study Microeconomics
1.2. The purpose, problems, a subject and course method
1.3. Production potentialities and economic choice
1.4. Equips with basic analytical tools with the help of which to evaluate different economic problems

Educational technologies: Interactive methods «brain storm», “insert”, a blitz - poll.

Unit 1. The recommended literature

1. Salimov B.T., Muxitdinova U.S., Mustafakulov Sh.I., Salimov B.B. Mikroiqtisodiyot: Darslik. – T.: TDIU, 2014. - 230 b.
2. Апалькова Т.Г. Микроэкономика: учеб.пособ. М.: МГОУ, 2014. – 81с.
3. Максимова В.Ф. Микроэкономика: учеб. М.: Маркт ДС, 2012. – 368с.
4. Pindyck, Robert S.Microeconomics. – Copyright 2013, Macmillan Publishing Company, a division of Macmillan, Inc.
5. Campbell R. MicConnell. Microeconomics. - Copyright 2015, Macmillan Publishing Company, a division of Macmillan, Inc.

Unit 2. Basics economic concepts (2 hours)

2.1. Develops an ability to apply basic microeconomic models in the analysis of real-life situations
2.2. Provides the foundations for the further study of microeconomics
2.3. Demonstrate an understanding of basic microeconomic concepts and principles

Educational technologies: Interactive methods «brain storm», “insert”, a blitz - poll.

Unit 2. The recommended literature

1. Salimov B.T., Muxitdinova U.S., Mustafakulov Sh.I., Salimov B.B. Mikroiqtisodiyot: Darslik. – T.: TDIU, 2014. - 230 b.
2. Апалькова Т.Г. Микроэкономика: учеб.пособ. М.: МГОУ, 2014. – 81с.
3. Максимова В.Ф. Микроэкономика: учеб. М.: Маркт ДС, 2012. – 368с.
4. Pindyck, Robert S.Microeconomics. – Copyright 2013, Macmillan Publishing Company, a division of Macmillan, Inc.
5. Campbell R. MicConnell. Microeconomics. - Copyright 2015, Macmillan Publishing Company, a division of Macmillan, Inc.

Unit 3. The basics of Supply and Demand (2 hours)

3.1. Demand and Supply
3.2.The Economy Mechanism
3.3. Economy and prices
3.4. Changing in Supply and Demand

Educational technologies: Interactive methods «brain storm», “insert”, a blitz - poll.

Unit 3. The recommended literature

1. Salimov B.T., Muxitdinova U.S., Mustafakulov Sh.I., Salimov B.B. Mikroiqtisodiyot: Darslik. – T.: TDIU, 2014. - 230 b.
2. Апалькова Т.Г. Микроэкономика: учеб.пособ. М.: МГОУ, 2014. – 81с.
3. Максимова В.Ф. Микроэкономика: учеб. М.: Маркт ДС, 2012. – 368с.
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5. Campbell R. MicConnell. Microeconomics. - Copyright 2015, Macmillan Publishing Company, a division of Macmillan, Inc.

Unit 4. Economy equilibrium, maximum and minimum of prices (2 hours)

4.1. Economy equilibrium and the equilibrium price
4.2. Maximum and minimum prices
4.3. Shifts in Supply and Demand
4.4. Understanding and predicting the effects of changing Economy condition.

Educational technologies: Interactive methods «brain storm», “insert”, a blitz - poll.

Unit 4. The recommended literature

1. Salimov B.T., Muxitdinova U.S., Mustafakulov Sh.I., Salimov B.B. Mikroiqtisodiyot: Darslik. – T.: TDIU, 2014. - 230 b.
2. Апалькова Т.Г. Микроэкономика: учеб.пособ. М.: МГОУ, 2014. – 81с.
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5. Campbell R. MicConnell. Microeconomics. - Copyright 2015, Macmillan Publishing Company, a division of Macmillan, Inc.

Unit 5. Elasticity of supply and demand (2 hours)

5.1. Term of “Elasticity”;
5.2. Elasticity coefficient;
5.3. Elasticity of Demand and Elasticity of Dupply
5.4. Dot and arc elasticity

Educational technologies: Interactive methods «brain storm», “insert”, a blitz - poll.

Unit 5. The recommended literature

1. Salimov B.T., Muxitdinova U.S., Mustafakulov Sh.I., Salimov B.B. Mikroiqtisodiyot: Darslik. – T.: TDIU, 2014. - 230 b.
2. Апалькова Т.Г. Микроэкономика: учеб.пособ. М.: МГОУ, 2014. – 81с.
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5. Campbell R. MicConnell. Microeconomics. - Copyright 2015, Macmillan Publishing Company, a division of Macmillan, Inc.

Unit 6. Consumer Behavior (2 hours)

6.1. Consumer preferences
6.2. Budget constraints
6.3. Consumer choince
6.4. The concept of utility

Educational technologies: Interactive methods «brain storm», “insert”, a blitz - poll.

Unit 6. The recommended literature

1. Salimov B.T., Muxitdinova U.S., Mustafakulov Sh.I., Salimov B.B. Mikroiqtisodiyot: Darslik. – T.: TDIU, 2014. - 230 b.
2. Апалькова Т.Г. Микроэкономика: учеб.пособ. М.: МГОУ, 2014. – 81с.
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5. Campbell R. MicConnell. Microeconomics. - Copyright 2015, Macmillan Publishing Company, a division of Macmillan, Inc.

Unit 7. Income effect and substitution effect (2 hours)

7.1. Individual demand
7.2. Income and substitution effects
7.3. Consumer surplus
7.4. From individual to Economy demand

Educational technologies: Interactive methods «brain storm», “insert”, a blitz - poll.

Unit 7. The recommended literature

1. Salimov B.T., Muxitdinova U.S., Mustafakulov Sh.I., Salimov B.B. Mikroiqtisodiyot: Darslik. – T.: TDIU, 2014. - 230 b.
2. Апалькова Т.Г. Микроэкономика: учеб.пособ. М.: МГОУ, 2014. – 81с.
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5. Campbell R. MicConnell. Microeconomics. - Copyright 2015, Macmillan Publishing Company, a division of Macmillan, Inc.

Unit 8. The Economy and risk (2 hours)

8.1. Describing risk
8.2. Atttudes towards risk
8.3. Reducing risk
8.4. The demand for risky assets

Educational technologies: Interactive methods «brain storm», “insert”, a blitz - poll.

Unit 8. The recommended literature

1. Salimov B.T., Muxitdinova U.S., Mustafakulov Sh.I., Salimov B.B. Mikroiqtisodiyot: Darslik. – T.: TDIU, 2014. - 230 b.
2. Апалькова Т.Г. Микроэкономика: учеб.пособ. М.: МГОУ, 2014. – 81с.
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5. Campbell R. MicConnell. Microeconomics. - Copyright 2015, Macmillan Publishing Company, a division of Macmillan, Inc.

Unit 9. Firms and their organizational-economic bases (2 hours)

9.1. The economic nature of firm
9.2. The basic forms of the business enterprises
9.3. Economic association
9.4. Societies with the limited and additional responsibility
9.5. Cooperative societies, holdings and other kinds of the enterprises

Educational technologies: Interactive methods «brain storm», “insert”, a blitz - poll.

Unit 9. The recommended literature

1. Salimov B.T., Muxitdinova U.S., Mustafakulov Sh.I., Salimov B.B. Mikroiqtisodiyot: Darslik. – T.: TDIU, 2014. - 230 b.
2. Апалькова Т.Г. Микроэкономика: учеб.пособ. М.: МГОУ, 2014. – 81с.
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5. Campbell R. MicConnell. Microeconomics. - Copyright 2015, Macmillan Publishing Company, a division of Macmillan, Inc.

Unit 10. Production (2 hours)

10.1. The technology of production.
10.2. Isoquants.
10.3. Production with one variable input (labor).
10.4. Production with two variable input.
10.5. Measuring production functions

Educational technologies: Interactive methods «brain storm», “insert”, a blitz - poll.

Unit 10. The recommended literature

1. Salimov B.T., Muxitdinova U.S., Mustafakulov Sh.I., Salimov B.B. Mikroiqtisodiyot: Darslik. – T.: TDIU, 2014. - 230 b.
2. Апалькова Т.Г. Микроэкономика: учеб.пособ. М.: МГОУ, 2014. – 81с.
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5. Campbell R. MicConnell. Microeconomics. - Copyright 2015, Macmillan Publishing Company, a division of Macmillan, Inc.

Unit 11. The cost of production (2 hours)

11.1. Measuring costs: Which costs matter.
11.2. Costs in the short-run.
11.3. Costs in the long-run.
11.4. Long-run versus short-run costs curves.
11.5. Estimating and pridecting cost

Educational technologies: Interactive methods «brain storm», “insert”, a blitz - poll.

Unit 11. The recommended literature

1. Salimov B.T., Muxitdinova U.S., Mustafakulov Sh.I., Salimov B.B. Mikroiqtisodiyot: Darslik. – T.: TDIU, 2014. - 230 b.
2. Апалькова Т.Г. Микроэкономика: учеб.пособ. М.: МГОУ, 2014. – 81с.
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5. Campbell R. MicConnell. Microeconomics. - Copyright 2015, Macmillan Publishing Company, a division of Macmillan, Inc.

Unit 12. Profit maximization and competitive supply (2 hours)

12.1. Do firms maximize profit?
12.2. Demand, average revenue and marginal revenue.
12.3. Choosing output in the short-run.
12.4. The competitive firm’s short-run supply curve.
12.5. The short-run Economy supply curve

Educational technologies: Interactive methods «brain storm», “insert”, a blitz - poll.

Unit 12. The recommended literature

1. Salimov B.T., Muxitdinova U.S., Mustafakulov Sh.I., Salimov B.B. Mikroiqtisodiyot: Darslik. – T.: TDIU, 2014. - 230 b.
2. Апалькова Т.Г. Микроэкономика: учеб.пособ. М.: МГОУ, 2014. – 81с.
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5. Campbell R. MicConnell. Microeconomics. - Copyright 2015, Macmillan Publishing Company, a division of Macmillan, Inc.

Unit 13. The Competitive Firm's Short-Run and long-run Supply Curve (2 hours)

13.1. Choosing output in the long-run.
13.2. Costs in the long-run.
13.3. The industry's long-run supply curve.
13.4. When is a Economy perfectly competitive.

Educational technologies: Interactive methods «brain storm», "insert", a blitz - poll.

Unit 13. The recommended literature

1. Salimov B.T., Muxitdinova U.S., Mustafakulov Sh.I., Salimov B.B. Mikroiqtisodiyot: Darslik. – T.: TDIU, 2014. - 230 b.
2. Апалькова Т.Г. Микроэкономика: учеб.пособ. М.: МГОУ, 2014. – 81с.
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5. Campbell R. MicConnell. Microeconomics. - Copyright 2015, Macmillan Publishing Company, a division of Macmillan, Inc.

Unit 14. Competition and monopoly (2 hours)

14.1. Classification of Economy structures.
14.2. Pure monopoly: characteristic features.
14.3. Definition of the price and volume of output in the conditions of monopoly.
14.4. Indicators of the exclusive power.

Educational technologies: Interactive methods «brain storm», "insert", a blitz - poll.

Unit 14. The recommended literature

1. Salimov B.T., Muxitdinova U.S., Mustafakulov Sh.I., Salimov B.B. Mikroiqtisodiyot: Darslik. – T.: TDIU, 2014. - 230 b.
2. Апалькова Т.Г. Микроэкономика: учеб.пособ. М.: МГОУ, 2014. – 81с.
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5. Campbell R. MicConnell. Microeconomics. - Copyright 2015, Macmillan Publishing Company, a division of Macmillan, Inc.

Unit 15. Pricing principles at the Economy power (2 hours)

15.1. Price discrimination.
15.2. Intertemporal price discrimination and peak-load pricing .
15.3. Second degree price discrimination.
15.4. Third degree price discrimination.

Educational technologies: Interactive methods «brain storm», “insert”, a blitz - poll.

Unit 15. The recommended literature

1. Salimov B.T., Muxitdinova U.S., Mustafakulov Sh.I., Salimov B.B. Mikroiqtisodiyot: Darslik. – T.: TDIU, 2014. - 230 b.
2. Апалькова Т.Г. Микроэкономика: учеб.пособ. М.: МГОУ, 2014. – 81с.
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5. Campbell R. MicConnell. Microeconomics. - Copyright 2015, Macmillan Publishing Company, a division of Macmillan, Inc.

Unit 16. Labor Economy and use of a man power at the enterprises (2 hours)

16.1. What is labor Economy.
16.2. using manpower at the enterprises.
16.3. Factors of labor Economy.

Educational technologies: Interactive methods «brain storm», “insert”, a blitz - poll.

Unit 16. The recommended literature

1. Salimov B.T., Muxitdinova U.S., Mustafakulov Sh.I., Salimov B.B. Mikroiqtisodiyot: Darslik. – T.: TDIU, 2014. - 230 b.
2. Апалькова Т.Г. Микроэкономика: учеб.пособ. М.: МГОУ, 2014. – 81с.
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5. Campbell R. MicConnell. Microeconomics. - Copyright 2015, Macmillan Publishing Company, a division of Macmillan, Inc.

Unit 17. Capital investments and the capital Economy (2 hours)

17.1. Stocks versus flows.
17.2. The value of a bond
17.3. Investment decisions by consumers.
17.4. The capital asset pricing model.

Educational technologies: Interactive methods «brain storm», “insert”, a blitz - poll.

Unit 17. The recommended literature

1. Salimov B.T., Muxitdinova U.S., Mustafakulov Sh.I., Salimov B.B. Mikroiqtisodiyot: Darslik. – T.: TDIU, 2014. - 230 b.
2. Апалькова Т.Г. Микроэкономика: учеб.пособ. М.: МГОУ, 2014. – 81с.
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5. Campbell R. MicConnell. Microeconomics. - Copyright 2015, Macmillan Publishing Company, a division of Macmillan, Inc.

Unit 18. State regulation of activity of the enterprises (2 hours)

18.1. Externalities and Public goods.
18.2. Ways of correcting Economy fallure.
18.3. Common property resourses.
18.4. Private prefences for Public goods.

Educational technologies: Interactive methods «brain storm», “insert”, a blitz - poll.

Unit 18. The recommended literature

1. Salimov B.T., Muxitdinova U.S., Mustafakulov Sh.I., Salimov B.B. Mikroiqtisodiyot: Darslik. – T.: TDIU, 2014. - 230 b.
2. Апалькова Т.Г. Микроэкономика: учеб.пособ. М.: МГОУ, 2014. – 81с.
3. Максимова В.Ф. Микроэкономика: учеб. М.: Маркт ДС, 2012. – 368с.
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ANNOTATION ON THEMES AND THE LAST NEWS

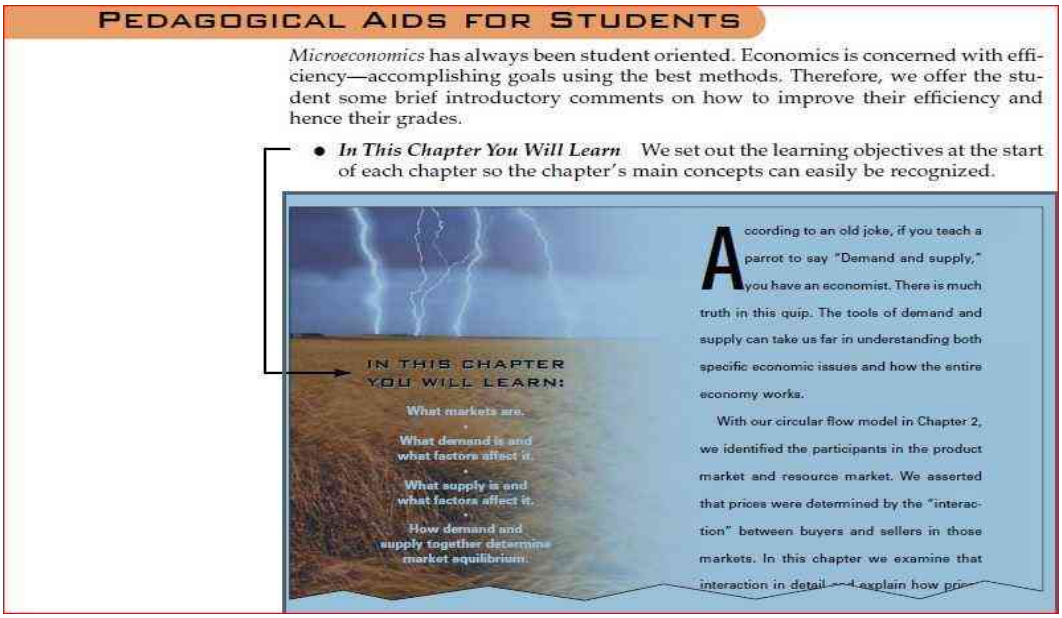
Unit 1. Introduction to Microeconomics (2 hours)

1.1. Why study Microeconomics
1.2. The purpose, problems, a subject and course method
1.3. Production potentialities and economic choice
1.4. Equips with basic analytical tools with the help of which to evaluate different economic problems

1.1. Why study Microeconomics

Economics is divided into two main branches: microeconomics and macroeconomics. Microeconomics deals with the behavior of individual economic units. These units include consumers, workers, investors, owners of land, business firms—in fact, any individual or entity that plays a role in the functioning of our economy.

Microeconomics explains how and why these units make economic decisions. For example, it explains how consumers make purchasing decisions and how their choices are affected by changing prices and incomes. It also explains how firms decide how many workers to hire and how workers decide where to work and how much work to do. Another Important eoncem df microeconomics is how economic units interact to form larger units—Economys and industries. Microeconomics helps us to understand, for example, why the American automobile industry developed the way it did and how producers and consumers interact in the Economy for automobiles. It explains how automobile prices are determined, how much automobile companies invest in new factories, and how many cars are produced each year. By studying-the behavior and interaction of individual firms and consumers, microeconomics reveals how industries and Economys operate and evolve, why they differ from one another, and how they are affected by government policies -and global economic conditions.


PEDAGOGICAL AIDS FOR STUDENTS

Microeconomics has always been student oriented. Economics is concerned with efficiency—accomplishing goals using the best methods. Therefore, we offer the student some brief introductory comments on how to improve their efficiency and hence their grades.

- ***In This Chapter You Will Learn*** We set out the learning objectives at the start of each chapter so the chapter's main concepts can easily be recognized.

IN THIS CHAPTER YOU WILL LEARN:

What markets are.

What demand is and what factors affect it.

What supply is and what factors affect it.

How demand and supply together determine market equilibrium.

According to an old joke, if you teach a parrot to say "Demand and supply," you have an economist. There is much truth in this quip. The tools of demand and supply can take us far in understanding both specific economic issues and how the entire economy works.

With our circular flow model in Chapter 2, we identified the participants in the product market and resource market. We asserted that prices were determined by the "interaction" between buyers and sellers in those markets. In this chapter we examine that interaction in detail and explain how pri-

1.1. Picture. Pedagogical Aids for Students

By contrast, macroeconomics, the other major branch of economics, deals with aggregate economic quantities, such as the level and growth rate of national output, interest rates, unemployment, and inflation. But the boundary between microeconomics and macroeconomics has become less and less distinct in recent years. The reason is that macroeconomics also involves the analysis of Economys—the aggregate Economys for goods and services, for labor, and for corporate bonds, for example. To understand how these aggregate Economys operate, one must first understand the behavior of the firms, consumers, workers, and investors who make up these Economys. Thus, macroeconomists have become increasingly concerned with the microeconomic foundations of aggregate economic phenomena, and much of macroeconomics is actually an extension of microeconomic analysis.

- ***Ten Key Concepts*** Ten Key Concepts have been identified to help students organize the main principles. The Ten Key Concepts are introduced in Chapter 1 and are reinforced throughout the textbook with an icon.

TRADEOFFS AND OPPORTUNITY COSTS

Many current controversies illustrate the tradeoffs and opportunity costs indicated in movements along a particular production possibilities curve. (Any two categories of "output" can be placed on the axes of production possibilities curves.) Should scenic land be used for logging and mining or preserved as wilderness? If the land is used for logging and mining, the opportunity cost is the forgone benefits of wilderness. If the land is used for wilderness, the opportunity cost is the lost value of the wood and minerals that society forgoes.

Should society devote more resources to the criminal justice system (police, courts, and prisons) or to education (teachers, books, and schools)? If society devotes more resources to the criminal justice system, other things equal, the opportunity cost is forgone improvements in education. If more resources are allocated to education, the opportunity cost is the forgone benefits from an improved criminal justice system.

- ***Data updates*** can be found on the Web site www.mcgrawhill.ca/college/mcconnell9 for selected Tables and Figures.

TABLE 5-1 PRINCIPAL CANADIAN EXPORTS AND IMPORTS OF GOODS, 2000

Exports	% of Total	Imports	% of Total
Machinery and equipment	25	Machinery and equipment	34
Automotive products	23	Automotive products	21
Industrial goods and materials	15	Industrial goods and materials	19
Forestry products	10	Consumer goods	11
Energy products	13	Agricultural and fishing products	5
Agricultural and fishing products	7	Energy products	5

Source: Statistics Canada, www.statcan.ca/english/Pgdb/Economy/International/gtbd05.htm
Visit www.mcgrawhill.ca/college/mcconnell9 for data update.

E-STAT

Microeconomics deals with both *positive* and *normative* questions. Positive questions have to do with explanation and prediction, normative questions with what ought to be. Suppose the U.S. government imposes a quota on the import of foreign cars. What will happen to the price of cars and to their production and sales? What impact will this have on American consumers? On workers in the automobile industry? These questions are all in the realm of positive analysis. Positive analysis is central to microeconomics. As we explained

above, theories are developed to explain phenomena, are tested against observations, and are used to construct models from which predictions are made. The use of economic theory for prediction is important both for the managers of firms and for public policy. Suppose a major new federal gasoline tax is under consideration. The tax would affect the price of gasoline, consumers' preferences for small versus large cars, the amount of driving that people do, and so on. To plan sensibly, oil companies, automobile companies, producers of automobile parts, and firms in the tourist industry would all want to know how large the various effects of this tax will be. Government policymakers also would need quantitative estimates of the effects of the tax.

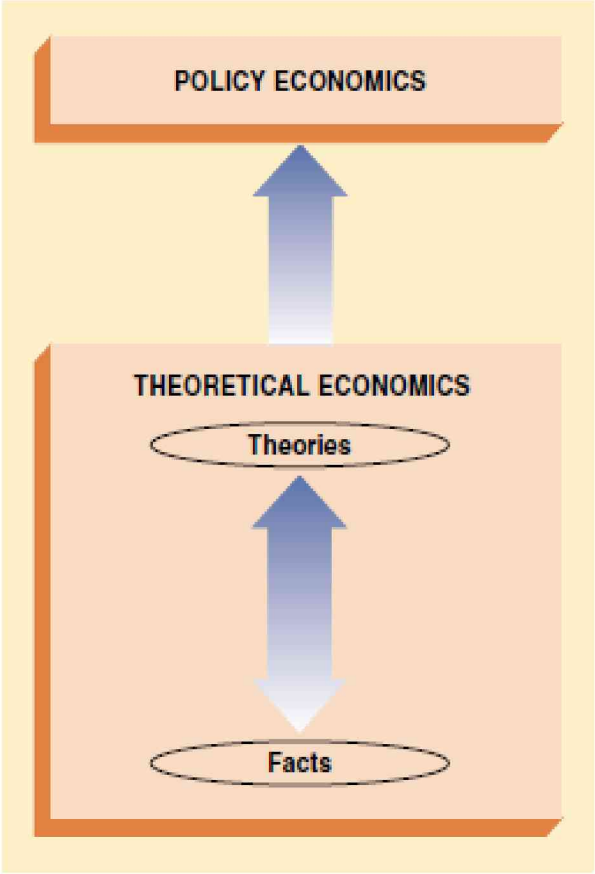
They would want to determine the costs imposed on consumers (perhaps broken down by income categories); the effects on profits in the oil, automobile, and tourist industries; and the amount of tax revenue likely to be collected each year. Sometimes we want to go beyond explanation and prediction to ask questions such as "What is best?" This involves *normative* analysis, which is also important both for managers of firms and for designers of new public policies. Again, consider a new tax on gasoline. Automobile companies would want to determine the best (profit-maximizing) mix of large and small cars to produce once the tax is in place, or how much money should be invested to make cars more fuel-efficient. For policymakers, the primary issue is likely to be whether this tax is in the public interest. The same policy objectives (say, an increase in tax revenues and a decrease in our dependence on imported oil) might be met more cheaply with a different kind of tax, such as a tariff on imported oil. Normative analysis is not only concerned with alternative policy options; it also involves the design of particular policy choices. For example, once it is decided that a gasoline tax is desirable, the issue becomes how large it should be. Balancing costs and benefits, we then ask what is the optimal size of a gasoline tax?

In this book we study the behavior of both competitive and noncompetitive Economys. A *prefectly competitive Economy* has many buyers and sellers, so that no single buyer or seller has a significant impact on price. Most agricultural Economys are close to being perfectly competitive. For example, thousands of farmers produce wheat, which thousands of buyers purchase to produce flour and other foods. As a result, no single farmer and no single buyer can significantly affect the price of wheat.

Many other Economys are competitive enough to be treated as if they were perfectly competitive. The world Economy for copper, for example, contains a few dozen major producers. That is enough for the impact on price to be small or unnoticeable if any one producer goes out of business. The same is true for many other mineral and natural resource Economys, such as those for coal, iron, tin, or lumber. Other Economys containing only several producers may still be treated as competitive for purposes of analysis. For example, the airline industry in the United States contains several dozen firms, but most routes are served by only a few firms. Nonetheless, competition among those firms is often (but not always!)
fierce enough, so that for some purposes (but not others) the Economy can be treated as competitive.8 Finally, some Economys contain many producers but are *noncompetitive;* that is, individual firms can affect the price of the product. The world oil Economy is one example; since the early 1970s, the Economy has been done.

FIGURE 1-1 THE RELATIONSHIP BETWEEN FACTS, THEORIES, AND POLICIES IN ECONOMICS

Theoretical economics involves establishing economic theories by gathering, systematically arranging, and generalizing from facts. Economic theories are tested for validity against facts. Economists use these theories—the most reliable of which are called *laws* or *principles*—to explain and analyze the economy. *Policy economics* entails using the economic laws and principles to formulate economic policies.



data. Through this process, the economist tries to discover hypotheses that rise to the level of theories and principles (or laws)—well-tested and widely accepted generalizations about how individuals and institutions behave. The process of deriving theories and principles is called **theoretical economics** (see the lower box in Figure 1-1). *The role of economic theorizing is to systematically arrange facts, interpret them, and generalize from them.* Theories and principles bring order and meaning to facts by arranging them in cause-and-effect order.

THEORETICAL ECONOMICS The process of deriving and applying economic theories and principles.

Observe that the arrow from "theories" to "facts" in Figure 1-1 moves in both directions. Some understanding of factual, real-world evidence is required to formulate meaningful hypotheses. And hypotheses are tested through gathering and organizing factual data to see if the hypotheses can be verified.

PRINCIPLES Statements about economic behaviour that enable prediction of the probable effects of certain actions.

Economic theories and **principles** *are statements about economic behaviour that enable prediction of the probable effects of certain actions.* Good theories are those that do a good job of explaining and predicting. They are supported by facts concerning how individuals and institutions actually behave in producing, exchanging, and consuming goods and services. But these facts may change over time, so economists must continually check theories against the shifting economic environment.

Several other points relating to economic principles are important to know.

1.2. The purpose, problems, a subject and course method

The subject matter purpose - to form concepts, knowledge and skills at students on studying of economic activities of subjects of the Economy, to train theoretical and to practical sides of functioning and development of modern Economy economy.

The primary purposes of the subject matter - to train students to do conclusions and the conclusions on the basis of the analysis of consequences of the state intervention in Economy economy, being analysis of the Economy on the basis of the statistical date about supply and demand in the Economy, to such questions: as economy state regulation, behavior of consumers the Economy, activity of subjects of the Economy in different Economy structures; to studying of the factors influencing their activity; Economy economy laws.

The student within the limits of the problems which are carried out in the course of development of a subject matter "Microeconomics"

should know:

- theoretical bases of function and development of modern Economy economy; the mechanizm of distribution of scarce resources on the basis of supply and demand model; the basic properties of the competitive and not competitive Economys and a rule of behaviour of firms in this Economy; formation of the prices in Economy conditions; directions of the state intervention in Economy economy and its consequences; the mechanism of functioning of the labour, capital and ground Economys;

should know and be able to use:

- to carrying out of the analysis and a formulation of conclusions of consequences of economic policy of the state; to carrying out of the analysis of behaviour of firms in the competitive and not competitive Economys; to working out of functions of supply and demand on the basis of the statistical data; to the analysis and carrying out of look-ahead calculations of consequences of change of Economy parametres, formulation of conclusions; to the analysis and a formulation of conclusions of activity of labor Economys, the capital and the earth; to the analysis of change of Economy conditions with application of functions of supply and demand.

to have skills (to own skills):

- about efficiency of functioning of the Economy and the factors influencing it; about rules of behaviour of firms in different Economy structures; about the mechanism of formation of the price in the conditions of the Economy; about the competitive and not competitive Economys; about principles of distribution of scarce resources; about the mechanism of functioning of Economy economy.

"Microeconomics" is interconnected with all the disciplines of the curriculum prepared on the basis of the state standard of education is their theoretical and pedagogical foundation. It is closely linked with the functional economic sciences (finance, credit, banking, taxes, taxation, accounting and auditing, insurance and customs business, mathematics, etc.).

There is a close relationship with the public (philosophy, political science, history) and the specific economic disciplines.

Following positions formations defining quality connected with educational activity are allocated: teaching at high scientific and pedagogical level, reading of problem lectures, the organization of interesting employment on means of question-answer conversation, use of the advanced pedagogical technologies and multimedia means, familiarizing of students with creative search of the decision of problems, insistence, individual work with students, free thinking etc.

Use of following conceptual approaches in designing of a course "Microeconomics".

The system approach: The educational technology should include all signs of system: logicality of activity, interrelation of all its parts, integrity.

Experts have mastered this discipline can make their own decisions at the micro, meso, macro and mega-levels of the economy, will be able to find alternative, the effect of the way of economic management, to achieve macroeconomic balance, sustainable economic growth and other economic problems.

Textbooks, training manuals, texts of lectures, handouts, as well as computers, audio-video equipment, slide projector, overhead projector and other information technology tools are used in training

1.3. Production potentialities and economic choice

They include:

- ***Economic growth*** Produce more and better goods and services, or, more simply, develop a higher standard of living.
- ***Full employment*** Provide suitable jobs for all citizens who are willing and able to work.
- ***Economic efficiency*** Achieve the maximum fulfillment of wants using the available productive resources.
- ***Price-level stability*** Avoid large upswings and downswings in the general price level; that is, avoid inflation and deflation.
- ***Economic freedom*** Guarantee that businesses, workers, and consumers have a high degree of freedom of choice in their economic activities.
- ***Equitable distribution of income*** Ensure that no group of citizens faces poverty while most others enjoy abundance.
- ***Economic security*** Provide for those who are chronically ill, disabled, laid off, aged, or otherwise unable to earn minimal levels of income.
- ***Balance of trade*** Seek a reasonable overall balance with the rest of the world in international trade and financial transactions. Although most of us might accept these goals as generally stated, we might also disagree substantially on their specific meanings. What are “large” changes in the price level? What is a “high degree” of economic freedom? What is an “equitable” distribution of income? How can we measure precisely such abstract goals as “economic freedom”? These objectives are often the subject of spirited public debate. Also, some of these goals are complementary; when one is achieved, some other one will also be realized. For example, achieving full employment means eliminating unemployment, which is a basic cause of inequitable income distribution. But other goals may conflict or even be mutually exclusive. They may entail **tradeoffs**, meaning that to achieve one we must sacrifice another. For example, efforts to equalize the distribution of income may weaken incentives to work, invest, innovate, and take business risks, all of

which promote economic growth. Taxing high-income people heavily and transferring the tax revenues to low-income people is one way to equalize the distribution of income. But then the incentives to high-income individuals may diminish because higher taxes reduce their rewards for working. Similarly, low-income individuals may be less motivated to work when government stands ready to subsidize them.

The LAST word

FAST-FOOD LINES: AN ECONOMIC PERSPECTIVE

How can the economic perspective help us understand the behaviour of fast-food consumers?

You enter a fast-food restaurant. Do you immediately look to see which line is the shortest? What do you do when you are in the middle of a long line and a new serving station opens? Have you ever gone to a fast-food restaurant, seen very long lines, and then left? Have you ever become annoyed when someone in front of you in line placed an order that took a long time to fill?

The economic perspective is useful in analyzing the behaviour of fast-food customers. These consumers are at the restaurant because they expect the marginal benefit from the food they buy to match or exceed its marginal cost. When customers enter the restaurant, they go to the shortest line, believing that it will minimize their time cost of obtaining their food. They are acting purposefully; time is limited and people prefer using it in some way other than standing in line.

If one fast-food line is temporarily shorter than other lines, some people will move toward that line. These movers apparently view the time saving associated with the shorter line to exceed the cost of moving from their present line. The line switching tends to equalize line lengths. No further movement of customers between lines occurs once all lines are about equal.

Fast-food customers face another cost-benefit decision when a clerk opens a new station at the counter. Should they move to the new station or stay put? Those who shift to the new line decide that the time saving from the move exceeds the extra cost of physically moving. In so deciding, customers must also consider just how quickly they can get to the new station compared with others who may be contemplating the same move. (Those who hesitate in this situation are lost!)

Customers at the fast-food establishment do not have perfect information when they select lines. For example, they do not first survey those in the lines to determine what they are ordering before deciding which line to enter. There are two reasons for this. First, most customers would tell them "It's none of your business," and therefore no information would be forthcoming. Second, even if they could obtain the information, the amount of time necessary to get it (a cost) would most certainly exceed any time saving associated with finding the best line (the benefit). Because information is costly to obtain, fast-food patrons select lines without perfect information. Thus, not all decisions turn out as expected.

For example, you might enter a short line and find someone in front of you is ordering hamburgers and fries for 40 people in the Greyhound bus parked out back (and the employee is a trainee)! Nevertheless, at the time you made your decision, you thought it was optimal.

Imperfect information also explains why some people who arrive at a fast-food restaurant and observe long lines decide to leave. These people conclude that the marginal cost (monetary plus time costs) of obtaining the fast food is too large relative to the marginal benefit. They would not have come to the restaurant in the first place had they known the lines would be so long. But getting that information by, say, employing an advance scout with a cellular phone would cost more than the perceived benefit.

Finally, customers must decide what food to order when they arrive at the counter. In making their choices they again compare marginal costs and marginal benefits in attempting to obtain the greatest personal satisfaction or well-being for their expenditure.

Economists believe that what is true for the behaviour of customers at fast-food restaurants is true for economic behaviour in general. Faced with an array of choices, consumers, workers, and businesses rationally compare marginal costs and marginal benefits in making decisions.

CHAPTER SUMMARY

1. Economics is the study of the efficient use of scarce resources in the production of goods and services to satisfy the maximum satisfaction of economic wants.
2. The economic perspective includes three elements: scarcity and choice, rational behaviour, and marginalism. It sees individuals and institutions making rational decisions based on comparisons of marginal costs and marginal benefits.
3. Economists employ the scientific method in which they form and test hypotheses of cause-and-effect relationships to generate theories, laws, and principles.
4. Generalizations stated by economists are called principles, theories, laws, or models. Good theories explain real-world relationships and predict real-world outcomes.
5. Economic policy is designed to identify and solve problems to the greatest extent possible and at the least possible cost. This application of economics is called policy economics.
6. Our society accepts certain shared economic goals, including economic growth, full employment, economic efficiency, price-level stability, economic freedom, equity in the distribution of income, economic security, and a reasonable balance in international trade and finance. Some of these goals are complementary; others entail tradeoffs.
7. Macroeconomics looks at the economy as a whole or its major aggregates; microeconomics examines specific economic units or institutions.
8. Positive statements state facts ("what is"); normative statements express value judgments ("what ought to be").
9. In studying economics we encounter such pitfalls as biases and preconceptions, unfamiliar or confusing terminology, the fallacy of composition, and the difficulty of establishing clear cause–effect relationships.

TERMS AND CONCEPTS

aggregate, p. 11
economic perspective, p. 4
economics, p. 3
fallacy of composition, p. 13
generalizations, p. 8
macroeconomics, p. 11
marginal analysis, p. 5
microeconomics, p. 11
normative economics, p. 12
"other-things-equal" assumption, p. 8
policy economics, p. 9
positive economics, p. 12
post hoc, ergo procter hoc fallacy, p. 14
principles, p. 7
scientific method, p. 6
theoretical economics, p. 7
tradeoffs, p. 10

STUDY QUESTIONS

1. KEY QUESTION Use the economic perspective to explain why someone who is normally a light eater at a standard restaurant may become a bit of a glutton at a buffet-style restaurant that charges a single price for all you can eat.
2. What is the scientific method and how does it relate to theoretical economics? What is the difference between a hypothesis and an economic law or principle?
3. Why is it significant that economics is not a laboratory science? What problems may be involved in deriving and applying economic principles?
4. Explain the following statements:
   a. Good economic policy requires good economic theory.
   b. Generalization and abstraction are nearly synonymous.
   c. Facts serve to sort out good and bad hypotheses.
   d. The *other things equal assumption* helps isolate key economic relationships.
5. KEY QUESTION Explain in detail the interrelationships between economic facts, theory, and policy. Critically evaluate this statement: "The trouble with economic theory is that it is not practical. It is detached from the real world."

6. To what extent do you accept the eight economic goals stated and described in this chapter? What priorities do you assign to them?

7. **KEY QUESTION** Indicate whether each of the following statements applies to microeconomics or macroeconomics:

   a. The unemployment rate in Canada was 6.5 percent in January 2001.

   b. The Alpo dog food plant in Bowser, Alberta, laid off 15 workers last month.

   c. An unexpected freeze in central Florida reduced the citrus crop and caused the price of oranges to rise.

   d. Canadian output, adjusted for inflation, grew by 4.7 percent in 2000.

   e. Last week the Royal Bank lowered its interest rate on business loans by one-half of 1 percentage point.

   f. The consumer price index rose by 2.7 percent in 2000.

8. **KEY QUESTION** Identify each of the following as either a positive or a normative statement:

   a. The high temperature today was 30 degrees.

   b. It was too hot today.

   c. Other things equal, higher interest rates reduce the total amount of borrowing.

   d. Interest rates are too high.

9. **KEY QUESTION** Explain and give an example of (a) the fallacy of composition, and (b) the "after this, therefore because of this" fallacy. Why are cause-and-effect relationships difficult to isolate in economics?

10. Suppose studies show that students who study more hours receive higher grades. Does this relationship guarantee that any particular student who studies longer will get higher grades?

11. Studies indicate that married men on average earn more income than unmarried men of the same age. Why must we be cautious in concluding that marriage is the *cause* and higher income is the *effect*?

12. **(Last Word)** Use the economic perspective to explain the behaviour of the *workers* (rather than the customers) observed at a fast-food restaurant. Why are these workers there, rather than, say, cruising around in their cars? Why do they work so diligently? Why do so many of them quit these jobs once they have graduated high school?

INTERNET APPLICATION QUESTIONS

Σ-STAT

1. **Three Economic Goals—Are They Being Achieved?** Three primary economic goals are economic growth (an increase in real GDP), full employment (less than 7 percent unemployment), and price-level stability (less than 2 percent as measured by the Consumer Price Index—CPI). Statistics Canada www.statcan.ca/english/Pgdb/Economy/econom.htm provides links to Canadian economic data. Visit their links for Output, Income, Expenditures (under National accounts), Prices and Employment, and Unemployment (Labour markets) to assess whether these three goals are being met in Canada.

2. **Normative Economics—Canadian Politics.** Many economic policy statements made by the Liberal Party www.liberal.ca, the Reform Party www.reform.ca, the Progressive Conservative Party www.pcparty.ca, and the NDP www.ndp.ca can be considered normative rather than positive economic statements. Visit their Web sites and compare and contrast their views on how to achieve economic goals. How much of the disagreement is based on positive statements and how much on normative statements? Give an example of loaded terminology from each site.

Questions for Review

1. What is the difference between a Economy and an industry? Are there interactions among firms in different industries that you might describe as taking place within a single Economy?

2. It is often said that a good theory is one that can in principle be refuted by an empirical, data-oriented study. Explain why a theory that cannot be evaluated empirically is not a good theory.

3. In Example 1.1, both the additional-worker and the discouraged-worker theories are economic in nature, because they reflect the responses of married women to the economic conditions that their husbands face in the Economy. Could it be that both theories are correct, but the additional-worker theory applies to certain households, and the discouraged-worker theory to others? If so, how might you figure out which theory applies to whom?

4 . Which of the following two statements involves positive economic analysis and which

normative? How do the two kinds of analysis differ?

a. Gasoline rationing (allocating to each individual a maximum amount of gasoline that can be purchased each year) is a poor social policy because it interferes with the workings of the competitive Economy system.

b. Gasoline rationing is a policy under which more people are made worse off than are made better off.

5. In Example 1.2, what economic forces explain why the real price of eggs has fallen, but the real price of a college education has increased? How do you think these changes have affected consumer choices?

6. Suppose that the Japanese yen grows in value in relation to the U.S. dollar. Explain why this simultaneously increases the real price of Japanese cars for U.S. consumers and lowers the real price of U.S. automobiles for Japanese consumers.

Unit 2. Basics economic concepts (2 hours)

2.1. Develops an ability to apply basic microeconomic models in the analysis of real-life situations

2.2. Provides the foundations for the further study of microeconomics

2.3. Demonstrate an understanding of basic microeconomic concepts and principles

2.1. Develops an ability to apply basic microeconomic models in the analysis of real-life situations

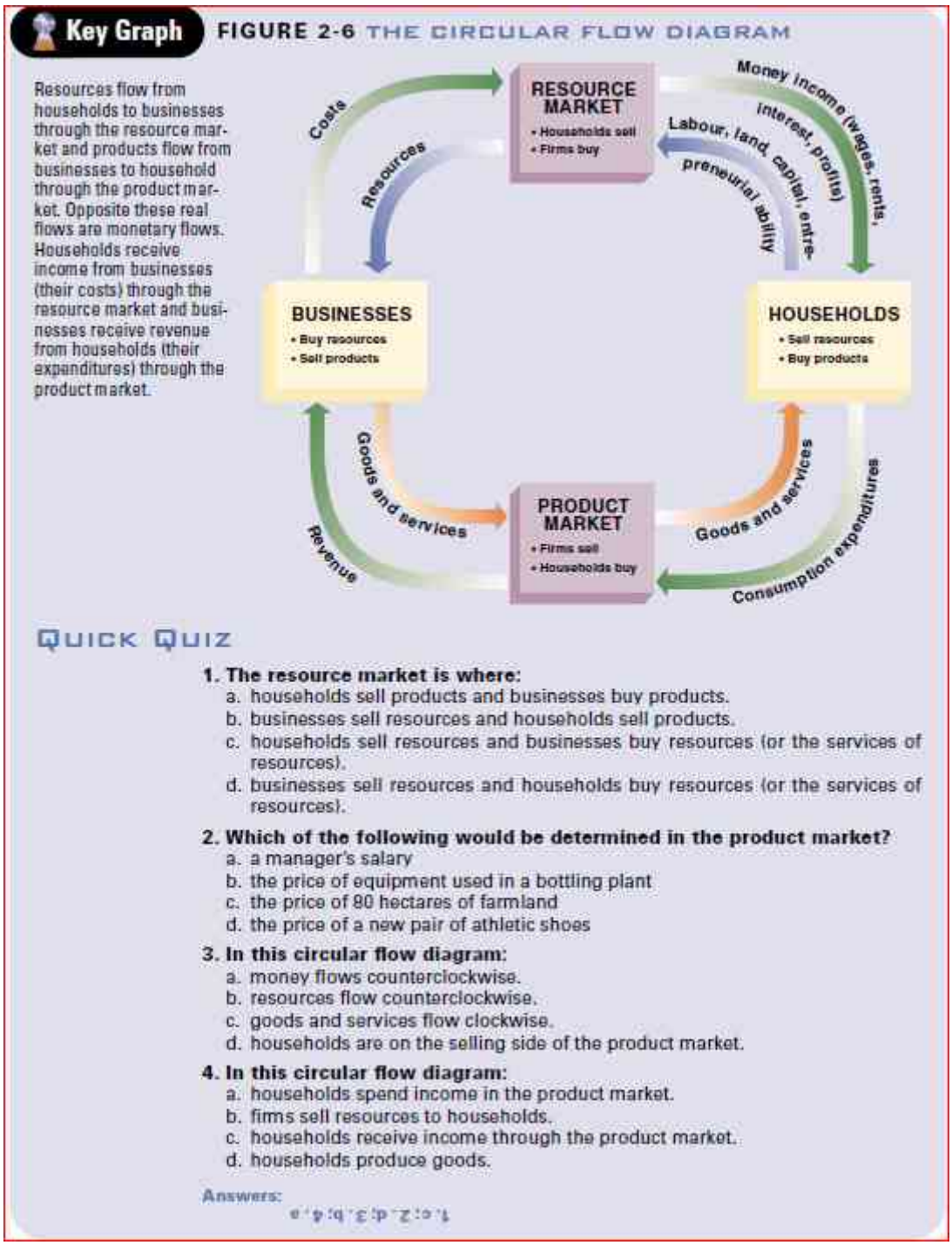
One of the best ways to appreciate the relevance of economics is to begin with the basics of supply and demand. Supply-demand analysis is a fundamental and powerful tool that can be applied to a wide variety of interesting and important problems. To name a few: understanding and predicting how clanging world economic conditions affect Economy price and production; evaluating the impact of government price controls, minimum wages, price supports, and production incentives; and determining how taxes, subsidies, tariffs, and import quotas affect considers .and producers.

We begin with a review of how supply and demand curves arp used to - describe the Economy mechanism. /Without government intervention (e.g/, through"the imposition of price controls or some other regulatory policy), supply , and demand will come into equilibrium to determine the Economy price o f a good' and the total quantity produced. What that price and quantity will be depends on the particular characteristics of supply and demand. And how price and /} quantity vary over time depends on how supply and demand respond to other , economic variables, such as aggregate economic activity, labor costs, etc., which

are themselves changing.We will therefore discuss the characteristics of supply and demand and how those characteristics may differ from one Economy to another.

Then we can begin1 to use supply and demand curves to understand a variety of phenomena—why the prices of some basic commodities have fallen steadily over a long period, while the prices of others have experienced sharp gyrations; why shortages occur in certain Economys; and why announcements about plans for future government policies or predictions about future economic conditions can affect Economys well before those policies or conditions become reality. Besides uhdeTstandTng *qualitatively* how Economy price and quantity are determined and how they can vary over time, it is also important to learn how they can be analyzed *quantitatively.*

We will see how simple “back of the envelope" calculations (and sometimes more detailed calculations) can be used to analyze and predict evolving Economy conditions, and how Economys respond both to domestic and international macroeconomic fluctuations and to the effects of government interventionsj We will try to convey this understanding through simple examples and by urging you to work through some exercises at the end of the chapter.



2.2. Provides the foundations for the further study of microeconomics

The law of increasing opportunity costs is reflected in the shape of the production possibilities curve: The curve is bowed out from the origin of the graph. Figure 2-1 shows that when the economy moves from *A* to *E*, successively larger amounts of robots (1, 2, 3, and 4) are given up to acquire equal increments of pizza (1, 1, 1, and 1). This is shown in the slope of the production possibilities curve, which becomes steeper as we move from *A* to *E*. A curve that gets steeper as we move down it is "concave to the origin."

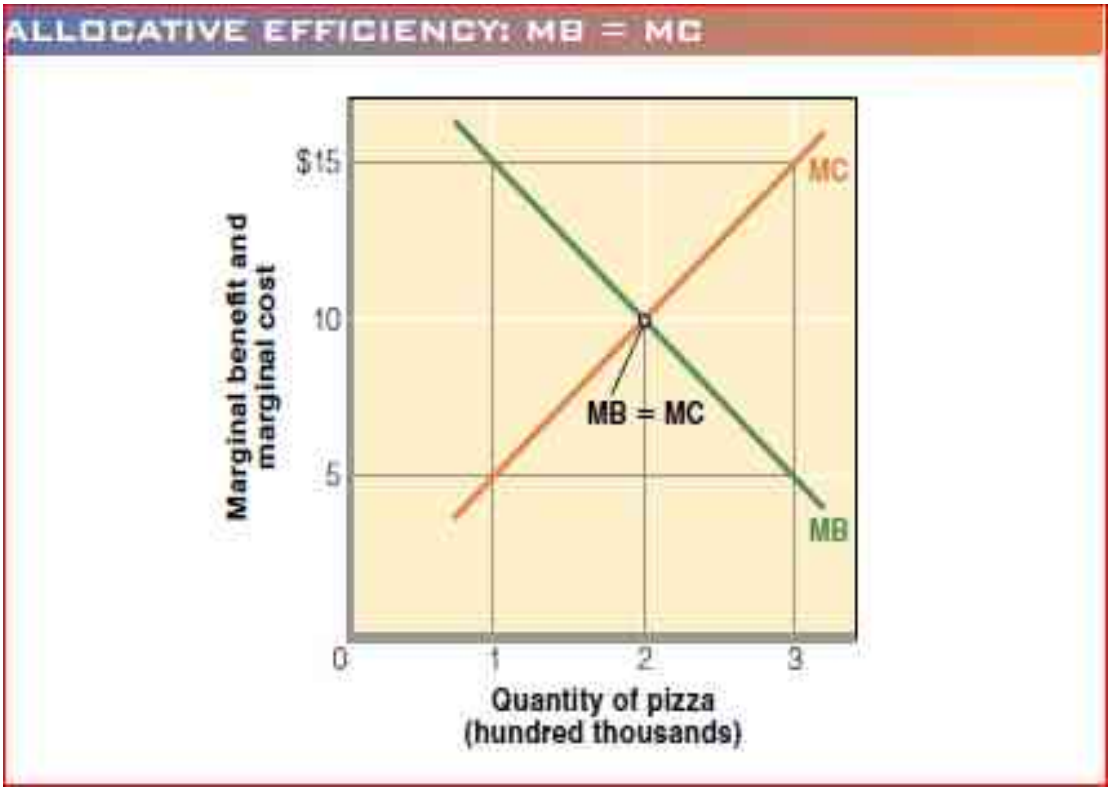
Does the sacrifice of robots increase as we produce more pizzas? The answer is that *resources are not completely adaptable to alternative uses*. Many resources are better at

producing one good than at producing others. Fertile farmland is highly suited to producing the ingredients needed to make pizzas, while land rich in mineral deposits is highly suited to producing the materials needed to make robots.

As we step up pizza production, resources that are less and less adaptable to making pizzas must be "pushed" into pizza production. If we start at *A* and move to *B*, we can shift the resources whose productivity of pizzas is greatest in relation to their productivity of robots. But as we move from *B* to *C*, *C* to *D*, and so on, resources highly productive of pizzas become increasingly scarce. To get more pizzas, resources whose productivity of robots is great in relation to their productivity of pizzas will be needed. It will take more and more of such resources, and hence greater sacrifices of robots, to achieve each increase of 1 unit in the production of pizzas. This lack of perfect flexibility, or interchangeablility, on the part of resources is the cause of increasing opportunity costs.

The optimal quantity of pizza production is indicated by the intersection of the MB and MC curves: 200,000 units in Figure 2-2. Why is this the optimal quantity? If only 100,000 pizzas were produced, the marginal benefit of pizzas would exceed its marginal cost. In money terms, MB might be $15, while MC is only $5. This suggests that society would be *underallocating* resources to pizza production and that more of it should be produced. How do we know? Because society values an additional pizza as being worth $15, while the alternative products that those resources could produce are worth only $5. Society benefits whenever it can gain something valued $15 by forgoing something valued only $5. Society would use its resources more efficiently by allocating more resources to pizza.

Each additional pizza up to 200,000 would provide such a gain, indicating that allocative efficiency would be improved by that production. But when MB = MC, the benefits of producing pizzas or alternative products with the available resources are equal. Allocative efficiency is achieved where MB = MC.



3.1. Demand and Supply
3.3.The Economy Mechanism
3.3. Economy and prices
3.4. Changing in Supply and Demand

3.1. Demand and Supply

One of the best ways to appreciate the relevance of economics is to begin with the basics of supply and demand. Supply-demand analysis is a fundamental and powerful tool that can be applied to a wide variety of interesting and important problems. To name a few: understanding and predicting how clanging world economic conditions affect Economy price and production; evaluating the impact of government price controls, minimum wages, price supports, and production incentives; and determining how taxes, subsidies, tariffs, and import quotas affect considers .and producers. We begin with a review of how supply and demand curves arp used to describe the Economy mechanism. Without government intervention (e.g. through"the imposition of price controls or some other regulatory policy), supply , and demand will come into equilibrium to determine the Economy price o f a good' and the total quantity produced.

What that price and quantity will be depends on the particular characteristics of supply and demand. And how price and quantity vary over time depends on how supply and demand respond to other , economic variables, such as aggregate economic activity, labor costs, etc., which are themselves changing. We will therefore discuss the characteristics of supply and demand and how those characteristics may differ from one Economy to another.

Then we can begin to use supply and demand curves to understand a variety of phenomena—why the prices of some basic commodities have fallen steadily over a long period, while the prices of others have experienced sharp gyrations; why shortages occur in certain Economys; and why announcements about plans for future government policies or predictions about future economic conditions can affect Economys well before those policies or conditions become reality.

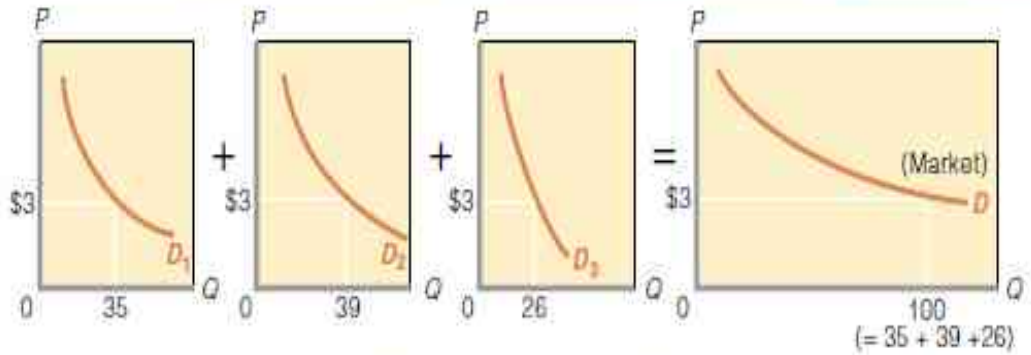
TABLE 3-2 MARKET DEMAND FOR CORN, THREE BUYERS

Price per bushel	Quantity demanded: First buyer		Second buyer		Third buyer		Total quantity demanded per week
$5	10	+	12	+	8	=	30
4	20	+	23	+	17	=	60
3	35	+	39	+	26	=	100
2	55	+	60	+	39	=	154
1	80	+	87	+	54	=	221

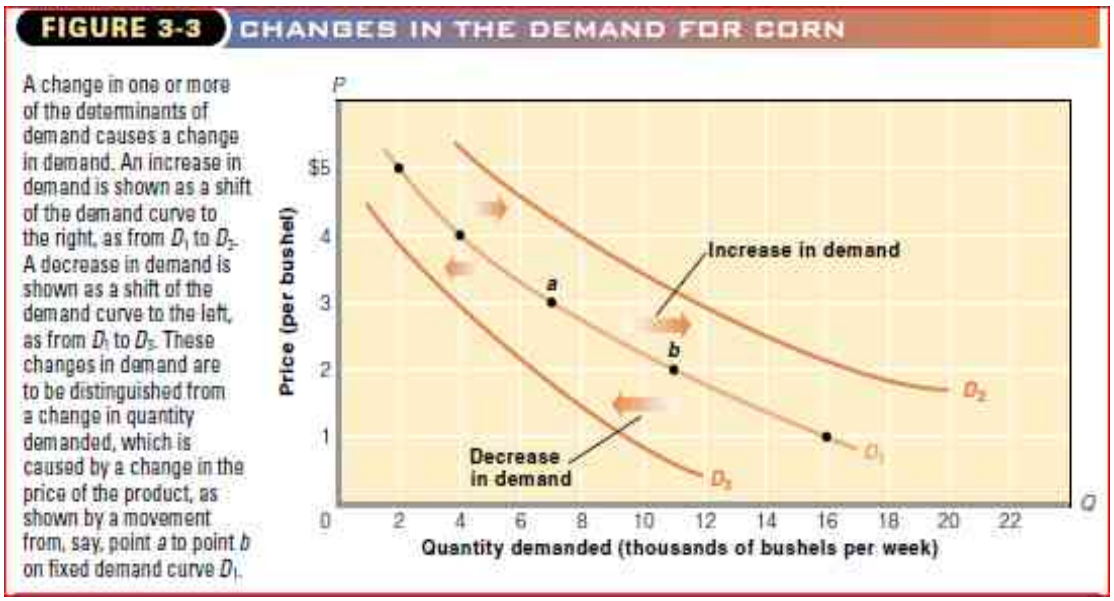
Of course, there are usually many more than three buyers of a product. To avoid hundreds or thousands or millions of additions, we suppose that all the buyers in a Economy are willing and able to buy the same amounts at each of the possible prices. Then we just multiply those amounts by the number of buyers to obtain the Economy demand. This is the way we arrived at curve *D*1, in Figure 3-3, for a Economy with 200 corn buyers whose demand is that shown in Table 3-1. Table 3-3 shows the calculations. In constructing a demand curve such as *D*1 in Figure 3-3, we assume that price is the most important influence on the amount of any product purchased, even though other factors can and do affect purchases.

These factors, called **determinants of demand**, are assumed to be constant when a demand curve like *D*1 is drawn. They are the "other things equal" in the relationship between price and quantity demanded. When any of these determinants changes, the demand curve will shift to the right or left. For this reason, determinants of demand are sometimes referred to as *demand shifters*. The basic determinants of demand are (1) consumers' tastes (preferences), (2) the number of consumers in the Economy, (3) consumers' incomes, (4) the prices of related goods, and (5) consumer expectations about future prices and incomes.

FIGURE 3-2 MARKET DEMAND FOR CORN, THREE BUYERS



We establish the market demand curve *D* by adding horizontally the individual demand curves (D_1, D_2, and D_3) of all the consumers in the market. At the price of $3, for example, the three individual curves yield a total quantity demanded of 100 bushels.



3.2. The Economy Mechanism

In Figure 2.1. The vertical axis shows the price of a good, *P,* measured in dollars per unit. This is the price that sellers receive for a given quantity supplied and that buyers will pay for a given quantity demanded. The horizontal axis shows the total quantity demanded and supplied, Q, measured in number of units per period The *supply curve S* tells us how much producers are willing to sell for each price that they receive in the Economy. The curve slopes upward because the higher the price, the more firms are usually able and willing to produce and sell. For example, a higher price may enable existing firms to expand their annual rate of production in the short run by hiring extra workers or by having existing workers work overtime (at greater cost to the firm), and in the long run by increasing the size of their plants. A higher price may also attract into the Economy new firms that face higher costs because of their inexperience and that therefore would have found entry into the Economy uneconomical at a lower price.

The *demand curve D* tells us how much consumers are willing to buy for each price per unit that they must pay. It slopes downward because consumers are usually ready to buy more if the price is lower. For example, a lower price may encourage consumers who have already been buying the good to consume a larger quantity, and it may enable other consumers who previously might not have been able to afford the good to begin buying it. The two curves intersect at the *equilibrium, or Economy-clearing,* price and quantity. At this price *P0* the quantity supplied and the quantity demanded are just equal (Q0). The *Economy mechanism* is the tendency in a free Economy for the price to change until the Economy clears (i.e., until the quantity supplied and the quantity demanded are equal). At this point there is neither shortage nor excess supply, so there is also no pressure for the price to change further. Supply and demand might not *always* be in equilibrium, and some Economys might not clear quickly when conditions change suddenly, but the *tendency* is for Economys to
clear.

- To understand why Economys tend to clear, suppose the price were initially above the Economy clearing level, say, *P1* in Figure 2.1. Then producers would try to produce and

sell more than consumers were willing to buy. A surplus would accumulate, and to sell this surplus or at least prevent it from growing, producers would begin to lower their prices. Eventually price would fall, quantity demanded would increase, and quantity supplied would decrease until the equilibrium price *P0* was reached. The opposite would happen if the price were initially below P0, say, at *P2.* A shortage would develop because consumers would be unable to purchase all they would like at this price. This would put upward ressure on price as consumers tried to outbid one another for existing supplies and producers reacted by increasing price and expanding output.

Again, the price would eventually reach P0. When we draw and use supply and demand curves, we are assuming that at any given price, a given quantity will be produced and sold. This makes sense only if a Economy is at least roughly *competitive.* By this we mean that both sellers and buyers should have little *Economy power* (i.e., little ability *individually* to affect the Economy price). Suppose instead that supply were controlled by a single producer—a monopolist. In this case there would no longer be a simple one-to-one relationship between price and quantity supplied.

The reason is that a monopolist's behavior depends on the shape and position of the demand curve. If the demand curve shifted in a particular way, it might be in the monopolist's interest to keep the quantity fixed but change the price, or keep the price fixed and change the quantity. (How and why this could occur is explained in Chapter 10.) So as we draw supply and demand curves and move them around, we implicitly assume that we are referring to a competitive Economy.

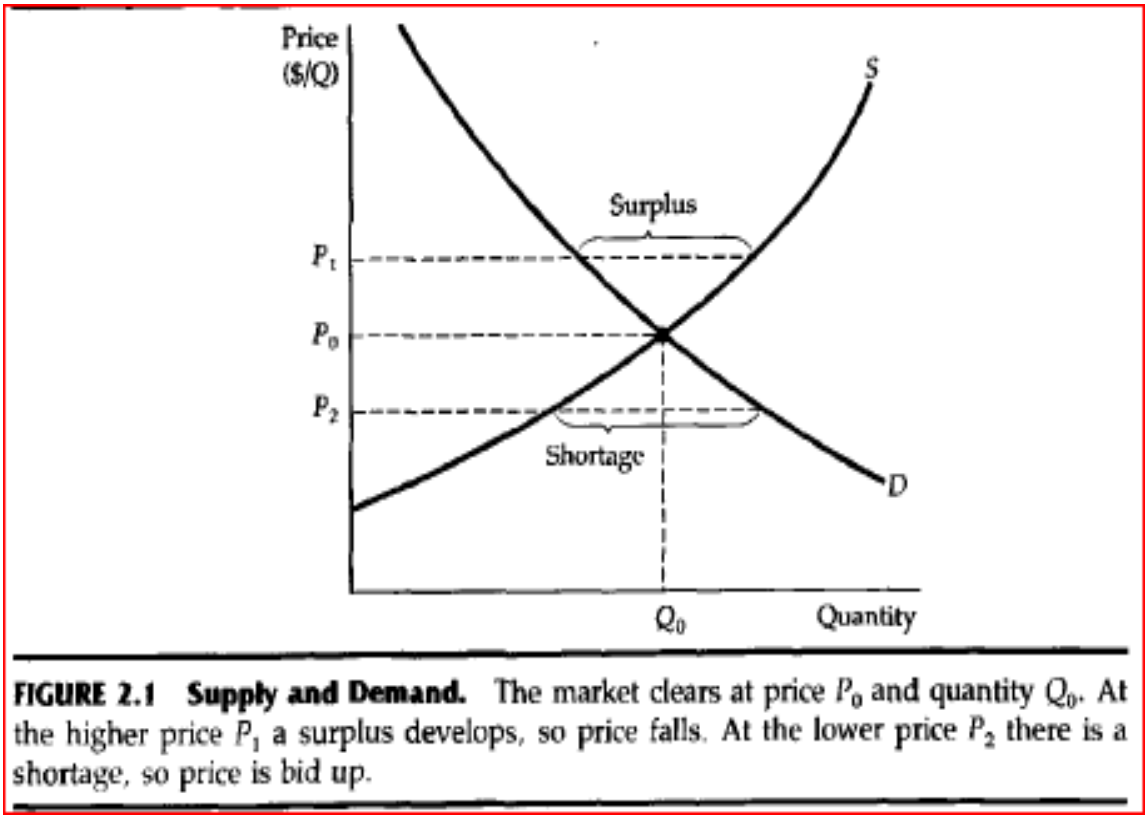
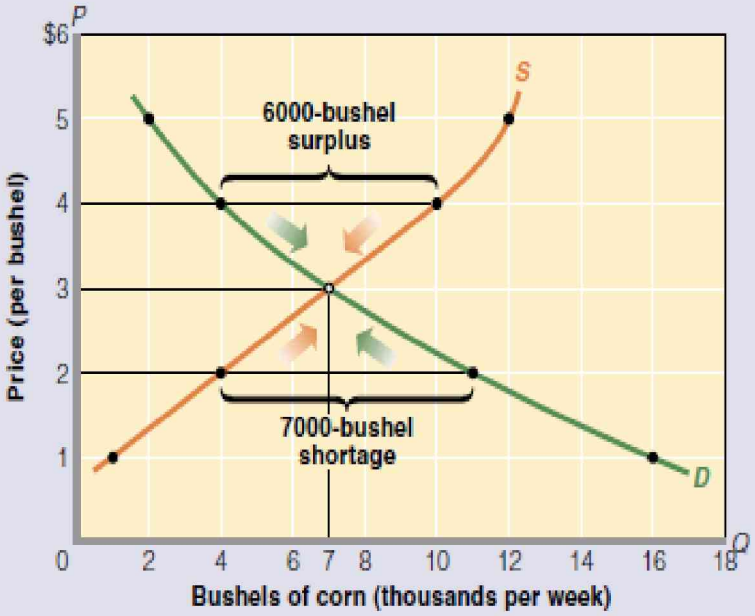


FIGURE 2.1 Supply and Demand. The market clears at price P_0 and quantity Q_0. At the higher price P_1 a surplus develops, so price falls. At the lower price P_2 there is a shortage, so price is bid up.

Key Graph **FIGURE 3-5** EQUILIBRIUM PRICE AND QUANTITY

The intersection of the downsloping demand curve *D* and the upsloping supply curve *S* indicates the equilibrium price and quantity, here $3 and 7000 bushels of corn. The shortages of corn at below-equilibrium prices (for example, 7000 bushels at $2), drive up price. These higher prices increase the quantity supplied and reduce the quantity demanded until equilibrium is achieved. The surpluses caused by above-equilibrium prices (for example, 6000 bushels at $4), push price down. As price drops, the quantity demanded rises and the quantity supplied falls until equilibrium is established. At the equilibrium price and quantity, there are neither shortages nor surpluses of corn.



QUICK QUIZ

1. Demand curve *D* is downsloping because:
a. producers offer less product for sale as the price of the product falls.
b. lower prices of a product create income and substitution effects, which lead consumers to purchase more of it.
c. the larger the number of buyers in a market, the lower the product price.
d. price and quantity demanded are directly (positively) related.

2. Supply curve *S*:
a. reflects an inverse (negative) relationship between price and quantity supplied.
b. reflects a direct (positive) relationship between price and quantity supplied.
c. depicts the collective behaviour of buyers in this market.
d. shows that producers will offer more of a product for sale at a low product price than at a high product price.

3. At the $3 price
a. quantity supplied exceeds quantity demanded.
b. quantity demanded exceeds quantity supplied.
c. the product is abundant and a surplus exists.
d. there is no pressure on price to rise or fall.

4. At price $5 in this market:
a. there will be a shortage of 10,000 units
b. there will be a surplus of 10,000 units.
c. quantity demanded will be 12,000 units
d. quantity demanded will equal quantity supplied.

Answers:
1. b; 2. b; 3. d; 4. b

3.3. Economy and prices

In a Economy system, private individuals and firms, not the government, own most of the property resources (land and capital). In fact, it is this extensive private ownership of capital that gives capitalism its name. This right of **private property**, coupled with the freedom to negotiate binding legal contracts, enables individuals and businesses to obtain, use, and dispose of property resources as they see fit. The right of property owners to designate who will receive their property when they die sustains the institution of private property. Property rights encourage investment, innovation, exchange, maintenance of property, and the expansion of the production of goods and services. Almost everyone can see that individuals stock stores, build factories, or clear land for farming because they can reap the rewards. Why would they do so if the government, or anyone else, could take that property from them? Property rights also extend to the intellectual property through patents, copyrights, and trademarks.

Such long-term protection encourages people to write books, music, and computer programs and to invent new products and production processes without fear that others will steal them and the rewards they may bring. Property rights also facilitate exchange. The title to an automobile or the deed to a cattle ranch assures the buyer that the seller is the legitimate owner. Moreover, property rights encourage owners to maintain or improve their property so as to preserve or increase its value. Finally, property rights enable people to use their time and resources to produce more goods and services, rather than using them to protect and retain the property they have already produced or acquired.

Closely related to private ownership of property is freedom of enterprise and choice. The Economy system requires that various economic units make choices, which are expressed and implemented in the economy's Economys.

● **Freedom of enterprise** ensures that entrepreneurs and private businesses are free to obtain and use resources to produce their choice of goods and services, and to sell them in the Economys of their choice.

● **Freedom of choice** allows owners to employ or dispose of their property and money as they see fit. It also allows workers to enter any line of work for which they are qualified. Finally, it ensures that consumers are free to buy the goods and services that best satisfy their wants. These choices are free only within broad legal limitations, of course. Illegal

choices such as selling human organs or buying illicit drugs are punished through fines and imprisonment. (Global Perspective 4.1 reveals that the degree of economic freedom varies greatly from nation to nation.)

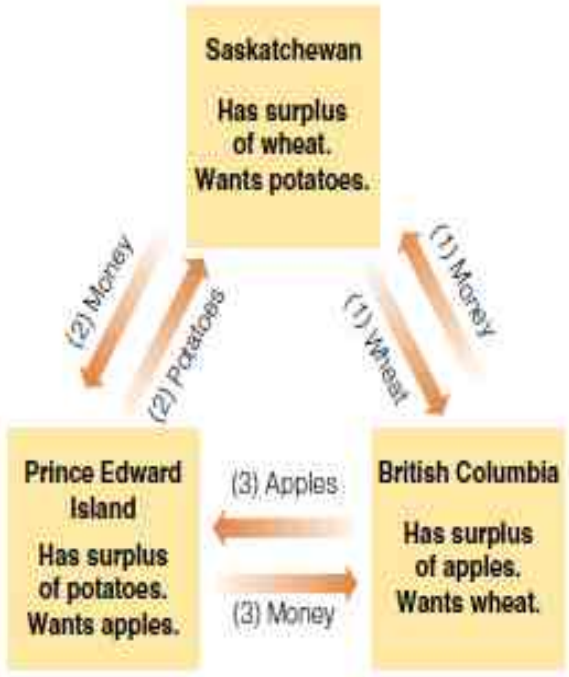
In the Economy system, **self-interest** is the motivating force of all the various economic units as they express their free choices. Self-interest means that each economic unit tries to do what is best for itself. Entrepreneurs try to maximize profit or minimize loss. Property owners try to get the highest price for the sale or rent of their resources. Workers try to maximize their utility (satisfaction) by finding jobs that offer the best combination of wages, hours, fringe benefits, and working conditions. Consumers try to obtain the products they want at the lowest possible price and apportion their expenditures to maximize their utility.

The pursuit of self-interest is not the same as selfishness. Self-interest simply means maximizing some benefit, and can include helping others. Astockholder may invest to receive the best available corporate dividends and then donate a portion of them to the United Way or give them to grandchildren. Aworker may take a second job to help pay college or university tuition for her or his children. An entrepreneur may make a fortune and

donate much of it to a charitable foundation. For example, Ted Turner, the entrepreneur who started CNN, donated one billion U.S. dollars to the United Nations!

FIGURE 4-1 MONEY FACILITATES TRADE WHEN WANTS DO NOT COINCIDE

The use of money as a medium of exchange permits trade to be accomplished despite a non-coincidence of wants. (1) Saskatchewan trades the wheat that B.C. wants for money; (2) Saskatchewan trades the money it receives from B.C. for the potatoes it wants from P.E.I.; (3) P.E.I. trades the money it receives from Saskatchewan for the apples it wants from B.C.



There are two primary *decision makers* in a Economy economy: **households** (consumers) and **firms** (businesses). Households are the ultimate suppliers of economic resources and simultaneously the major spending group in the economy. Firms provide goods and services to the economy.

We have noted that a Economy system is characterized by competition, freedom of enterprise, and choice. Consumers are free to buy what they choose; entrepreneurs and firms are free to produce and sell what they choose; and resource suppliers are free to make their property and human resources available in whatever use or occupation they choose. We may wonder why such an economy does not collapse in chaos. If consumers want breakfast cereal but businesses choose to produce aerobic shoes and resource suppliers decide to manufacture computer software, production would seem to be deadlocked by the apparent inconsistency of these free choices. In reality, the millions of decisions made by households and businesses are highly consistent with one another. Firms *do* produce the goods and services that consumers want, and households *do* provide the kinds of labour that businesses want.

To understand the operation of the Economy system, you must first recognize that every economy must respond to **Four Fundamental Questions:**

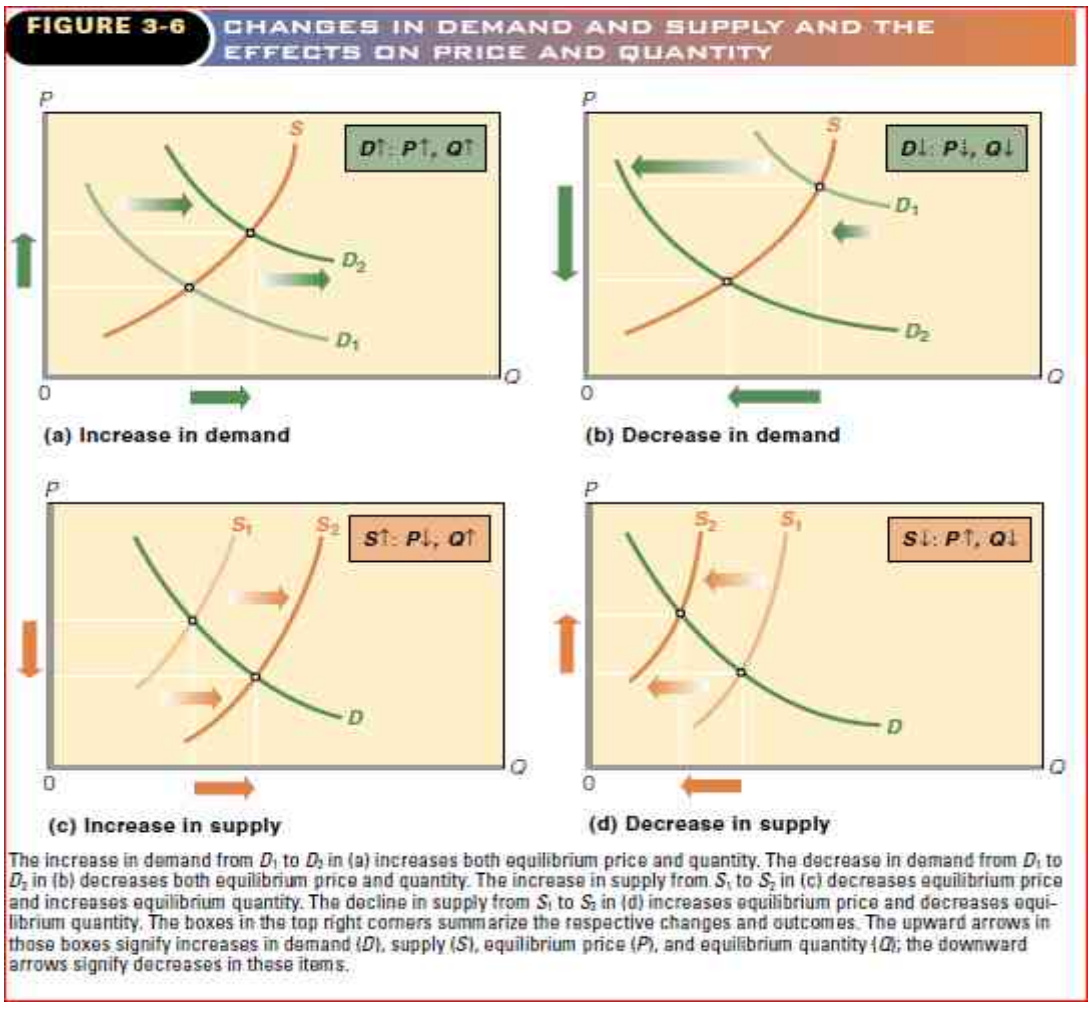
- What goods and services will be produced?
- How will the goods and services be produced?
- Who will get the goods and services?
- How will the system accommodate change?

The Four Fundamental Questions highlight the economic choices underlying the production possibilities curve discussed in Chapter 2. Let's examine how the Economy system answers each of these questions and thus addresses the economic problem.

3.4. Changing in Supply and Demand

Supply and demand curves tell us how much competitive producers and consumers are willing to sell and buy as functions of the price they receive and pay. But supply and demand are also determined by other variables besides price. For example, the quantity that producers are willing to sell depends not only on the price they receive, but also on their production costs, including wages, interest charges, and costs of raw materials. And in addition to price, quantity demanded depends on the total disposable income available to consumers, and perhaps on other variables as well. Later we will want to determine how changes in economic conditions or tax or regulatory policy affect Economy prices and quantities. To do this, we must understand how supply and demand curves shift in response to changes in such variables as wage rates, capital costs, and income.

Let's begin with the supply curve *S* in Figure 2.2. This curve shows how much producers are willing to sell as a function of Economy price. For example, at a price *Pv* the quantity produced and sold would be Q,. Now suppose the costs of raw materials *fall.* How does this affect supply? Lower raw materials costs, and for that matter lower costs of any kind, make production more profitable, encouraging existing firms to expand production and enabling new firms to enter the Economy and produce. So if the Economy price stayed constant at *Pv* we would expect to observe a greater supply of output than before.



The increase in demand from D_1 to D_2 in (a) increases both equilibrium price and quantity. The decrease in demand from D_1 to D_2 in (b) decreases both equilibrium price and quantity. The increase in supply from S_1 to S_2 in (c) decreases equilibrium price and increases equilibrium quantity. The decline in supply from S_1 to S_2 in (d) increases equilibrium price and decreases equilibrium quantity. The boxes in the top right corners summarize the respective changes and outcomes. The upward arrows in those boxes signify increases in demand (*D*), supply (*S*), equilibrium price (*P*), and equilibrium quantity (*Q*); the downward arrows signify decreases in these items.

In Figure 2.2 this is shown as an increase from Q3 to Q2. Output increases no matter what the Economy price happens to be, *so the entire supply curve shifts to the right,* which is shown in the figure as a shift from *S* to S'. Another way of looking at the effect of lower raw materials costs is to imagine that the quantity produced stays fixed at Q, and consider what price firms would require to produce this quantity. Because their costs are lower, the price they would require would also be lower—P2 in Figure 2.2. This will be the case no matter what quantity is produced. Again, we see in the figure that the supply curve must shift to the right. Of course, neither price nor quantity will always remain fixed when costs fall. Usually both will change as the new supply curve comes into equilibrium with the demand curve. This is illustrated in Figure 2.3, where the supply curve has shifted from S to *S'* as it did in Figure 2.2 As a result, the Economy price drops (from *P,* to P3), and the total quantity produced increases (from Q, to Q3). This is just what we would expect: Lower costs result in lower prices and increased sales. (And indeed, gradual decreases in costs resulting from technological progress and better management are an important driving force behind economic growth.)

Now let's turn to Figure 2.4 and the demand curve labeled D. How would an *increase in disposable income* affect demand? With greater disposable income, consumers can spend more money on any good, and some consumers will do so for most goods. If the Economy price were held constant at Pv we would therefore expect to see an increase in quantity demanded, say, from *Q1* to Q2. This would happen no matter what the Economy price was, so that the result would be a *shift to the right of the entire demand curve.* In the figure, this is shown as a shift from D to D'. Alternatively, we can ask what price consumers would pay to purchase a given quantity Qj. With greater disposable income, they should be willing to pay a higher price, say, P2 instead of *P1* in Figure 2.4. Again, *the demand curve will shift to the right.* In general, neither price nor quantity remains constant when disposable income increases. A new price and quantity result after demand comes into equilibrium with supply. As shown in Figure 2.5, we would expect to see consumers pay a higher price P3 and firms produce a greater quantity Q3 as a result of an increase in disposable income.

Changes in the prices of related goods also affect demand. For example, copper and aluminum are substitute goods. Because one can often be substituted for the other in industrial use, the demand for copper will increase if the price of aluminum increases. Automobiles and gasoline, on the other hand, are complementary goods (i.e., they tend to be used together). Therefore a decrease in the price of gasoline increases the demand for automobiles. So the shift to the right of the demand curve in Figure 2.5 could also have resulted from an increase in the price of a substitute good or from a decrease in the price of a complementary good.

In most Economys both the demand and supply curves shift from time to time. Consumers' disposable incomes change as the economy grows (or, during economic recessions, contracts). The demands for some goods shift with the sea sons (e.g., fuels, bathing suits, umbrellas), with changes in the prices of related goods (an increase in oil prices increases the demand for natural gas), or simply with changing tastes. Similarly wage rates, capital costs, and the prices of raw materials also change from time to time, which shifts supply.

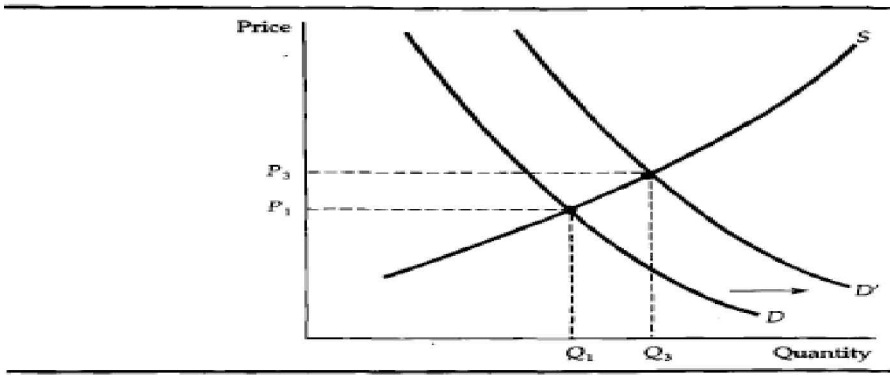


FIGURE 2.5 New Equilibrium Following Shift in Demand. When the demand curve shifts to the right, the market clears at a higher price P_2 and a larger quantity Q_2.

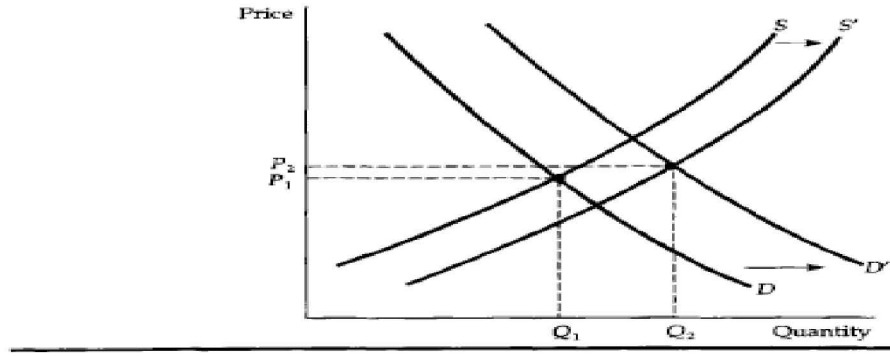
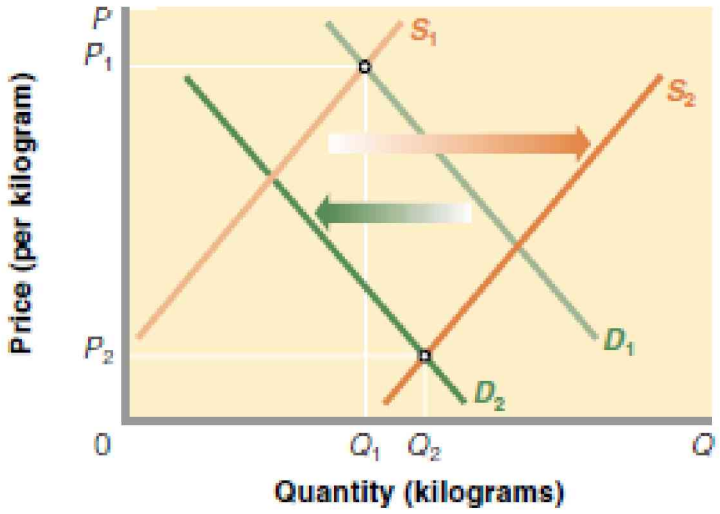


FIGURE 2.6 New Equilibrium Following Shifts in Supply and Demand. Supply and demand curves shift over time as market conditions change. In this example, rightward shifts of the supply and demand curves lead to slightly higher price and a much larger quantity. In general, changes in price and quantity depend on the amount by which each curve shifts and the shape of each curve.

THE MARKET FOR PINK SALMON



CHAPTER SUMMARY

1. A market is an institution or arrangement that brings together buyers and sellers of a product, service, or resource for the purpose of exchange.
2. Demand is a schedule or curve representing the willingness of buyers in a specific period to purchase a particular product at each of various prices. The law of demand implies that consumers will buy more of a product at a low price than at a high price. Therefore, other things equal, the relationship between price and quantity demanded is negative or inverse and is graphed as a downsloping curve. Market demand curves are found by adding horizontally the demand curves of the many individual consumers in the market.
3. Changes in one or more of the determinants of demand (consumer tastes, the number of buyers in the market, the money incomes of consumers, the prices of related goods, and price expectations) shift the market demand curve. A shift to the right is an increase in demand; a shift to the left is a decrease in demand. A change in demand is different from a change in the quantity demanded, the latter being a movement from one point to another point on a fixed demand curve because of a change in the product's price.
4. Supply is a schedule or curve showing the amounts of a product that producers are willing to offer in the market at each possible price during a specific period. The law of supply states that, other things equal, producers will offer more of a product at a high price than at a low price. Thus, the relationship between price and quantity supplied is positive or direct, and supply is graphed as an upsloping curve. The market supply curve is the horizontal summation of the supply curves of the individual producers of the product.
5. Changes in one or more of the determinants of supply (resource prices, production techniques, taxes or subsidies, the prices of other goods, price expectations, or the number of sellers in the market) shift the supply curve of a product. A shift to the right is an increase in supply; a shift to the left is a decrease in supply. In contrast, a change in the price of the product being considered causes a change in the quantity supplied, which is shown as a movement from one point to another point on a fixed supply curve.
6. The equilibrium price and quantity are established at the intersection of the supply and demand curves. The interaction of market demand and market supply adjusts the price to the point at which the quantity demanded and supplied are equal. This is the equilibrium price. The corresponding quantity is the equilibrium quantity.
7. The ability of market forces to synchronize selling and buying decisions to eliminate potential surpluses and shortages is known as the rationing function of prices.
8. A change in either demand or supply changes the equilibrium price and quantity. Increases in demand raise both equilibrium price and equilibrium quantity; decreases in demand lower both equilibrium price and equilibrium quantity. Increases in supply lower equilibrium price and raise equilibrium quantity; decreases in supply raise equilibrium price and lower equilibrium quantity.
9. Simultaneous changes in demand and supply affect equilibrium price and quantity in various ways, depending on their direction and relative magnitudes.

TERMS AND CONCEPTS

change in demand, p. 57
change in quantity demanded, p. 57
change in quantity supplied, p. 61
change in supply, p. 61
complementary goods, p. 55
demand, p. 50
demand curve, p. 52
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income effect, p. 51
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supply schedule, p. 57
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STUDY QUESTIONS

1. Explain the law of demand. Why does a demand curve slope downward? What are the determinants of demand? What happens to the demand curve when each of these determinants changes? Distinguish between a change in demand and a change in the quantity demanded, noting the cause(s) of each.

2. **KEY QUESTION** What effect will each of the following have on the demand for product B?

   a. Product B becomes more fashionable.

   b. The price of substitute product C falls.

   c. Income declines and product B is an inferior good.

   d. Consumers anticipate the price of B will be lower in the near future.

   e. The price of complementary product D falls.

   f. Foreign tariff barriers on product B are eliminated.

3. Explain the following news dispatch from Hull, England: "The fish market here slumped today to what local commentators called 'a disastrous level'—all because of a shortage of potatoes. The potatoes are one of the main ingredients in a dish that figures on almost every café menu—fish and chips."

4. Explain the law of supply. Why does the supply curve slope upward? What are the determinants of supply? What happens to the supply curve when each of these determinants changes? Distinguish between a change in supply and a change in the quantity supplied, nothing the cause(s) of each.

5. **KEY QUESTION** What effect will each of the following have on the supply of product B?

   a. A technological advance in the methods of producing product B.

   b. A decline in the number of firms in industry B.

   c. An increase in the prices of resources required in the production of B.

   d. The expectation that the equilibrium price of B will be lower in the future than it is currently.

   e. A decline in the price of product A, a good whose production requires substantially the same techniques and resources as does the production of B.

   f. The levying of a specific sales tax on B.

   g. The granting of a 50-cent per-unit subsidy for each unit of B produced.

6. "In the corn market, demand often exceeds supply and supply sometimes exceeds demand." "The price of corn rises and falls in response to changes in supply and demand." In which of these two statements are the terms *supply* and *demand* used correctly? Explain.

7. **KEY QUESTION** Suppose the total demand for wheat and the total supply of wheat per month in the Winnipeg grain market are as follows:

Thousands of bushels demanded	Price per bushel	Thousands of bushels supplied	Surplus (+) or shortage (–)
85	$3.40	72	_____
80	$3.70	73	_____
75	$4.00	75	_____
70	$4.30	77	_____
65	$4.60	79	_____
60	$4.90	81	_____

   a. What is the equilibrium price? What is the equilibrium quantity? Fill in the surplus–shortage column and use it to explain why your answers are correct.

   b. Graph the demand for wheat and the supply of wheat. Be sure to label the axes of your graph correctly. Label equilibrium price P and equilibrium quantity Q.

   c. Why will $3.40 not be the equilibrium price in this market? Why not $4.90? "Surpluses drive prices up; shortages drive them down." Do you agree?

   d. Now suppose that the government establishes a ceiling (legal maximum) price of, say, $3.70 for wheat. Explain carefully the effects of this ceiling price. Demonstrate your answer graphically. What might prompt government to establish a ceiling price?

8. **KEY QUESTION** How will each of the following changes in demand and/or supply affect equilibrium price and equilibrium quantity in a competitive market: that is, do price and quantity rise, fall, or remain unchanged, or are the answers indeterminate because they depend on the magnitudes of the shifts? Use supply and demand diagrams to verify your answers.
   a. Supply decreases and demand is constant.
   b. Demand decreases and supply is constant.
   c. Supply increases and demand is constant.
   d. Demand increases and supply increases.
   e. Demand increases and supply is constant.
   f. Supply increases and demand decreases.
   g. Demand increases and supply decreases.
   h. Demand decreases and supply decreases.
9. "Prices are the automatic regulator that tends to keep production and consumption in line with each other." Explain.
10. Explain: "Even though parking meters may yield little or no revenue, they should nevertheless be retained because of the rationing function they perform."
11. Critically evaluate: "In comparing the two equilibrium positions in Figure 3-6a, I note that a larger amount is actually purchased at a higher price. This refutes the law of demand."
12. Suppose you go to a recycling centre and are paid $.25 per kilogram for your aluminum cans. However, the recycling firm charges you $.20 per bundle to accept your old newspapers. Use demand and supply diagrams to portray both markets. Explain how different government policies with respect to the recycling of aluminum and paper might account for these different market outcomes.
13. **Advanced analysis:** Assume that demand for a commodity is represented by the equation $P = 10 - .2Q_d$ and supply by the equation $P = 2 + .2Q_s$, where Q_d and Q_s are quantity demanded and quantity supplied, respectively, and P is price. Using the equilibrium condition $Q_s = Q_d$, solve the equations to determine equilibrium price. Now determine equilibrium quantity. Graph the two equations to substantiate your answers.
14. **(Last Word)** Discuss the economic aspects of ticket scalping, specifying gainers and losers.

Questions for Review

1. What is the difference between a Economy and an industry? Are there interactions among firms in different industries that you might describe as taking place within a single Economy?

2. It is often said that a good theory is one that can in principle be refuted by an empirical, data-oriented study. Explain why a theory that cannot be evaluated empirically is not a good theory.

3. In Example 1.1, both the additional-worker and the discouraged-worker theories are economic in nature, because they reflect the responses of married women to the economic

conditions that their husbands face in the Economy. Could it be that both theories are correct, but the additional-worker theory applies to certain households, and the discouraged-worker theory to others? If so, how might you figure out which theory applies to whom?

4 . Which of the following two statements involves positive economic analysis and which

normative? How do the two kinds of analysis differ?

a. Gasoline rationing (allocating to each individual a maximum amount of gasoline that can be purchased each year) is a poor social policy because it interferes with the workings of the competitive Economy system.

b. Gasoline rationing is a policy under which more people are made worse off than are made better off.

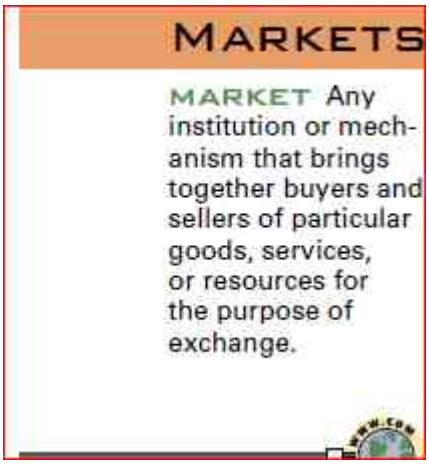
5. In Example 1.2, what economic forces explain why the real price of eggs has fallen, but the real price of a college education has increased? How do you think these changes have affected consumer choices?

6. Suppose that the Japanese yen grows in value in relation to the U.S. dollar. Explain why this simultaneously increases the real price of Japanese cars for U.S. consumers and lowers the real price of U.S. automobiles for Japanese consumers.

Unit 4. Economy equilibrium, maximum and minimum of prices (4 hours)

4.1. Economy equilibrium and the equilibrium price
4.2. Maximum and minimum prices
4.3. Shifts in Supply and Demand
4.4. Understanding and predicting the effects of changing Economy condition.

4.1. Economy equilibrium and the equilibrium price



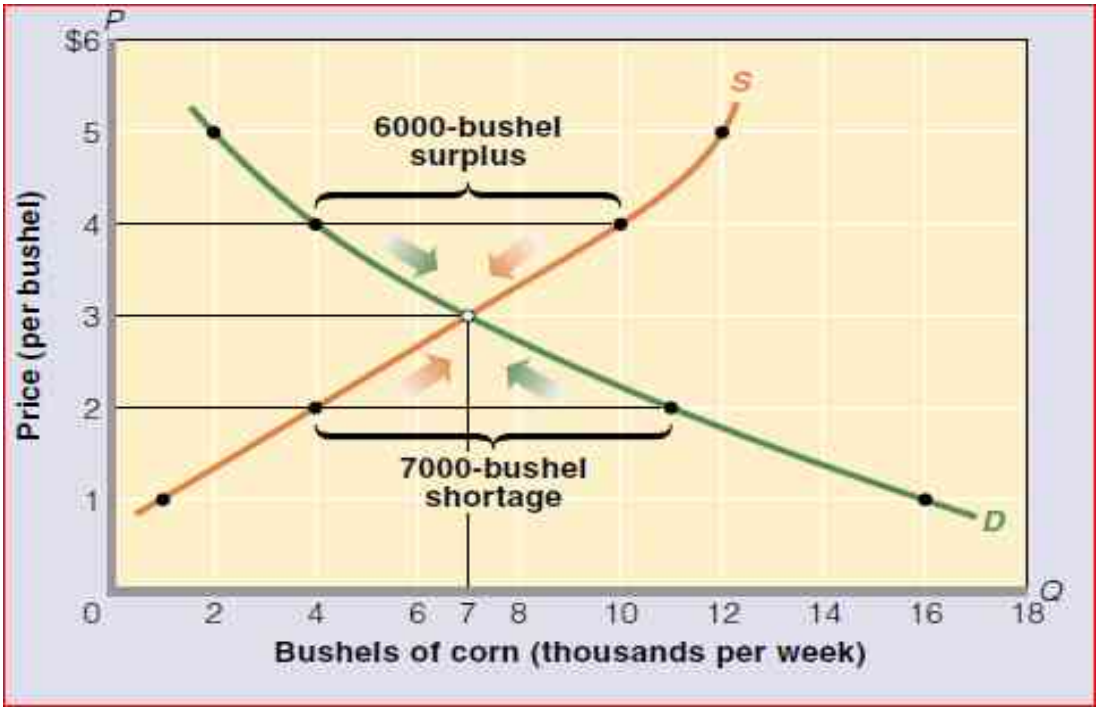
Recall from Chapter 2 that a **Economy** is *an institution or mechanism that brings together*

buyers ("demanders") and sellers ("suppliers") of particular goods, services, or resources for the purpose of exchange. Economys exist in many forms. The corner gas station, e-commerce sites, the local music store, a farmer's roadside stand—all are familiar Economys.

The Toronto Stock Exchange and the Chicago Board of Trade are Economys where buyers and sellers of stocks and bonds and farm commodities from all over the world communicate with one another to buy and sell. Auctioneers bring together potential buyers and sellers of art, livestock, used farm equipment, and, sometimes, real estate. In labour Economys, the professional hockey player and his agent bargain with the owner of an NHL team. A graduating finance major interviews with the Canadian Imperial Bank of Commerce or Scotiabank at the university placement office.

All situations that link potential buyers with potential sellers are Economys. Some Economys are local, while others are national or international. Some are highly personal, involving face-to-face contact between demander and supplier; others are impersonal, with buyer and seller never seeing or knowing each other. To keep things simple, we will focus in this chapter on Economys consisting of large numbers of buyers and sellers of standardized products. These are the highly competitive Economys such as a central grain exchange, a stock Economy, or a Economy for foreign currencies in which the price is "discovered" through the interacting decisions of buyers and sellers. They are *not* the Economys in which one or a handful of producers "set" prices, such as the Economys for commercial airplanes or operating software for personal computers.

So far, we have concentrated on just one consumer. By adding the quantities demanded by all consumers at each of the various possible prices, we can get from *individual* demand to *Economy* demand. If there are just three buyers in the Economy, as represented in Table 3-2, it is relatively easy to determine the total quantity demanded at each price. Figure 3-2 shows the graphical summing procedure: At each price we add the individual quantities demanded to obtain the total quantity demanded at that price; we then plot the price and the total quantity demanded as one point of the Economy demand curve.



We have discussed the meaning and characteristics of supply and demand, but our treatment has been largely qualitative. To use supply and demand curves to analyze and predict the effects of changing Economy conditions, we must begin to attach numbers to them. For example, to see how a 50 percent reduction in the supply of Brazilian coffee may affect the world price of coffee, we need to write down actual supply and demand curves and then calculate how those curves will shift, and how price will then change. In this section we will see how to do simple "back of the envelope" calculations with linear supply and demand curves. Although they are often an approximation to more complex curves, we use linear curves because they are the easiest to work with. It may come as a surprise, but one can do some informative economic analyses on the back of a small envelope with a pencil and a pocket calculator.

First, we must learn how to "fit" linear demand and supply curves to Economy data. (By this we do not mean statistical fitting in the sense of linear regression or other statistical techniques, which we discuss later in the book.) Suppose we have two sets of numbers for a particular Economy: (i) The price and quantity that generally prevail in the Economy (i.e., the price and quantity that prevail "on average," or when the Economy is in equilibrium, or when Economy conditions are "normal"). We call these numbers the equilibrium price and quantity, and we denote them by P* and *Q**. (ii) The price elasticities of supply and demand for the Economy (at or near the equilibrium), which we denote by *Es* and *ED,* as before.

These numbers might come from a statistical study done by someone else; they might be numbers that we simply think are reasonable; or they might be numbers that we want to try out on a "what if" basis. What we want to do is *write down the supply and demand*

curves that fit (i.e., are consistent with) these numbers. Then we can determine numerically how a change in a variable such as GNP, the price of another good, or some cost of production will cause supply or demand to shift and thereby affect the Economy price and quantity.

Let's begin with the linear curves shown in Figure 2.16. We can write these curves algebraically as

$$\textit{Supply:} \quad Q = a_0 + a_1 P \tag{2.4a}$$

$$\textit{Demand:} \quad Q = b_0 - b_1 P \tag{2.4b}$$

The problem is to choose numbers for the constants a_0, a_1, b_0 *and* b_1. This is done, for supply and for demand, in a two-step procedure:

Step One: Recall that each price elasticity, whether of supply or demand, can be written as

$$E = (P/Q)(\Delta Q/\Delta P)$$

where $\Delta Q/\Delta P$ is the change in quantity demanded or supplied resulting from a small change in price. For linear curves, $\Delta Q/\Delta P$ is constant. From equations (2.4a) and (2.4b), we see that $\Delta Q/\Delta P = a_1$ for supply, and $\Delta Q/\Delta P = -b_1$ for demand. Now, let's substitute these values for $\Delta Q/\Delta P$ into the elasticity formula:

$$\textit{Supply:} \quad E_S = a_1(P^*/Q^*) \tag{2.5a}$$

$$\textit{Demand:} \quad E_D = -b_1(P^*/Q^*) \tag{2.5b}$$

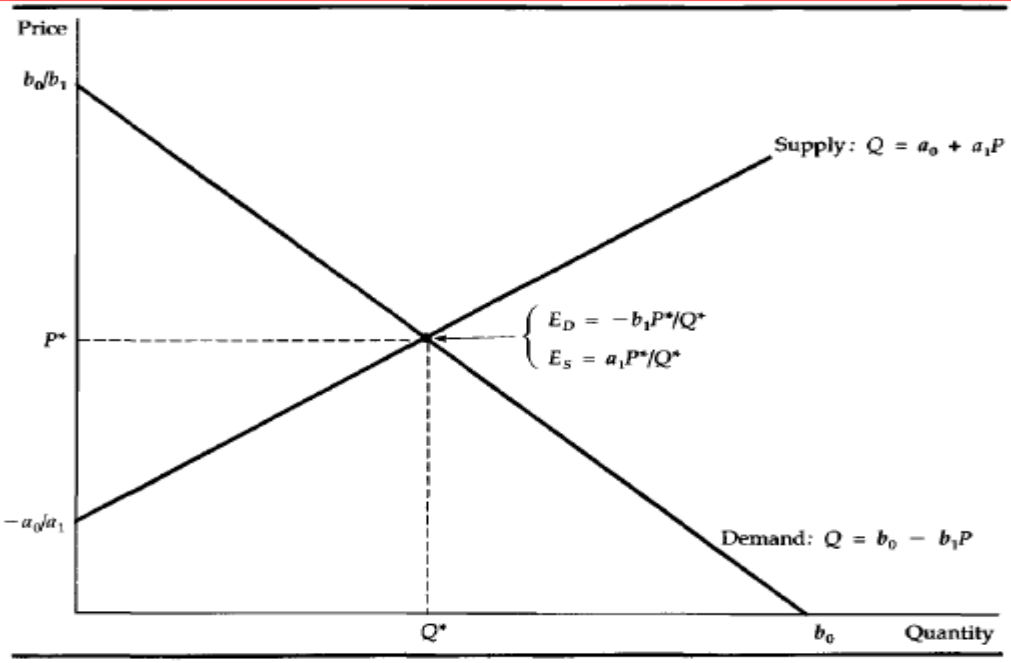


FIGURE 2.16 Fitting Linear Supply and Demand Curves to Data. Linear supply and demand curves provide a convenient tool for analysis. Given data for the equilibrium price and quantity P^* and Q^*, and estimates of the elasticities of demand and supply E_D and E_S, we can calculate the parameters a_0 and a_1 for the supply curve, and b_0 and b_1 for the demand curve. The curves can then be used to analyze the behavior of the market quantitatively.

We begin with the supply curve equation (2.4a) and use our two-step procedure to calculate numbers for a_0 and a_1. The long-run price elasticity of supply is 1.6, $P^* = .75$, and $Q^* = 7.5$.

Step One: Substitute these numbers in equation (2.5a) to determine a_1:

$$1.6 = a_1(0.75/7.5) = 0.1a_1,$$

so that $a_1 = 1.6/0.1 = 16$.

Step Two: Substitute this number for a_1, together with the numbers for P^* and Q^*, into equation (2.4a) to determine a_0:

$$7.5 = a_0 + (16)(0.75) = a_0 + 12,$$

so that $a_0 = 7.5 - 12 = -4.5$. We now know a_0 and a_1, so we can write our supply curve:

$$\textit{Supply:} \qquad Q = -4.5 + 16P$$

We can now follow the same steps for the demand curve equation (2.4b). An estimate for the long-run elasticity of demand is -0.8. First, substitute this number, and the values for P^* and Q^*, in equation (2.5b) to determine b_1:

$$-0.8 = -b_1(0.75/7.5) = -0.1b_1$$

so that $b_1 = 0.8/0.1 = 8$. Second, substitute this value for b_1 and the values for P^* and Q^* in equation (2.4b) to determine b_0:

$$7.5 = b_0 - (8)(0.75) = b_0 - 6,$$

so that $b_0 = 7.5 + 6 = 13.5$. Thus, our demand curve is

$$\textit{Demand:} \qquad Q = 13.5 - 8P$$

To check that we have not made a mistake, set supply equal to demand and calculate the equilibrium price that results:

$$\text{Supply} = -4.5 + 16P = 13.5 - 8P = \text{Demand}$$

$$16P + 8P = 13.5 + 4.5,$$

or $P = 18/24 = 0.75$, which is indeed the equilibrium price that we began with.

We have written supply and demand so that they depend only on price, but they could easily depend on other variables as well. For example, demand might depend on income as well as price. We would then write demand as

$$Q = b_0 - b_1P + b_2I \tag{2.6}$$

where I is an index of aggregate income or GNP. (For example, I might equal 1.0 in a base year and then rise or fall to reflect percentage increases or decreases in aggregate income.)

For our copper market example, a reasonable estimate for the long-run income elasticity of demand is 1.3. For the linear demand curve (2.6), we can then calculate b_2 by using the formula for the income elasticity of demand: $E = (I/Q)(\Delta Q/\Delta I)$. Taking the base value of I as 1.0, we have

$$1.3 = (1.0/7.5)(b_2)$$

so $b_2 = (1.3)(7.5)/(1.0) = 9.75$. Finally, substituting the values $b_1 = 8$, $b_2 = 9.75$, $P^* = 0.75$, and $Q^* = 7.5$ into (2.6), we can calculate that b_0 must equal 3.75.

We have seen how to fit linear supply and demand curves to data. Now, to see how these curves can be used to analyze markets, look at Example 2.5 on the behavior of copper prices and Example 2.6 on the world oil market.

We know that demand might change because of fluctuations in consumer tastes or incomes, changes in consumer expectations, or variations in the prices of related goods. Supply might change in response to changes in resource prices, technology, or taxes. What effects will such changes in supply and demand have on equilibrium price and quantity?

CHANGES IN DEMAND

Suppose that supply is constant and demand increases, as shown in Figure 3-6(a). As a result, the new intersection of the supply and demand curves is at higher values on both the price and quantity axes. An increase in demand raises both equilibrium price and equilibrium quantity. Conversely, a decrease in demand, such as that shown in Figure 3-6(b), reduces both equilibrium price and equilibrium quantity. (The value of graphical analysis is now apparent: We need not fumble with columns of figures to determine the outcomes; we need only compare the new and the old points of intersection on the graph.)

CHANGES IN SUPPLY

Now suppose that demand is constant but supply increases, as in Figure 3-6(c). The new intersection of supply and demand is located at a lower equilibrium price but at a higher equilibrium quantity. An increase in supply reduces equilibrium price but increases equilibrium quantity. In contrast, if supply decreases, as in Figure 3-6(d), the equilibrium price rises while the equilibrium quantity declines.

COMPLEX CASES

When both supply and demand change, the effect is a combination of the individual effects.

1. Supply Increase; Demand Decrease What effect will a supply increase and a demand decrease have on equilibrium price? Both changes decrease price, so the net result is a price drop greater than that resulting from either change alone. What about equilibrium quantity? Here the effects of the changes in supply and demand are opposed: The increase in supply increases equilibrium quantity, but the decrease in demand reduces it. The direction of the change in quantity depends on the relative sizes of the changes in supply and demand. If the increase in supply is larger than the decrease in demand, the equilibrium quantity will increase. But if the decrease in demand is greater than the increase in supply, the quilibrium quantity will decrease.

2. Supply Decrease; Demand Increase A decrease in supply and an increase in demand both increase price. Their combined effect is an increase in equilibrium price greater than that caused by either change separately. But their effect on equilibrium quantity is again indeterminate, depending on the relative sizes of the changes in supply and demand. If the decrease in supply is larger than the increase in demand, the equilibrium quantity will decrease. In contrast, if the increase in demand is greater than the decrease in supply, the equilibrium quantity will increase.

Unit 5. Elasticity of supply and demand (4 hours)

5.1. Term of "Elasticity";
5.2. Elasticity coefficient;
5.3. Elasticity of Demand and Elasticity of Dupply
5.4. Dot and arc elasticity

5.1. Term of "Elasticity"

We have seen that the demand for a good depends on its price, as well as on consumer income and on the prices of other goods. Similarly, supply depends on price, as well as on variables that affect production cost. For example, if the price of coffee increases, the quantity demanded will fall and the quantity supplied will rise. Often, however, we want to know *how much* supply or demand will rise or fall. How sensitive is the demand for coffee to its price? If price increases by 10 percent, how much will demand change? How much will demand change if income rises by 5 percent? We use *elasticities* to answer questions like these.

An elasticity is a measure of the sensitivity of one variable to another. Specifically,it is a number that tells us *the percentage change that will occur in one variable in response to a 1 percent change in another variable.* An important example is the *price elasticity of demand,* which measures the sensitivity of quantity demanded to price changes. It tells us what the percentage change in the quantity demanded for a good will be following a 1 percent increase in the price of that good. Let's look at this in a little more detail. Denoting quantity and price by Q and P, we write the price elasticity of demand as

$$E_p = (\%\Delta Q)/(\%\Delta P)$$

where "$\%\Delta Q$" simply means "percentage change in Q" and $\%\Delta P$ means "percentage change in P."[4] But the percentage change in a variable is just the absolute change in the variable divided by the original level of the variable. (If the Consumer Price Index were 200 at the beginning of the year and increased to 204 by the end of the year, the percentage change—or annual rate of inflation—would be 4/200 = .02, or 2 percent.) So we can also write the price elasticity of demand as[5]

$$E_p = \frac{\Delta Q/Q}{\Delta P/P} = \frac{P}{Q}\frac{\Delta Q}{\Delta P} \qquad (2.1)$$

The price elasticity of demand is usually a negative number. When the price of a good increases, the quantity demanded usually falls, so $\Delta Q/\Delta P$ (the change in quantity for a change in price) is negative, and therefore E_p is negative.

Equation (2.1) says that the price elasticity of demand is the change in quantity associated with a change in price ($\Delta Q/\Delta P$) times the ratio of price to quantity (P/Q). But as we move down the demand curve, $\Delta Q/\Delta P$ may change, and the price and quantity will always change. Therefore, the price elasticity of demand must be measured *at a particular point on the demand curve* and will generally change as we move along the curve.

This is easiest to see for a *linear* demand curve, that is, a demand curve of the form

$$Q = a - bP$$

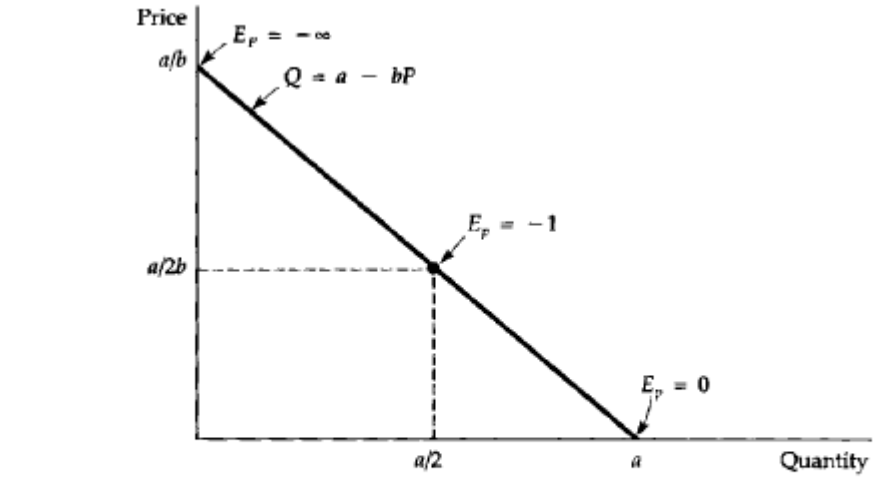


FIGURE 2.9 Linear Demand Curve. The price elasticity of demand depends not only on the slope of the demand curve, but also on the price and quantity. The elasticity therefore varies along the curve as price and quantity change. Slope is constant for this linear demand curve. Near the top of the curve, price is high and quantity is small, so the elasticity is large. The elasticity becomes smaller as we move down the curve.

For any price and quantity combination, the steeper the slope of the curve, the less elastic demand is. Figures 2.10a and b show two special cases. Figure 2.10a shows a demand curve that is *infinitely elastic.* There is only a single price P* at which consumers will buy the good; for even the smallest increase in price above this level, quantity demanded drops to zero, and for any decrease in price, quantity demanded increases without limit. The demand curve in Figure 2.10b, on the other hand, is *completely inelastic.* Consumers will buy a fixed quantity *Q*,* no matter what the price. We will also be interested in elasticities of demand with respect to other variables besides price. For example, demands for most goods usually rise when aggregate income rises. The *income elasticity of demand* is the percentage change in the quantity demanded *Q* resulting from a 1 percent increase in income *I:*

$$E_I = \frac{\Delta Q/Q}{\Delta I/I} = \frac{I}{Q}\frac{\Delta Q}{\Delta I} \qquad (2.2)$$

The demands for some goods are also affected by the prices of other goods. For example, because butter and margarine can easily be substituted for each other, the demand for each depends on the price of the other. A *cross-price elasticity of demand* refers to the percentage change in the quantity demanded for a good that results from a 1 percent increase in the price of another good.

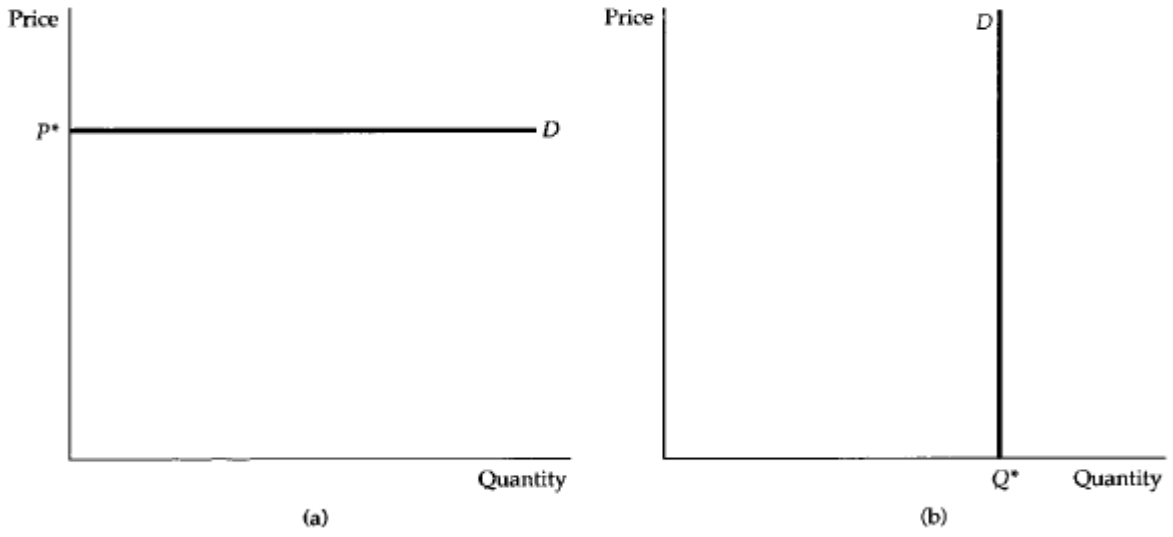


FIGURE 2.10a Infinitely Elastic Demand. For a horizontal demand curve, $\Delta Q/\Delta P$ is infinite. (A tiny change in price leads to an enormous change in demand.) The elasticity of demand is therefore infinite.

FIGURE 2.10b Completely Inelastic Demand. For a vertical demand curve, $\Delta Q/\Delta P$ is zero. The quantity demanded is the same no matter what the price, so the elasticity of demand is zero.

So the elasticity of demand for butter with respect to the price of margarine would be written as

$$E_{P_m} = \frac{\Delta Q_b/Q_b}{\Delta P_m/P_m} = \frac{P_m}{Q_b}\frac{\Delta Q_b}{\Delta P_m} \qquad (2.3)$$

where Q_b is the quantity of butter and P_m is the price of margarine.

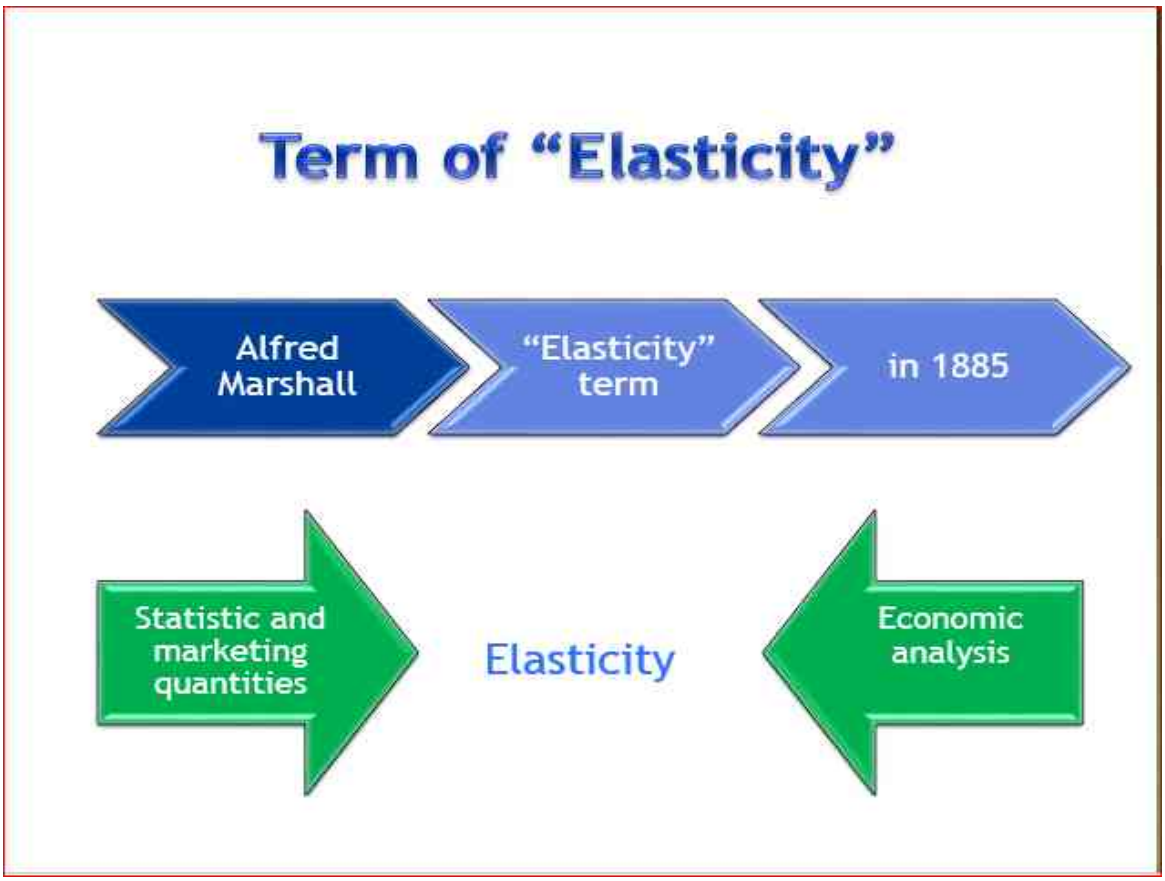
In this example of butter and margarine, the cross-price elasticities will be positive because the goods are *substitutes*—they compete in the Economy, so a rise in the price of margarine, which makes butter cheaper relative to margarine than it was before, leads to an increase in the demand for butter. (The demand curve for butter will shift to the right, so its price will rise.) But this is not always the case. Some goods are *complements',* they tend to be used together, so that an increase in the price of one tends to push down the consumption of the other. Gasoline and motor oil are an example. If the price of gasoline goes up, the quantity of gasoline demanded falls—motorists will drive less. But the demand for motor oil also falls. (The entire demand curve for motor oil shifts to the left.) Thus, the cross-price elasticity of motor oil with respect to gasoline is negative.

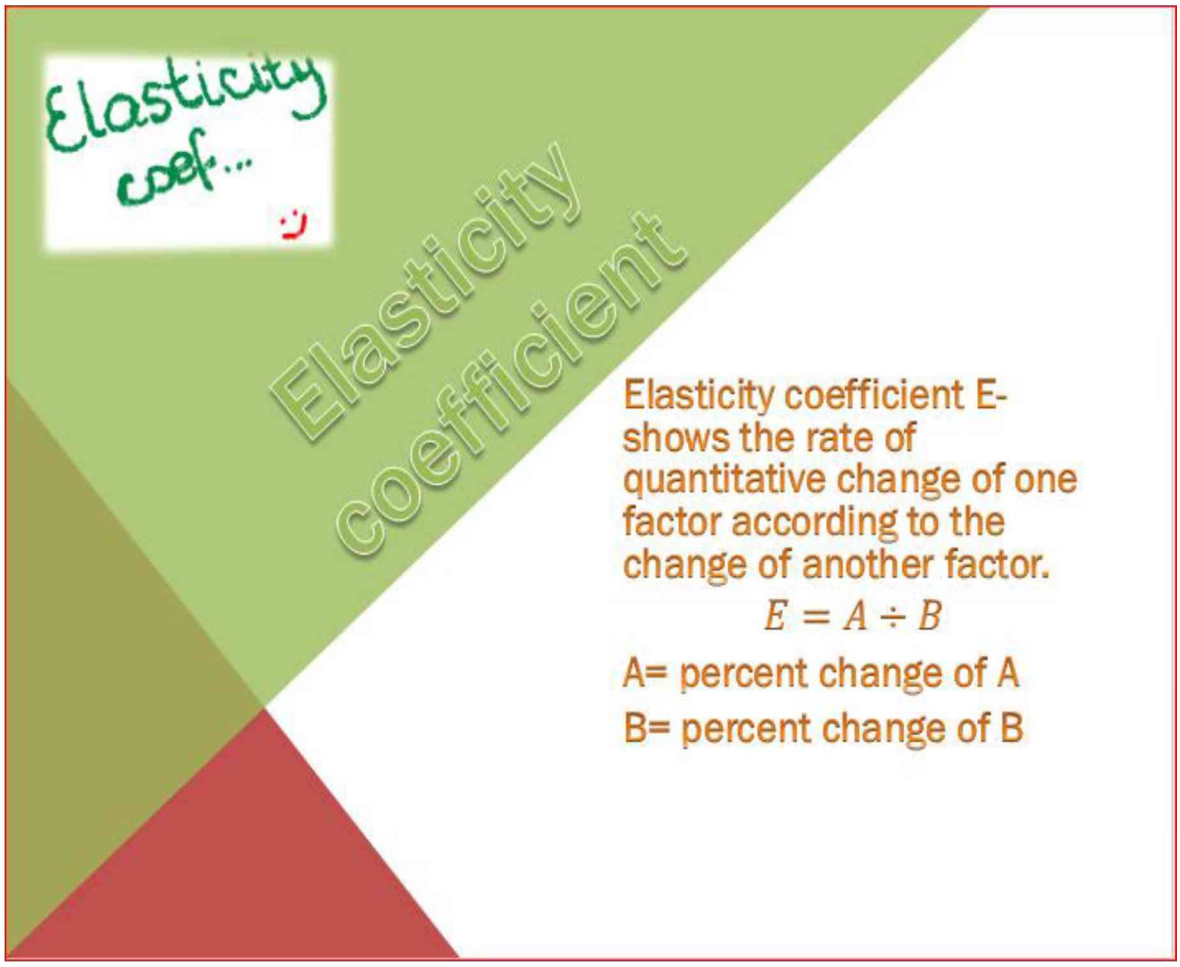
Elasticities of supply are defined in a similar manner. The *price elasticity of supply* is the percentage change in the quantity supplied resulting from a 1 percent increase in price. This elasticity is usually positive because a higher price gives producers an incentive to increase output. We can also refer to elasticities of supply with respect to such variables as interest rates, wage rates, and the prices of raw materials and other intermediate goods used to manufacture the product in question. For example, for most manufactured goods, the elasticities of supply with respect to the prices of raw materials are negative. An increase in the price of a raw material input means higher costs for the firm, so other things being equal, the quantity supplied will fall.

5.2. Elasticity coefficient

An elasticity is a measure of the sensitivity of one variable to another. Specifically,it is a number that tells us the percentage change that will occur in one variable in response to a 1 percent change in another variable. An important example is the price elasticity of demand, which measures the sensitivity of quantity demanded to price changes. It tells us what the percentage change in the quantity demanded for a good will be following a 1 percent increase in the price of that good. Let's look at this in a little more detail.

We have seen that the demand for a good depends on its price, as well as on consumer income and on the prices of other goods. Similarly, supply depends on price, as well as on variables that affect production cost. For example, if the price of coffee increases, the quantity demanded will fall and the quantity supplied will rise. Often, however, we want to know *how much* supply or demand will rise or fall. How sensitive is the demand for coffee to its price? If price increases by 10 percent, how much will demand change? How much will demand change if income rises by 5 percent? We use *elasticities* to answer questions like these.





- In the last lecture we saw that, normally, a fall in the price of a good raised the quantity demanded, and vice versa. Often, however, we want to know *how much* the quantity demanded will rise or fall in response to a price change.

- Suppose, for example, that the University of Weltmeister is considering whether or not to raise the tuition for its e-Comics Bachelor program—for which the only admission requirement is that the applicant has sufficient funds to study—from current $10,000 to $12,000 per year. Also suppose that, at the current level of tuition, the university expects to receive 800 applicants, as in the previous year. What kind of information does the UofW need to have in order to know whether it will be more beneficial—in terms of revenue—for the university to increase the tuition or keep it at the current level?
  - Recall that the revenue is calculated as the price times quantity of a good sold.

- To answer this question, the university should be able to correctly estimate how many people would apply—or, in other words, *by how much* the number of applicants would decrease—had the price risen to $12,000.

- If the university estimates that the price increase would lead to only 10% fall in the number of applicants, so that well 720 people would still apply, then its revenue from this program would increase from $8 million to approx. $8.6 million. If, however, the estimate is that the number of applicants would fall by 25% (to 600 people), then the revenue would decrease from $8 million to $7.2 million.

- Why is the case that we can have either increase or decrease in revenue depending on how much the quantity demanded changes in response to a given change in price?

5.3. Elasticity of Demand and Elasticity of Dupply

- The **price elasticity of demand** measures the responsiveness of consumers' purchase decisions (i.e. their demand) to variations in price. It is defined as *the percentage change in the quantity of a good demanded that results from a 1 percent change in price*:

$$\varepsilon_p^d = \frac{\%\Delta q_d}{\%\Delta p} = \frac{\Delta q_d / q_d}{\Delta p / p} = \frac{\Delta q_d}{\Delta p}\frac{p}{q_d}$$

- For a demand function given by $q_d = q_d(p)$, as Δp goes to zero, $\Delta q_d / \Delta p$ goes to the derivative dq_d/dp. Economists usually calculate elasticities at this limit—that is, for very small changes in p. So, then we can write the above formula as follows:

$$\varepsilon_p^d = \frac{dq_d}{dp}\frac{p}{q}$$

Income elasticities also differ from the short run to the long run. For most goods and services—foods, beverages, fuel, entertainment, etc.—the income elasticity of demand is larger in the long run than in the short run. For example, consider the behavior of gasoline consumption during a period of strong economic growth when aggregate income rises by 10 percent. Eventually people will increase their gasoline consumption—they can afford to take more trips and perhaps own a larger car. But this change in consumption takes time, and initially demand increases only a small amount. Thus, the long-run elasticity will be larger than the short-run elasticity.

For a durable good the opposite is true. Again, take automobiles as an example. If aggregate income rises by 10 percent, the stock of cars that consumers will want to hold will also rise, say, by 5 percent. But this means a much larger increase in *current purchases* of cars. (If the stock is 70 million, a 5 percent increase year.) Eventually consumers succeed in building up the stock of cars, after which new purchases are largely to replace old cars. (These new purchases will still be greater than before because with a larger stock of cars outstanding, more cars need to be replaced each year.) Clearly, the short-run income elasticity of demand will be much larger than the long-run elasticity. Because the demands for durable goods fluctuate so sharply in response to short-run changes in income, the industries that produce these goods are very vulnerable to changing macroeconomic conditions, and in particular to the business cycle—recessions and booms. Hence, these industries are often called *cyclical* industries—their sales tend to magnify cyclical changes in gross national product (GNP) and national income.

THE MATHEMATICS OF MARKET EQUILIBRIUM

A market equilibrium is the price and the quantity, denoted as the pair (Q^*, P^*), of a commodity bought or sold at price P^*. The following mathematical note provides an introduction of how a market equilibrium (Q^*, P^*) is derived.

The market equilibrium is found by using the market demand (buyers' behaviour), the market supply (sellers' behaviour), and the negotiating process (to find the agreed upon price and quantity, namely P^* and Q^*, on which to transact). The market equilibrium is identified by the condition reached at the end of the negotiating process that at the price they negotiated, P^*, the quantity of the commodity that buyers are willing to buy, denoted as Q_D, and the quantity sellers are willing to sell, denoted as Q_S, matches exactly.

The equation describing the downward sloping demand, in which Q_D represents the quantity demanded by buyers and P the price, is

$$P = a - bQ_d$$

The demand tells us that if the price is higher than a then the buyers will not buy; thus, for a transaction to occur the price must be lower. The demand also tells us that at a price lower than a the quantity demanded by the buyers increases. Buyers' behaviour, as described by the demand equation, is that at lower prices buyers buy more quantity.

The equation describing the upward sloping market supply function, in which Q_S represents the quantity supplied by sellers and P the price is

$$P = c + dQ_s$$

For the sellers if the price is lower than c then they will sell nothing. If the price is c or higher, then the supply equation states that sellers facing higher prices sell more quantity. Sellers' behaviour, as described by the supply equation, is that at higher prices sellers sell more quantity.

The negotiating process (in which price and quantity or both adjust) provides the mechanism by which, eventually, buyers and sellers agree upon a price, P^*, and a quantity, Q^*, at which they can buy and sell and thus complete the transaction. At the end of the negotiating process, the quantity demanded by the buyers, Q_D, is equal to the quantity supplied by the sellers, Q_S (at the agreed-upon price), and thus the market is in equilibrium. The mathematical representation of such a negotiating process is described in the following paragraphs.

At the agreed price, P^*, the equilibrium condition of the negotiating process, the equality in the quantity demanded and supplied, is

$$D_d = Q_S$$

Having denoted Q^* as the equilibrium quantity, then it must be that $Q^* = Q_d = Q_s$. To solve for the equilibrium quantity Q^* and the equilibrium price P^* the demand and supply functions are used. With Q^* the equilibrium quantity, for the buyers

$$P^* = a - bQ^*,$$

and for the sellers

$$P^* = c + dQ^*.$$

Now, since P^* is the same agreed-upon price by both buyer and seller, then

$$a - bQ^* = c + dQ^*,$$

giving the equilibrium quantity, Q^*, as

$$Q^* = (a - c)/(b + d).$$

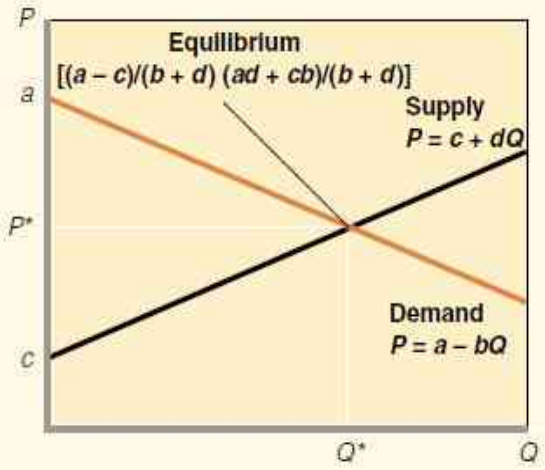
To find P^* substitute $(a - c)/(b + d)$ in the supply (or demand) function.

$$P^* = c + d(a - c)/(b + d), \text{ thus}$$
$$P^* = (ad + bc)/(a + d).$$

The equilibrium is $(Q^*, P^*) = [(a - c)/(b + d), (ad + cb)/(a + d)]$.

The market equilibrium may also be represented diagrammatically, as shown in Figure A3-1.

FIGURE A3-1



- Increase (decrease) in demand, a increases (decreases) and both Q^* and P^* increase (decrease)
- Increase (decrease) in supply, c decreases (increases) and Q^* increases (decreases) and P^* decreases (increases)

For some goods, supply is more elastic in the short run than in the long run. Such goods are durable and can be recycled as part of supply if price goes up. An example is the *secondary supply* of many metals (i.e., the supply from *scrap metal,* which is regularly melted down and refabricated). When the price of copper goes up, it increases the incentive to convert scrap copper into new supply, so that initially secondary supply increases sharply. But eventually the stock of good-quality scrap will fall, making the melting, purifying, and refabricating more costly, so that secondary supply will contract. Thus the long-run price elasticity of secondary supply will be smaller than the short-run elasticity. Figures 2.14a and 2.14b show short-run and long-run supply curves for primary (production

from the mining and smelting of ore) and secondary copper production. Table 2.3 shows estimates of the elasticities for each component of supply, and then for total supply, based on a weighted average of the component elasticities.8 Because secondary supply is only about 20 percent of total supply, the price elasticity of total supply is larger in the long run than in the short run.

These numbers might come from a statistical study done by someone else; they might be numbers that we simply think are reasonable; or they might be numbers that we want to try out on a "what if" basis. What we want to do is *write down the supply and demand curves that fit (i.e., are consistent with) these numbers.* Then we can determine numerically how a change in a variable such as GNP, the price of another good, or some cost of production will cause supply or demand to shift and thereby affect the Economy price and quantity.

STUDY QUESTIONS

1. Explain the law of demand. Why does a demand curve slope downward? What are the determinants of demand? What happens to the demand curve when each of these determinants changes? Distinguish between a change in demand and a change in the quantity demanded, noting the cause(s) of each.

2. KEY QUESTION What effect will each of the following have on the demand for product B?
   a. Product B becomes more fashionable.
   b. The price of substitute product C falls.
   c. Income declines and product B is an inferior good.
   d. Consumers anticipate the price of B will be lower in the near future.
   e. The price of complementary product D falls.
   f. Foreign tariff barriers on product B are eliminated.

3. Explain the following news dispatch from Hull, England: "The fish market here slumped today to what local commentators called 'a disastrous level'—all because of a shortage of potatoes. The potatoes are one of the main ingredients in a dish that figures on almost every café menu—fish and chips."

4. Explain the law of supply. Why does the supply curve slope upward? What are the determinants of supply? What happens to the supply curve when each of these determinants changes? Distinguish between a change in supply and a change in the quantity supplied, nothing the cause(s) of each.

5. KEY QUESTION What effect will each of the following have on the supply of product B?
   a. A technological advance in the methods of producing product B.
   b. A decline in the number of firms in industry B.
   c. An increase in the prices of resources required in the production of B.
   d. The expectation that the equilibrium price of B will be lower in the future than it is currently.
   e. A decline in the price of product A, a good whose production requires substantially the same techniques and resources as does the production of B.
   f. The levying of a specific sales tax on B.
   g. The granting of a 50-cent per-unit subsidy for each unit of B produced.

6. "In the corn market, demand often exceeds supply and supply sometimes exceeds demand." "The price of corn rises and falls in response to changes in supply and demand." In which of these two statements are the terms *supply* and *demand* used correctly? Explain.

7. KEY QUESTION Suppose the total demand for wheat and the total supply of wheat per month in the Winnipeg grain market are as follows:

Thousands of bushels demanded	Price per bushel	Thousands of bushels supplied	Surplus (+) or shortage (–)
85	$3.40	72	_____
80	$3.70	73	_____
75	$4.00	75	_____
70	$4.30	77	_____
65	$4.60	79	_____
60	$4.90	81	_____

   a. What is the equilibrium price? What is the equilibrium quantity? Fill in the surplus–shortage column and use it to explain why your answers are correct.
   b. Graph the demand for wheat and the supply of wheat. Be sure to label the axes of your graph correctly. Label equilibrium price *P* and equilibrium quantity *Q*.
   c. Why will $3.40 not be the equilibrium price in this market? Why not $4.90? "Surpluses drive prices up; shortages drive them down." Do you agree?
   d. Now suppose that the government establishes a ceiling (legal maximum) price of, say, $3.70 for wheat. Explain carefully the effects of this ceiling price. Demonstrate your answer graphically. What might prompt government to establish a ceiling price?

8. **KEY QUESTION** How will each of the following changes in demand and/or supply affect equilibrium price and equilibrium quantity in a competitive market; that is, do price and quantity rise, fall, or remain unchanged, or are the answers indeterminate because they depend on the magnitudes of the shifts? Use supply and demand diagrams to verify your answers.

   a. Supply decreases and demand is constant.

   b. Demand decreases and supply is constant.

   c. Supply increases and demand is constant.

   d. Demand increases and supply increases.

   e. Demand increases and supply is constant.

   f. Supply increases and demand decreases.

   g. Demand increases and supply decreases.

   h. Demand decreases and supply decreases.

9. "Prices are the automatic regulator that tends to keep production and consumption in line with each other." Explain.

10. Explain: "Even though parking meters may yield little or no revenue, they should nevertheless be retained because of the rationing function they perform."

11. Critically evaluate: "In comparing the two equilibrium positions in Figure 3-6a, I note that a larger amount is actually purchased at a higher price. This refutes the law of demand."

12. Suppose you go to a recycling centre and are paid $.25 per kilogram for your aluminum cans. However, the recycling firm charges you $.20 per bundle to accept your old newspapers. Use demand and supply diagrams to portray both markets. Explain how different government policies with respect to the recycling of aluminum and paper might account for these different market outcomes.

13. **Advanced analysis:** Assume that demand for a commodity is represented by the equation $P = 10 - .2Q_d$ and supply by the equation $P = 2 + .2Q_s$, where Q_d and Q_s are quantity demanded and quantity supplied, respectively, and P is price. Using the equilibrium condition $Q_s = Q_d$, solve the equations to determine equilibrium price. Now determine equilibrium quantity. Graph the two equations to substantiate your answers.

14. **(Last Word)** Discuss the economic aspects of ticket scalping, specifying gainers and losers.

INTERNET APPLICATION QUESTION

1. **Changes in Demand—Baby Diapers and Retirement Villages** Other things equal, an increase in the number of buyers for a product or service will increase demand. Baby diapers and retirement villages are two products designed for different population groups. The U.S. Census www.census.gov/ipc/www/idbpyr.html provides population pyramids (graphs that show the distribution of population by age and sex) for countries for the current year, 2025, and 2050. View the population pyramids for Mexico, Japan, and Canada. Which country would you expect to have the greatest percentage increase in demand for baby diapers in the year 2050? For retirement villages? Which country would you expect to have the greatest absolute increase in demand for baby diapers? For retirement villages?

QUICK REVIEW

- 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 the 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 of demand and supply because the other-things-equal assumption is violated.

Review Questions

1. Suppose that unusually hot weather causes the demand curve for ice cream to shift to the right. Explain why the price of ice cream will rise to a new Economy-clearing level.

2. Use supply and demand curves to illustrate how each of the following events would affect the price of butter and the quantity of butter bought and sold: (a) an increase in the price of margarine; (b) an increase in the price of milk; (c) a decrease in average income levels.

3. Suppose a 3 percent increase in the price of corn flakes causes a 6 percent decline in the quantity demanded. What is the elasticity of demand for corn flakes?

4 . Why do long-run elasticities of demand differ from short-run elasticities? Would you

expect the price elasticity of demand for paper towels to be larger in the short run or in the long run? Why? What about the price elasticity of demand for televisions?

5. Explain why for many goods, the long-run price elasticity of supply is larger than the short-run elasticity.

6. Suppose the government regulates the prices of beef and chicken and sets them below their Economy-clearing levels. Explain why shortages of these goods will develop and what

factors will determine the sizes of the shortages. What will happen to the price of pork? Explain briefly.

7. In a discussion of tuition rates, a university official argues that the demand for admission is completely price inelastic. As evidence she cites the fact that the university has doubled its tuition (in real terms) over the past 15 years, but the number or quality of students applying has not decreased. Would you accept this argument? Explain briefly.

Unit 6. Production (2 hours)

6.1. The technology of production.
6.2. Isoquants.
6.3. Production with one variable input (labor).
6.4. Production with two variable input.
6.5. Measuring production functions

6.1. The technology of production.

In the last three chapters we focused on the demand side of the Economy the preferences and behavior of consumers. Now we turn to the supply side and examine the behavior of producers. We will see how firms can organize their production efficiently and how their costs of production change as input prices and the level of output change. We will also see that there are some strong similarities between the optimizing decisions of firms and those of consumers understanding consumer behavior will help us understand producer behavior.

The theory of production and cost is central to the economic management of the firm. Just consider some of the problems that a company like General Motors faces regularly. How much assembly-line machinery and how much labor should it use in its new automobile plants? If it wants to increase production, should it hire more workers, or should it also construct new plants? Does it make more sense for one automobile plant to produce different models, or should each model be manufactured in a separate plant? What should GM expect its costs to be during the coming year, and how are these costs likely to change over time and be affected by the level of production? These questions apply not only to business firms, but also to other producers of goods and services, such as governments and nonprofit agencies.

In this chapter we study the firm's production technology the physical relationship that describes how inputs (such as labor and capital) are transformed into outputs (such as cars and televisions). We do this in several steps. First, we show how the production technology can be represented in the form of a production function—a compact description that facilitates the analysis. Then, we use the production function to show how the firm's output changes when first one and then all the inputs are varied. We will be particularly concerned with the scale or size of the firm's operation. Are there technological advantages that make the firm more productive as its size increases? We will also examine production by a multiproduct firm. For example, we will see how the manager of a firm that produces two different products can allocate scarce inputs to maximize the output of both products. Finally, we will see how to obtain and use empirical information about a firm's production process, including the presence of cost advantages resulting from producing a large output.

Production is what firms do. Firms turn *inputs,* which are also called *factors of production,* into *outputs.* For example, a bakery uses such inputs as the labor of its workers, raw materials like flour and sugar, and the capital invested in its ovens, mixers, and other equipment to produce outputs such as bread, cakes, and pastries. We can divide inputs into the broad categories of labor, materials, and capital, each of which includes more narrow subdivisions. Thus, labor inputs include skilled workers (carpenters, engineers) and unskilled workers (agricultural workers), as well as the entrepreneurial efforts of the firm's managers. Materials include steel, plastics, electricity, water, and any other goods that the firm buys and transforms into a final product. Capital includes buildings, equipment, and

inventories. The relationship between the inputs to the production process and the resulting

output is described by a production function. A *production function* indicates the maximum output *Q* that a firm can produce for every specified combination of inputs. For simplicity, we assume that there are two inputs, labor L and capital *K.* We can then write the production function.

$$Q = F(K,L) \qquad (6.1)$$

This equation states that the quantity of output depends on the quantitites of the two inputs, capital and labor. For example, the production function might describe the maximum number of personal computers that can be produced in a given year with existing computer chip technology, a given plant size, and a specific amount of assembly-line labor. Or the production function could describe the maximum crop that a farmer can obtain under a given set of weather conditons with a specific amount of farm machinery and workers. Thus, the production function reflects that inputs can be combined to produce a given

output in many ways. For example, wine can be produced in a labor-intensive way by people stomping the grapes, or in a capital-intensive way by machines squeezing the grapes. Note that equation (6.1) applies to a *given technology* (i.e.,a given state of knowledge about the various methods that might be used to transform inputs into outputs). As the technology becomes more advanced, a firm can obtain more output for a given set of inputs.

6.2. Isoquants

Let's begin by considering the firm's production technology when it can vary both of its two inputs, labor and capital. Suppose that food (the output) is produced by using labor and capital. Table 6.1 tabulates the maximum output achievable for various combinations of inputs. Labor inputs are listed across the top row, capital inputs down the column on the left. Each entry in the table is the maximum output that can be produced with each combination of labor and capital inputs. (For example, 2 units of capital and 4 units of labor yield 85 units of food.) Reading along each row we see that total output increases as labor inputs are increased, with capital inputs fixed. Reading down each column, we see that total product also increases as capital inputs are increased, with labor inputs fixed. The information contained in Table 6.1 can also be represented graphically using isoquants. An *isoquant* is a curve that shows *all the combinations o f inputs that yield the same total output.* Figure 6.1 shows three production isoquants. (Each axis in the figure measures the amount of inputs for a particular period.)

They are determined directly from Table 6.1 but have been drawn as smooth curves to allow for the use of fractional amounts of inputs. For example, isoquant Q, measures all combinations of inputs that combine to yield 55 units of output. Two of these points, *A* and D, correspond to Table 6.1, and the remainder of the curve portrays the typical shape of an isoquant. At *A, 1* unit of labor and 3 units of capital yield 55 units of output; whereas at D, the same output is produced from 3 units of labor and 1 unit of capital. Isoquant Q2 measures all combinations of inputs that yield 75 units of output and corresponds to the four combinations of labor and capital underlined in the table. Isoquant *Q2* lies above and to the right of *Q1* because it takes more of either labor or capital or both to obtain a higher level of output. Isoquants are similar to the indifference curves that we used to study consumer theory. Where indifference curves order levels of satisfaction from low to high, isoquants

order levels of output. However, unlike indifference curves, each isoquant is associated with a *specific level of output.*

By contrast, the numerical labels attached to indifference curves are meaningful only in an ordinal way—higher levels of utility are associated with higher indifference curves, but we cannot measure a specific level of utility the way we can measure a specific level of output with an isoquant. An *isoquant map* is a set of isoquants each of which shows the maximum output that can be achieved for any set of inputs. An isoquant map is an alternative way of describing a production function, just as an indifference map is a different way of describing a utility function. An infinite number of isoquants make up an isoquant map. Each isoquant is associated with a different level of output, and the level of output increases as you move up and to the right in the figure.

Isoquants show the flexibility that firms have when making production decisions. In most cases, firms can obtain a particular output using various combinations of inputs. The manager of a firm must understand the nature of this flexibility. As we will see, this knowledge allows the manager to choose input combinations that minimize costs and aximize profit.

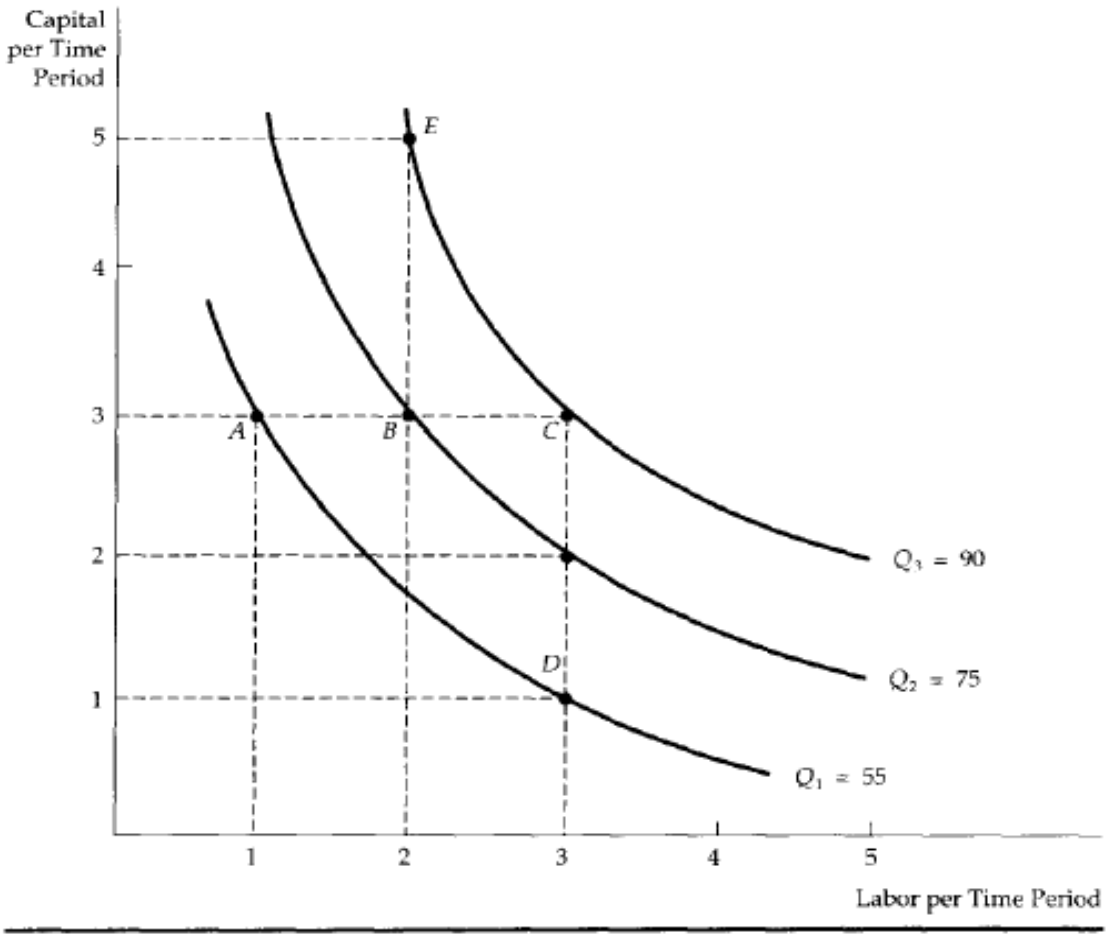


FIGURE 6.1 Production with Two Variable Inputs. Production isoquants show the various combination of inputs necessary for the firm to produce a given output. A set of isoquants, or isoquant map, describes the firm's production function. Output increases as one moves from isoquant Q_1 (55 units) to isoquant Q_2 (75 units) and to isoquant Q_3 (90 units).

6.3. Production with one variable input (labor).

Let's consider the case in which capital is fixed, but labor is variable, so that the firm can produce more output by increasing its labor input. Imagine, for example, that you are managing a clothing plant. You have a fixed amount of equipment, but you can hire more or less labor to sew and to run the machines. You have to decide how much labor to hire and how much clothing to produce. To make the decision, you will need to know how the amount of output Q increases (if at all), as the input of labor L increases. Table 6.2 gives this information about the production function. It shows the amount of output that can be produced with different amounts of labor, and with capital fixed at ten units. (The first column shows the amount of labor, the second shows the fixed amount of capital, and the third shows output.) When labor input is zero, output is also zero.

Then up to a labor input of eight units, output increases as labor is increased. Beyond that point, total output declines: while initially each unit of labor can take greater and greater advantage of the existing machinery and plant, after a certain point, additional labor is no longer useful and can indeed be counterproductive. (Five people can run an assembly line better than two, but ten people may get in each other's way.)

6.4. Production with two variable input

Now that we have seen the relationship between production and productivity, let's reconsider the firm's production technology in the long-run setting, where two inputs (instead of one) are variable. We can examine the alternative ways of producing by looking at the shape of a series of isoquants. The isoquants shown in Figure 6.4 are reproduced from Figure 6.1; they all slope downward because both labor and capital have positive marginal products. More of either input increases output; so if output is to be kept constant as more of one input is used, less of the other input must be used. There are diminishing returns to both labor and capital in this example as well. To see why there are diminishing returns to labor, for example, draw a horizontal line at a particular level of capital, say 3. Reading the levels of output from each isoquant as labor is increased, we note that each additional unit of labor generates less and less additional output.

For example, when labor is increased from 1 unit to 2 (from *A* to *B),* output increases by 20 (from 55 to 75). However, when labor is increased by an additional unit (from *B* to C), output increases by only 15 (from 75 to 90). Thus, there are diminishing returns to labor both in the long and the short run. Because adding one factor while holding the other factor constant eventually leads to lower and lower increments to output, the isoquant must become both steeper and steeper, as more capital is added in place of labor, and flatter and flatter when labor is added in place of capital.

There are also diminishing returns to capital. With labor fixed, the marginal product of capital decreases as capital is increased. For example, when capital is increased from 1 to 2 and labor is held constant at 3, the marginal product of capital is initially 20 (75 - 55), but he

marginal product falls to 15 (90-75) when capital is increased from 2 to 3.

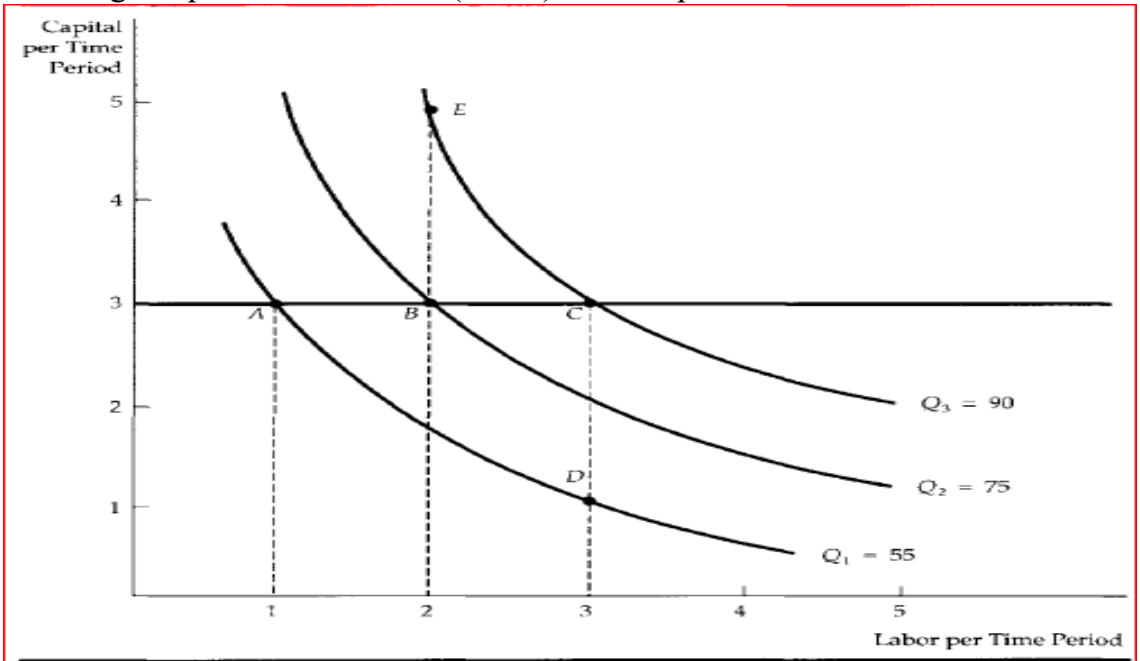
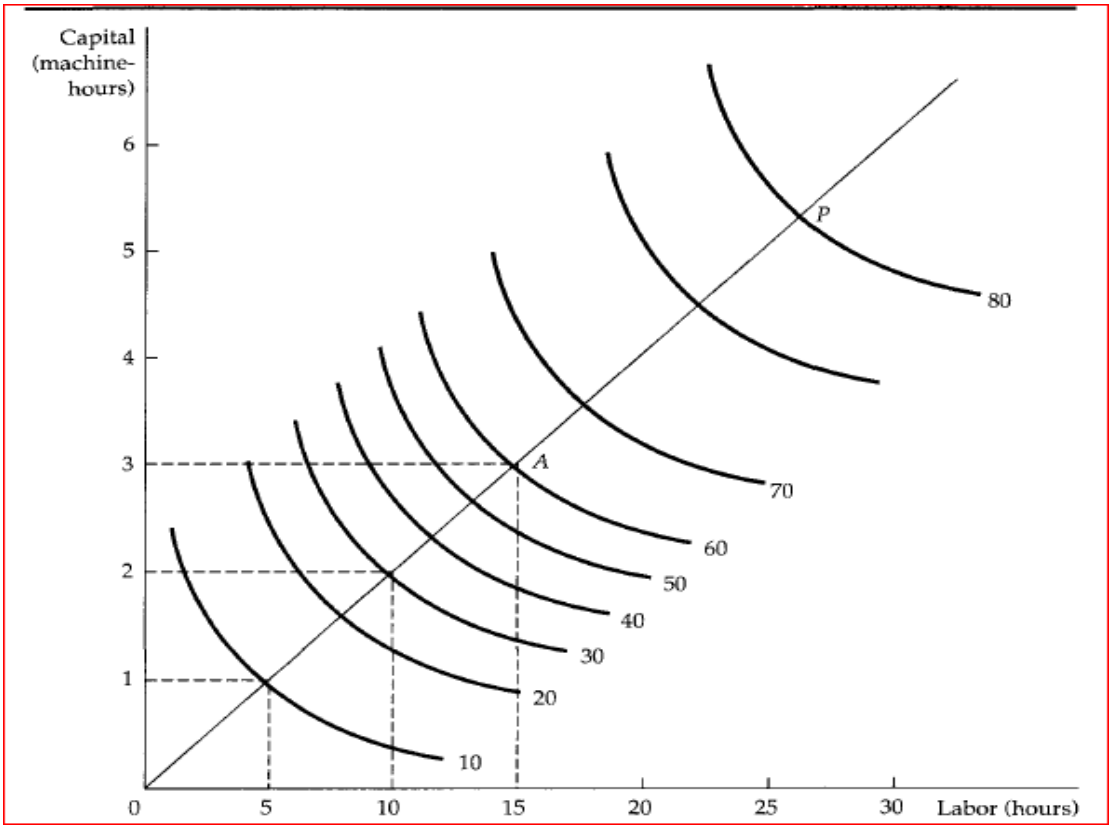


FIGURE 6.4 The Shape of Isoquants. In the long run when both labor and capital are variable, both factors of production can exhibit diminishing returns. As we move from *A* to *C*, there are diminishing returns to labor, and as we move from *D* to *C*, there are diminishing returns to capital.



Questions for Review

1. What is a production function? How does a long-run production function differ from a short-run production function?

2 . Why is the marginal product of labor likely to increase and then decline in the short run?

3. Diminishing returns to a single factor of production and constant returns to scale are not inconsistent. Discuss.

4 . How does the curvature of an isoquant relate to the marginal rate of technical ubstitution

along an isoquant?

5. If a firm has several divisions, what condition should the firm satisfy when allocating a fixed input toward the production of each of the divisions' products?

6. Can a firm have a production function that exhibits increasing returns to scale, constant returns to scale, and decreasing returns to scale as output increases? Discuss.

7. Give an example of a production process in which the short run involves a day or a week, and the long run any period longer than a week.

8. Suppose a political campaign manager has to decide whether to emphasize television advertisements or letters to potential voters in a reelection campaign. Describe the production function for campaign votes. How might information about this function (such as the shape of the isoquants) help the campaign manager to plan strategy?

9. Suppose you are a student with a fixed amount of time to prepare for two exams. Imagine that your function is to produce grades, and you are managing two divisions, one for each course in which you have an exam. How might information about the marginal product of labor in the preparation of each exam help

Unit 7. The cost of production (2 hours)

7.1. Measuring costs: Which costs matter.
7.2. Costs in the short-run.
7.3. Costs in the long-run.
7.4. Long-run versus short-run costs curves.

7.1. Measuring costs: Which costs matter

In the last chapter we examined the firm's production technology—the relationship that shows how factor inputs can be transformed into outputs. Now we will see how the production technology, together with the prices of factor inputs, determine the firm's costs of production. Given their firm's production technology, managers must decide *how* to produce. As we saw, inputs can be combined in different ways to yield the same amount of output. For example, one can produce a certain quantity of output with a lot of labor and very little capital, with very little labor and a lot of capital, or with some other combination of the two. In this chapter we see how the optimal combination of factor inputs is chosen. We will also see how a firm's costs depend on its rate of output, and how they are likely to change over time.

We begin by explaining how cost is defined and measured, distinguishing between the concept of cost used by economists, who are concerned about the firm's performance, and by accountants, who may be more concerned with the firm's financial statements. We then examine how the characteristics of the firm's production technology affect costs, both in the short run when the firm can do little to change its capital stock, and in the long run when the firm can change all its factor inputs.

In Chapter 6 we showed how a firm can allocate its scarce resources between two divisions to maximize total output. In this chapter we examine the production of two outputs in greater detail and show how the concept of returns to scale applies more generally to the process of producing not just two but many different outputs. We also show how costs sometimes fall over time as managers and workers learn from experience, so that the production process becomes more efficient and less costly. Finally, we describe how to estimate cost functions and show how firms can use empirical information about costs.

Before we can analyze how costs are determined and why they change, we need to be clear about what we mean by costs and how we measure them. What items should be included as part of a firm's costs? Costs obviously include the wages a firm pays its workers and the rent it pays for office space. But what if the firm already owns an office building and doesn't have to pay rent? And how should we treat money that the firm spent two or three years ago (and can't recover) for equipment or for research and development? We'll answer these questions in the context of the economic decisions that managers make.

An economist thinks of cost differently from an accountant, who is concerned with the firm's financial statements. Accountants tend to take a retrospective look at a firm's finances, because they have to keep track of assets and liabilities and evaluate past performance. Accounting costs include actual expenses and depreciation expenses for capital equipment, which are determined on the basis of the allowable tax treatment by the Internal Revenue Service.

Economists—and we hope managers—on the other hand, take a forwardlooking view of the firm. They are concerned with what costs are expected to be in the future, and with how the firm might be able to lower its costs and improve its profitability. They must therefore be concerned with *opportunity costs,* the costs associated with opportunities that are forgone by not putting the firm's resources to their highest valued use.

Opportunity costs include the explicit outlays that a firm makes, but they include much more, as we will see. Accountants and economists both include actual outlays, called *explicit costs,* in their calculations. Explicit costs include wages, salaries, and the costs of materials and property rentals. For accountants, explicit costs are important because they involve direct payments by a company to other firms and individuals that it does business with. These costs are relevant for the economist because the costs of wages and materials represent money that could have usefully been spent elsewhere. Explicit costs involve opportunity costs as well; for example, wages are the opportunity costs for labor inputs purchased in a competitive Economy.

7.2. Costs in the short-run

In the short run, some of the firm's inputs to production are fixed, yet others can be varied to change the rate of output. The *total cost* TC of producing a good then has two components: *the fixed cost* FC, which is borne by the firm whatever level of output it produces, and the *variable cost* VC, which varies with the level of output. Depending on circumstances, fixed costs may include expenditures for plant maintenance, insurance, and perhaps a minimal number of employees these costs remain the same no matter how much the firm produces.

Variable costs include expenditures for wages, salaries, and raw materials these costs increase as output increases. Fixed costs can be controlled in the long run but do not vary with the level of output in the short run. (They must be paid even if there is no output.)

We will see in the next chapter that in the long run a firm may decide to go out of business and thereby forgo its outlays on fixed costs. Fixed costs are therefore an integral part of the decision-making process of the manager of a firm. To decide how much to produce, managers of firms need to know how variable costs increase with the level of output. To address this issue, we need to develop some additional cost measures. We will use a specific example that typifies the cost situation of many firms.

After we explain each of the cost concepts, we will describe how they relate to our analysis of the firm's production process in Chapter 6. The data in Table 7.2 describe a firm with a fixed cost of $50. Variable cost increases with output, as does total cost. The total cost is the sum of the fixed cost in column (1) and the variable cost in column (2). From the cost figures given in columns (1) and (2), a number of additional cost variables can be defined.

Marginal Cost (MC) *Marginal cost—sometimes called incremental cost—is the increase in cost that results from producing one extra unit of output.* Because fixed cost does not change as the firm's level of output changes, marginal cost is just the increase in variable cost that results from an extra unit of output. We can therefore write marginal cost as

$$MC = \Delta VC/\Delta Q$$

Marginal cost tells us how much it will cost to expand the firm's output by one unit. In Table 7.2, marginal cost is calculated from either the variable cost column (2) or the total cost column (3). For example, the marginal cost of increasing output from 2 to 3 units is $20, because the variable cost of the firm increases from $78 to $98. (Total cost of production also increases by $20, from $128 to $148. Total cost differs from variable cost only by the fixed cost, which by definition does not change as output changes.)

Average Cost (AC) *Average cost is the cost per unit of output.* There are three types of average cost: average fixed cost, average variable cost, and average total cost. *Average fixed cost* AFC is the fixed cost (Column 1) divided by the level of output, FC/Q. For example, the average fixed cost of producing four units of output is $12.5 ($50/4). Because fixed cost is constant, average fixed cost declines as the rate of output increases. *Average variable cost* (AVC) is variable cost divided by the level of output VC/Q.

The average variable cost of producing five units of output is $26, $130 divided by 5. Finally, *average total cost* ATC is the total cost divided by the level of output TC/Q. Thus, the average total cost of producing at a rate of five units is $36, $180/5. Basically, average total cost tells us the per unit cost of production. By comparing the average total cost to the price of the product, we can determine whether production is profitable.

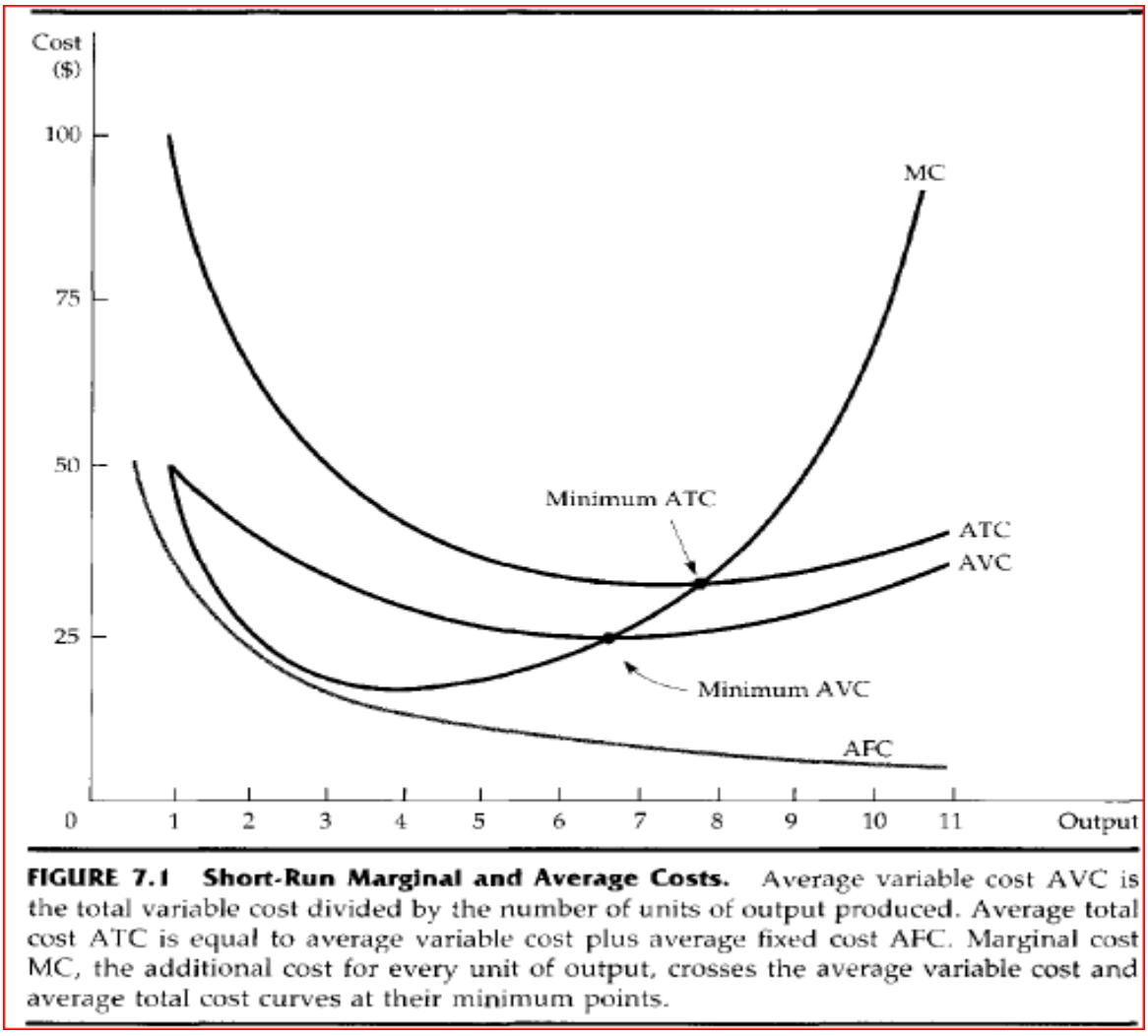


FIGURE 7.1 Short-Run Marginal and Average Costs. Average variable cost AVC is the total variable cost divided by the number of units of output produced. Average total cost ATC is equal to average variable cost plus average fixed cost AFC. Marginal cost MC, the additional cost for every unit of output, crosses the average variable cost and average total cost curves at their minimum points.

7.4. Long-run versus short-run costs curves.

In the long run the firm can change all its inputs. In this section we show how a manager chooses the combination of inputs that minimizes the cost of produring a given output. We will also seek to obtain information about the rela- "tionship between long-run cost and the level of output.

Let's begin by considering a fundamental problem that all firms face: *how to select inputs to produce a given output at minimum cost.* For simplicity, we will work with two variable inputs: labor (measured in hours of work) and capital (measured in hours of use of machinery). We assume that both labor and capital can be hired (or rented) in competitive Economys. The price of labor is the wage rate w, and the price of capital is the rental rate for machinery r. We assume that capital is rented rather than purchased, so that we can put all business decisions on a comparable basis.

For example, labor services might be hired at a wage of $12,000 per year, or capital might be “rented" for $75,000 per machine per year. Because capital and labor inputs are competitively hired, we can take the price of inputs as fixed. We can then focus on the firm's optimal combination of factors, without worrying about whether large purchases will cause the price of an input to increase.

The Isocost Line

We begin by looking at the costs of production, which can be represented by a firm's isocost lines. An *isocost line* includes all possible combinations of labor and capital that can be purchased for a given total cost. To see what an isocost line looks like, recall that the total cost TC of producing any particular output is given by the sum of the firm's labor cost wL and its capital cost rK:

$$TC = wL + rK \qquad (7.3)$$

For each different level of total cost, equation (7.3) describes a different isocost line. For example, in Figure 7.2, the isocost line C_0 describes all possible combinations of inputs that cost C_0 to purchase.

If we rewrite the total cost equation (7.3) as an equation for a straight line, we get

$$K = TC/r - (w/r)L$$

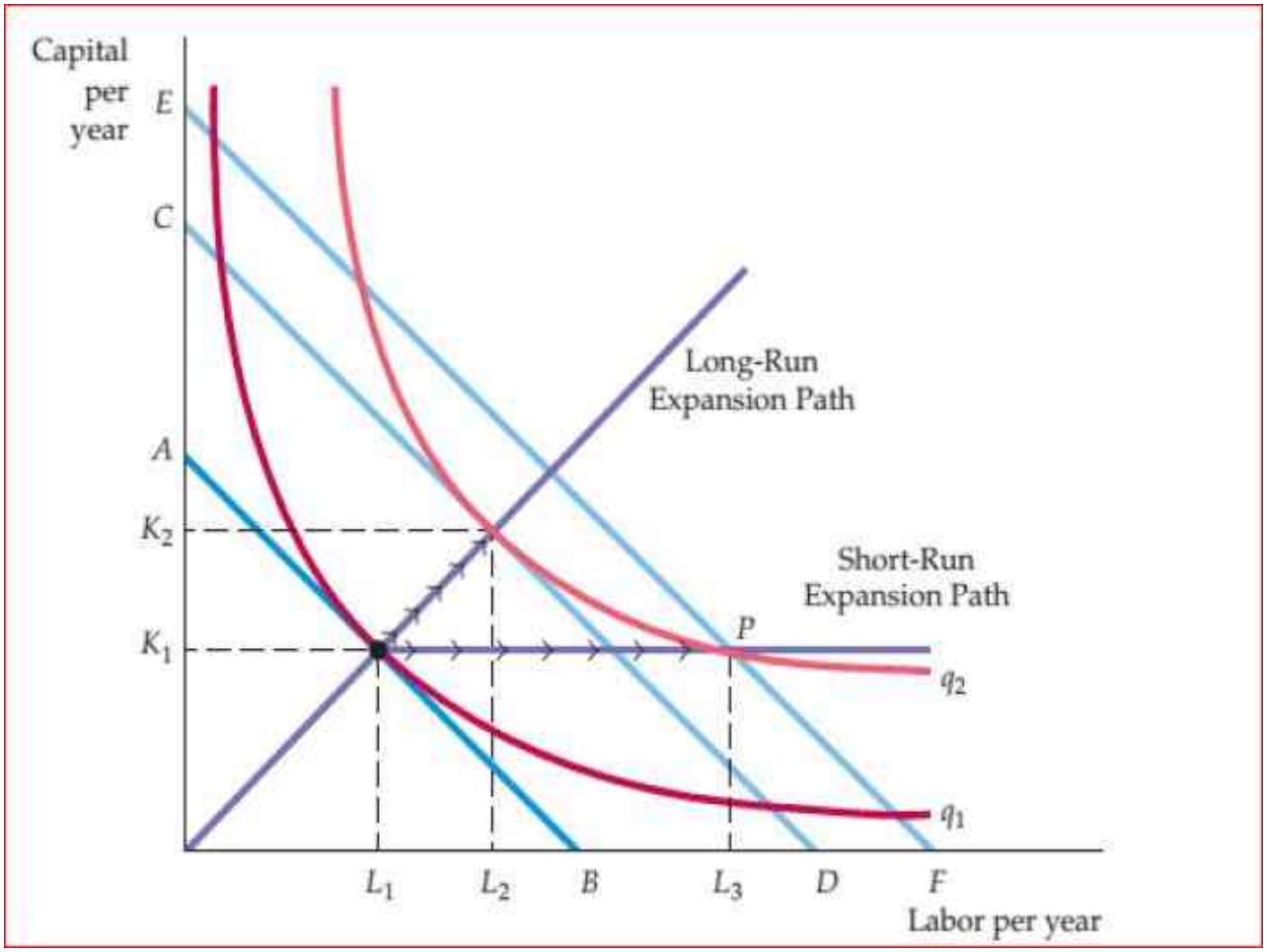
It follows that the isocost line has a slope of $\Delta K/\Delta L = -(w/r)$, which is the ratio of the wage rate to the rental cost of capital. This slope is similar to the slope of the budget line that the consumer faces (because it is determined solely by the prices of the goods in question, whether inputs or outputs). It tells us

Choosing Inputs

Suppose we wish to produce output level Qj. Flow can we do this at minimum cost? Look at the firm's production isoquant, labeled *Qv* in Figure 7.2. The problem is to choose the point on this isoquant that minimizes total costs. Figure 7.2 illustrates the solution to this problem. Suppose the firm were to spend C0 on inputs. Unfortunately, no combination of inputs can be purchased for expenditure C0 that will allow the firm to achieve output *Q1*. Output Qj can be achieved with the expenditure of C2, however, either by using *K2* units of capital and *L2* units of labor, or by using *K3* units of capital and L3 units of labor. But C2 is not the minimum cost.

The same output Qj can be produced more cheaply than this, at a cost of Cj, by using *K3* units of capital and units of labor. In fact, isocost line Q is the lowest isocost line that allows output Q2 to be produced. The point of tangency of the isoquant Q3 and the isocost line C tells us the cost-minimizing choice of inputs, and *KA,* which can be read directly from the diagram. At this point, the slopes of the isoquant and the isocost line are just equal.

When the expenditure on all inputs increases, the slope of the isocost line does not change (because the prices of the inputs have not changed), but the intercept increases. Suppose, however, that the price of one of the inputs, such as labor, were to increase. Then, the slope of the isocost line — (w/r) would increase in magnitude, and the isocost line would become steeper. Figure 7.3 shows this. Initially, the isocost line is Cv and the firm minimizes its costs of producing output Qj at *A* by using L] units of labor and *K3* units of capital.



Unit 8. Profit maximization and competitive supply (2 hours)

8.1. Do firms maximize profit?
8.2. Demand, average revenue and marginal revenue.
8.3. Choosing output in the short-run.
8.4. The competitive firm's short-run supply curve.
8.5. The short-run Economy supply curve

8.1. Do firms maximize profit?

The cost curves developed in the last chapter describe the minimum costs at which a firm can produce various amounts of output. With this knowledge, we can now turn to a fundamental problem that every firm faces: how much should be produced? In this chapter, we will see how a perfectly competitive firm chooses the level of output that maximizes its profit. We will also see how the output choice of individual firms leads to a supply curve for the entire industry. Our discussion of production and cost in Chapters 6 and 7 applies to firms in all kinds of Economys, but in this chapter we discuss only firms in perfectly competitive Economys. In a perfectly competitive Economy all firms produce the identical product, and each firm is so small in relation to the industry that its production decisions have no effect on Economy price. New firms can easily enter the industry if they perceive a potential for profit, and existing firms can stay in business even if they start losing money.

We begin by showing how a competitive firm chooses its output in the short and long run. We then show how this output choice changes as the cost of production or the prices of the firm's inputs and output change. In this way, we show how to derive the *supply curve* for an individual competitive producer. We then aggregate the supply curves of individual firms to obtain the *industry* supply curve. In the short run, firms in an industry choose which level of output to produce to maximize profit. In the long run, firms not only make output choices, but also decide whether to be in a Economy at all. We will see that the prospect of high profits encourages firms to enter an industry, while losses encourage them to leave.

In the analysis that follows, we assume that the firm's sole objective is to maximize its profit over the long run. The assumption of profit maximization is frequently used in icroeconomics because it predicts business behavior accurately and avoids unnecessary analytical complications. But whether firms do indeed maximize profit has been controversial and is worth discussing. For smaller firms managed by their owners, profit is likely to dominate almost all the firm's decisions. In larger firms, however, managers who make day-today decisions usually have very little contact with the owners (i.e., the stockholders). As a result, the owners of the firm cannot monitor the managers' behavior on a regular basis. Managers then have some leeway in how they run the firm and can deviate from profit-maximizing behavior to some extent. Managers may be more concerned with goals such as revenue maximization to achieve growth or the payment of dividends to satisfy shareholders than with profit maximization.

Managers might also be overly concerned with the firm's short-run profit (perhaps to earn a promotion or a large bonus) at the expense of its longer-run profit, even though long-run profit maximization better serves the interests of the stockholders.1 (We will discuss the implications of differences between the incentives of managers and owners of firms in greater detail in Chapter 18.)

Even so, the ability of any managers to pursue goals other than long-run profit maximization is limited. If they do, shareholders or the boards of directors can replace them, or the firm can be taken over by new management. In any case, firms that do not come close to maximizing profit are not likely to survive.

Firms that do survive in competitive industries make long-run profit maximization one of their highest priorities. Thus, our working assumption of profit maximization is sensible. Firms that have been in business for a long time are likely to care a lot about profit, whatever else their managers may appear to be doing. For example, a firm that subsidizes public television may seem public-spirited and altruistic. Yet, this beneficence is likely to be in the long-run financial interest of the firm because it generates goodwill for the firm and its products.

8.2. Demand, average revenue and marginal revenue

Profit is the difference between revenue and cost. Thus, to determine the firm's profit-maximizing output level, we must analyze its revenues. (We analyzed its costs in Chapter 7.) Our discussion of revenues first treats the general case of a downward-sloping demand curve and then the special case of the demand curve faced by a competitive firm.

Marginal and Average Revenue

The total revenue R that a firm receives is equal to the price of the product P times the number of units sold Q:

$$R(Q) = PQ$$

Revenue is written $R(Q)$ rather than just R because revenue depends on output. *Marginal revenue* MR is the change in revenue $\Delta R(Q)$ resulting from a small increase in output ΔQ:

$$MR = \Delta R(Q)/\Delta Q$$

Finally, *average revenue* AR is the revenue per unit sold:

$$AR = R(Q)/Q$$

Table 8.1 shows the behavior of marginal and average revenue for a firm facing the following demand curve: $P = 6 - Q$. Note that average revenue is just price: $AR = R/Q = PQ/Q = P$.

For this demand curve, revenue is zero when the price is \$6 because at that price nothing is sold. However, one unit is sold at a price of \$5, and then revenue is \$5. An increase in quantity from 1 to 2 increases revenue from \$5 to \$8, so that marginal revenue is \$3. As quantity increases from 2 to 3, marginal revenue falls to \$1, and when it increases from 3 to 4, marginal revenue becomes negative. Note that when marginal revenue is positive, revenue is increasing with quantity, but when marginal revenue is negative, revenue is decreasing.

When the demand curve is downward-sloping, the price (average revenue) is greater than marginal revenue because all units are sold at the same price. To increase sales by 1 unit, the price must fall, so that all units sold, not just the additional unit, earn less revenue. Note what happens in Table 8.1 when output is increased from 1 to 2 units and price is reduced to \$4. Marginal revenue is \$3: \$4 (the revenue from the sale of the additional unit of output) less \$1 (the loss of revenue from the sale of the first unit). Thus, marginal revenue (\$3) is less than price (\$4).

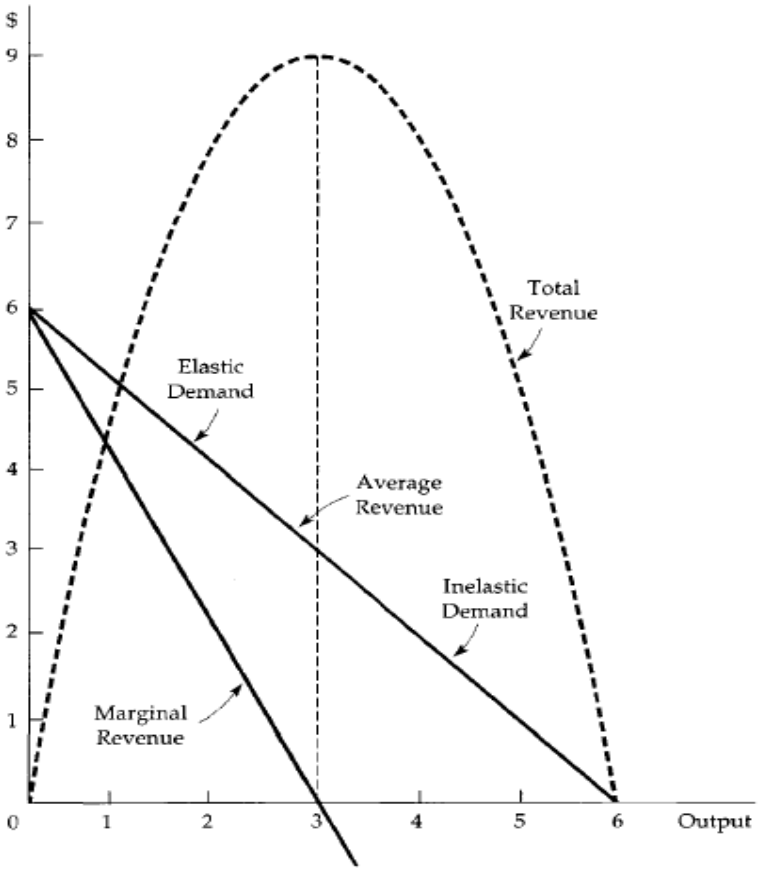


FIGURE 8.1 Marginal and Average Revenue. A firm's demand curve describes the average revenue that the firm receives by selling its product. When the market demand for a product is downward-sloping, the marginal revenue curve also slopes downward and is below average revenue.

8.3. Choosing output in the short-run.

How should the manager of a profit-maximizing firm choose a level of output over the short run, when its plant size is fixed? Here we show how a firm can use information about revenue and cost to make a profit-maximizing output decision.

Profit Maximization

In the short run a firm operates with a fixed amount of capital and must choose the levels of its variable inputs (labor and materials) to maximize profit. Because of its importance, we will derive the profit-maximizing output level three different ways: numerically, graphically, and algebraically.

Table 8.2 shows a firm's revenue and cost information. The firm is selling its product in a competitive Economy at a Economy price of $40 per unit, regardless of the number of units it sells. Note that the firm's revenue increases proportionally with output, because average revenue (i.e., price) is constant. The fixed cost of production is $50, and total cost rises with output as Table 8.2 shows. The firm's profit tt is the difference between revenue and total cost:

For low levels of output, the firm's profit is negative—revenue is insufficient to cover fixed and variable costs. As output increases, profit becomes positive and increases until output reaches 8 units. Beyond 8 units of production, profit falls, reflecting the rapid increase in the total cost of production. Observe that profit is maximized at $q^* = 8$, where MR is close to MC. Figure 8.3 shows this graphically. Part (a) shows the revenue of the firm $R(q)$ as a straight line from the origin. Its slope is the change in revenue with respect to a

change in output, which is marginal revenue. Similarly, the slope of the total cost (TC) curve is the change in cost with respect to a change in output, or marginal cost. Part (b) shows the profit of the firm i t , which is initially negative and increases to a maximum at output $q^* = 8$, and then declines. Note that when profit is maximized, the difference between R and TC (the line between *A* and £ >) is greatest (and positive). At that point the slope of the revenue curve—marginal revenue—is equal to the slope of the total cost curve—marginal cost. Thus, *profit is maximized when the marginal revenue of the firm is equal to the marginal cost o f production. This condition holds for all firms, whether perfectly competitive or not.*

This condition should also be clear from Table 8.2. For all outputs up to 8, marginal revenue is greater than marginal cost. For any output up to 8, the firm should increase output further, because total profit will increase. At an output of 9, however, marginal cost becomes greater than marginal revenue, so that additional production would reduce profit rather than raise it. Table 8.2 does not show an output at which marginal revenue is exactly equal to marginal cost. It does show, however, that when MR(^) > MC(^), output should be increased, and when MR(^) < MC(^), it should be reduced. If the table could list output levels in small enough units, the rule that MR(tj) = MC(^) would hold exactly. The same rule can be derived algebraically. Profit is

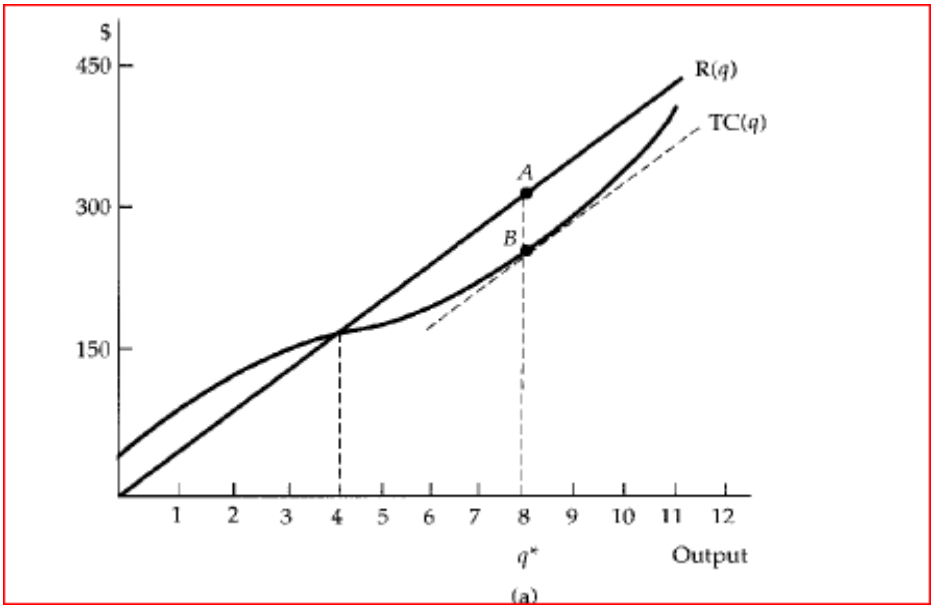
$$\pi(q) = R(q) - TC(q) \tag{8.2}$$

and is maximized at the point at which an additional increment to output just leaves profit unchanged (i.e., $\Delta\pi(q)/\Delta q = 0$):

$$\Delta\pi(q)/\Delta q - \Delta R(q)/\Delta q - \Delta TC(q)/\Delta q = 0 \tag{8.3}$$

$\Delta R(q)/\Delta q$ is the change in revenue associated with a change in output, or marginal revenue, and $\Delta TC(q)/\Delta q$ is marginal cost. Thus, we conclude that profit is maximized when[4]

$$\boxed{MR(q) = MC(q)}$$



8.4. The competitive firm's short-run supply curve

A *supply curve* for a firm tells us how much output it will produce at every possible price. We have seen that firms will increase output to the point at which price is equal to marginal cost, but they will shut down if price is below average variable cost. Therefore, for positive output the firm's supply curve is the portion of the marginal cost curve that lies above the average variable cost curve.

Since the marginal cost curve cuts the average variable cost curve at its minimum point (recall our discussion in Chapter 7 of marginal and average cost), *the firm's supply curve is its marginal cost curve above the point of minimum average variable cost.* For any *P* greater than minimum AVC, the profit-maximizing output can be read directly from the graph. At a price *P1* in Figure 8.6, for example, the quantity supplied will be *qv* and at *P2* it will be *q2*- For *P* less than (or equal to) minimum AVC, the profit-maximizing output is equal to zero. In Figure 8.6 the entire supply curve is the cross-hatched portion of the vertical axis and the marginal cost curve.

Short-run supply curves for competitive firms slope upwards for the same reason that marginal costs increase—the presence of diminishing returns to one or more factors of production. As a result, an increase in the Economy price will induce those firms already in the Economy to increase the quantitites they produce. The higher price makes the additional production profitable and also increases the firm's *total* profit, because it applies to all units that the firm produces.

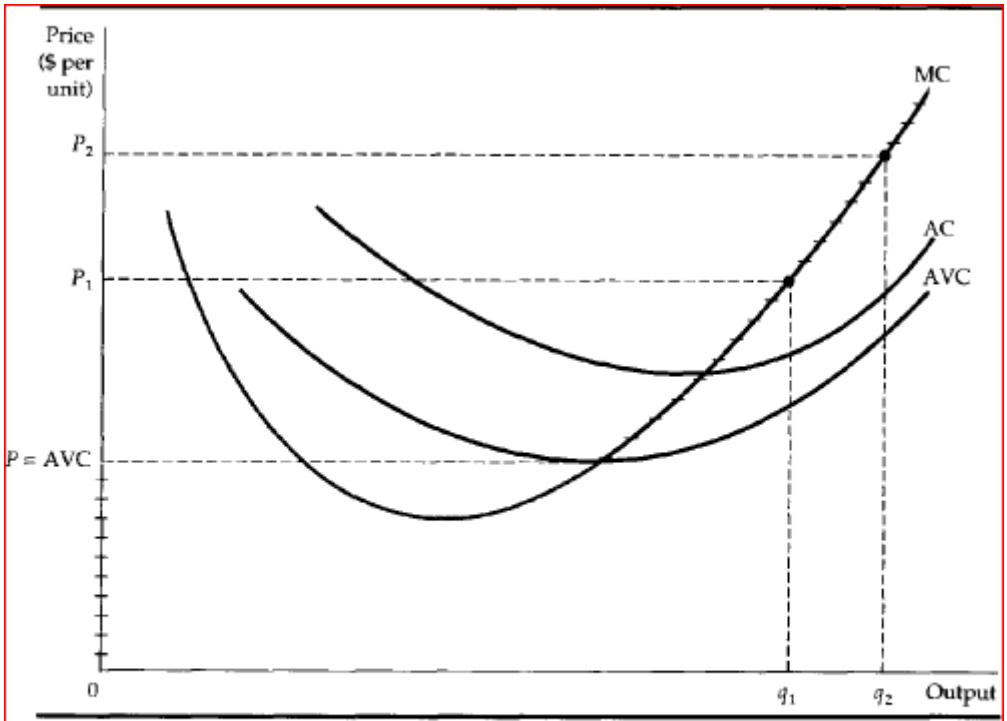


FIGURE 8.6 The Short-Run Supply Curve of a Competitive Firm. In the short run the firm chooses its output so that marginal cost MC is equal to price, so long as it covers its variable costs of production. The short-run supply curve is given by the cross-hatched portion of the marginal cost curve.

The Firm's Response to an Input Price Change

When the price of a product changes, the firm changes its output level, so that the marginal cost of production remains equal to the price. Often, however, output price changes at the same time that the prices of *inputs* change. In this section we show how the firm's output decision changes in response to a change in the prices of one of the firm's inputs. Figure 8.7 shows a firm's marginal cost curve that is initially given by MC, when the firm faces a price of $5 for its product. The firm maximizes its profit by producing an output of *qv* Now suppose the price of one of the firm's inputs increases. This causes the marginal cost curve to shift upward from MQ to MC2, because it now costs more to produce each unit of output. The new profitmaximizing output is *q2*> which *P* = MC2. Thus, the higher input price causes the firm to reduce its output.

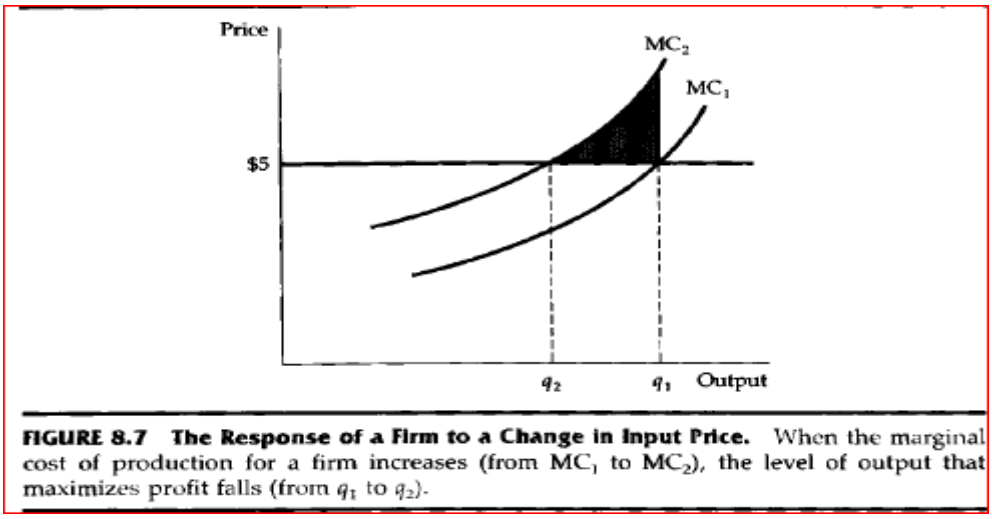


FIGURE 8.7 The Response of a Firm to a Change in Input Price. When the marginal cost of production for a firm increases (from MC_1 to MC_2), the level of output that maximizes profit falls (from q_1 to q_2).

Questions for Review

1. Explain why a firm that incurs losses would choose to produce rather than shut down.
2. The supply curve for a firm in the short run is the short-run marginal cost curve (above the point of minimum average variable cost). Explain why the supply curve in the long run is *not* the long-run marginal cost curve (above the point of minimum average total cost).
4. In long-run equilibrium all firms in the industry earn zero economic profit. Why is this true?
5. What is the difference between economic profit and producer surplus?
6. An increase in the demand for video films increases the salaries of actors and actresses substantially. Is the long-run supply curve for films likely to be horizontal or upward- loping? Explain.
7. True or false: A firm should always produce at an output at which long-run average cost is minimized. Explain.
8. Can there be constant returns to scale in an industry with an upward-sloping supply curve? Explain.
9. What assumptions are necessary for a Economy to be perfectly competitive? In light of what you have learned in this chapter, describe why each of these assumptions is important.

ARTICLES

Determinants of foreign investment flows to "Uzbekistan railway" joint-stock: a cross-sectional analysis

One of the economic problems of «Uzbekistan railway» joint-stock is that they do not have enough national savings to finance their investments. They are in constant need of foreign capital in forms of both direct and indirect investments. Initially, they took loans from international commercial banks. But in the 1980s the drying-up of commercial bank lending, because of debt crises, forced many countries to reform their investment policies so as to attract more stable forms of foreign capital, and foreign investment appeared to be one of the easiest way to get foreign capital without undertaking any risks linked to the debt. Thus, it became an attractive alternative to bank loans as a source of capital inflows.

Today, as mentioned in Uzbekistan has been actively trying to attract foreign investment offering income tax holidays, import duty exemptions and subsidies to foreign firms, as well as measures like Economy preferences, infrastructures and sometimes even monopoly rights.

Dunning is one of the most referenced one by authors working on foreign investment. Dunningdescribes three main types of foreign investment based on the motive behind the investment from the perspective of the investing firm. The first type of foreign investment is called Economy-seekingforeign investment, whose aim is to serve local and regional Economys. It is also called horizontal foreign investment, as it involves replication of production facilities in Uzbekrailway. Tariff-jumping or export-substituting foreign investment is a variant of this type of foreign investment. Because the reason for horizontal foreign investmentis to better serve a local Economy by local production, Economy size and Economy growth of the host economy play important roles. Obstacles to accessing local Economys, such as tariffs and transport costs, also encourage this type of foreign investment. A second type of foreign investment is called resource-seeking: when firms invest abroad to obtain resources not available in the home country, such as natural resources, raw materials, or low-cost labour. Particularly in the manufacturing sector, when multinationals directly invest in order to export, factor-cost considerations become important. In contrast to horizontal foreign investment, vertical or export-oriented foreign investment involves relocating parts of the production chain to Uzbek railway. Availability of low-cost labour is a prime driver for export-oriented foreign investment. Naturally, foreign investment in the resource sector, such as oil and natural gas, is attracted to countries with plentiful natural endowments. The third type of foreign investment, called efficiency-seeking, takes place when the firm can gain from the common governance of geographically dispersed activities in the presence of economies of scale and scope.

The empirical analysis in this study is based on a sample of cross-sectional data on 38 «Uzbekistan railway» joint-stock. List of countries has been indicated in Appendix 1. The relationship between foreign investment and its determinants is estimated by regressing the following equation.

$$\text{foreign investment} = \mathbf{x}_0 + \mathbf{x}_1 \text{gro} + \mathbf{x}_2 \text{inf} + \mathbf{x}_3 \text{logcost} + (X_4 \text{logtel} + (X_5 \text{op} + (X_6 \text{risk} + \mathbf{x}_7 \text{tax} + \mathbf{s} \quad (1)$$

where foreign investment denotes foreign investment net inflows as a percentage of railway service; gro denotes growth rate ofper capitarailway, which is a proxy for Economy size; infdenotes the rate of inflation measured by annual percentage change of consumer prices, which is a proxy for economic stability; logtelshows telephone main lines *per* 1,000 people measured in logs, which is a proxy for infrastructure; logcostwhich is a proxy for

wage denotes labour cost per worker in manufacturing measured in logs, denominated by dollar per year; *op* indicates the degree of openness which is computed as the sum of nominal export and import divided by the nominal railway; risk denotes composite risk rating (0=higest risk to 100= lowest); *tax* denotes corporate top tax rate.

Besides the main model (Model I), we get some models which have alternative degree of openness measurements.

The degree of openness has been computed as nominal export divided by the nominal railway, which is denominated by *op2* in the Model II and Model IV. Another degree of openness indicator has been calculated as nominal import divided by the nominal railway, which is denominated *op3* in the Model II and Model IV.

In order to investigate the effect of Economy size on foreign investment,we have used alternative proxies for Economy size. *Lograilwayper* is included in the main model, denoting reel railway*per capita* measured in logs (Model VI). We have also regressed the equation including the reel railway in logs denominated by *lograilway.* Table 1 is showing the variables used in the models and their explanations.

Table

Variables Used in the Models and Their Explanations

Variables and Their Explanations		**MODELS**					
		I.	II.	III.	IV.	V.	VI.
fdi	FDI net inflows as a percentage of GDP	*	*	*	*	*	*
gro	growth rate of *per capita* GDP, a proxy for Economy size	*	*	*	*	*	**X**
inf	the rate of inflation measured by annual percentage change of consumer prices, a proxy for economic stability	*	*	*	*	*	*
logcost	labour cost *per* worker in manufacturing measured in logs, a proxy for wage	*	*	*	*	*	*
lo gtel	telephone main lines *per* 1,000 people measured in logs, a proxy for infrastructure	*	*	*	*	*	*
op	degree of openness computed as the sum of nominal export and import divided by the nominal GDP	*	**X**	**X**	**X**	*	*
risk	composite risk rating (0=highest risk to 100= lowest)	*	*	*	*	*	*
tax	corporate top tax rate	*	*	*	*	*	*
lo ggdp per	real GDP *per capita* measured in logs	**X**	**X**	**X**	**X**	*	*
op2	degree of openness computed as nominal export divided by the nominal GDP	**X**	*	*	**X**	**X**	**X**
op3	degree of openness indicator calculated as nominal import divided by the nominal GDP	**X**	*	**X**	*	**X**	**X**

Note: included in the model, X is not included in the model

We have used average value of all data for the 2011-2015 period in the cross-section estimations. Definitions and sources for all the main variables are provided in Appendix 2.

The data used include railway company over the period of 2011 and 2015. We have selected these company and these time period due to the fact, that some of the variables are not available for most countries. Especially cost data are not available for all countries. All data except for tax rate used in estimations are taken from or calculated based on the World Bank Development Indicators 2015. Tax rate is taken from the World Tax Database. Descriptive statistics about variables used in the main model are reported in Appendix 3.

Correlation coefficients between variables are shown in Appendix 4.

When we include *op2* and *op3* instead of op (Model II), econometric results change remarkably. In this model only *tax* and *op2* have expected effects on foreign investment. Model III and Model IV included either *op2* or *op3* show that coefficients on *gro,* and *logtel* are positive and significant. The coefficient on *logcost* is negative but not significant. The coefficients on *inf* and *tax* are negative and significant, whereas the coefficient on *risk* is negative and insignificant. In these models, coefficients on *op2* and *op3* are positive but not significant.

Model V included *lograilwayper* has similar results as compared with Model I. The basic difference between results of Model I and Model V is that growth has positive but not significant effect on foreign investmentin Model V. In this context, Model V shows that growing economy has no positive effect on foreign investment contrary to Model I. In Model VI, we have omitted *gro* from Model V. This model analyses whether foreign investmentflows to growing economy or large economy. Model VI shows that large economy has no positive effect on foreign investmentsimilarly to Model V. According to Model VI, economic stability has no positive effect on foreign investment. This result differs from the result of Model I. In Model VI, when we use *lograilway*which is real railway in logs, the results of the regression are similar to Model VI.

According to our analysis, *gro* as a proxy for Economy size, *logtel* as a proxy for infrastructure and op as a proxy to reflect the willingness of a country to accept foreign investment have positively affected foreign investment, being significant. We have used growth of*per capita* real railway as a proxy for Economy size, because absolute railwayreflects size of population rather than income. When we use absolute railway or *per capita*railway for Economy size, we see that they do not affect foreign investment. We conclude from this result that investors prefer growing economies to large economies.

The coefficient of *logtel* as a proxy for infrastructure has positive sign and is significant. It means that better infrastructure is an important determinant in attracting foreign investmentto «Uzbekistan railway» joint-stock.

The coefficiant of *logcost,* which is a proxy for wage, denotes labour cost per worker in manufacturing industry measured in logs, has positive sign but is not significant. The expected sign for *logcost* was negative.

We can conclude from this result that low wage has not been a determining factor in attracting foreign investment to «Uzbekistan railway» joint-stock in the period we have studied. When wage rates vary little from country to country, the skills of the labour force are expected to have an impact on decisions about foreign investmentlocation.

The variable *risk* presents negative sign, but it is not significant. This demonstrates that risk has not been an important factor in attracting foreign investmentin the mentioned period.

When the host countries present high returns, firms may ignore political risk. As long as the foreign company is confident of being able to operate profitably without excessive risk to its capital and personnel, it may continue to invest.

Some problems of foreign investment strategy of the development of Republic of Uzbekistan

During the process of globalization, the most important indicator characterizing the degree of implementation of high technologies, considered the proportion of high-tech products in industrial production. The main producers of such products in 2014 were the United States, Japan, Germany and Israel. Production of high-tech products is growing at the highest rates in Germany. They achieved the greatest magnitude of the value created by science-intensive industries in GDP - more than 12фоиз (in Japan - 11фоиз, USA - 9фоиз). World trends show a gradual formation of a new model of a Economy economy based on permanently implementing innovations and commercialize the achievements of scientific and technological progress. In Uzbekistan, gradually continue the process of Economy-transformational changes aimed not on demolition of command-administrative system, but on the "fine-tuning" formed institutions of a Economy economy. The key priorities of today, in our opinion, is the profound structural changes, ensuring dynamic and balanced development, modernization and diversification of the leading sectors of the economy, the formation and intensification of investment and business climate, development of high-tech, competitive products with high added value, strengthening the export position. Innovative modernization of the regional economy is a practical implementation of the new model "economy based on knowledge", intended to increase the integration of science, education and industry, the complexity of human interaction in the research and production process, the acquisition by investments and innovation orientations, etc. It is estimated by the State Statistics Committee that the number of small innovative enterprises is about five hundred. The portion from the sale of innovative products, outside the country in the total volume of goods sold by small enterprises, enterprises produced by small innovative enterprises exceeds 20фоиз. Among the most active regions highlighted Fergana region, which accounts for about 40фоиз of the number of active small innovative enterprises, Andijan region - 10фоиз, Karakalpakstan - 8фоиз, Surkhandarya and Tashkent city 7фоиз. But there are regions in which the small innovative enterprises are absent or in small quantities, Namangan, Samarkand, Khorezm and other areas.

Our studies have shown that the innovative potential of multiscale subjects of entrepreneurial activity includes the expected or already mobilized resources and institutional mechanisms to achieve this goal in the field of knowledge-intensive production processes, new products, or derivatives thereof, as well as new services. This is kind of "measure of readiness" of the organization of performing the innovation tasks. The innovative potential of the enterprise with a certain degree of conditionality can characterize the level of diversification of production - for its new kinds of industrial and economic activity.

Consideration of the region as an integrated system, functional and significant elements of which are multi-scale entrepreneurial business structures will allow determining the direction of the impact of these structures on its development and functioning as a whole. In so doing, mutual influence of region and business structures that operate in this territory, it seems obvious. Mutual benefit appears if certain business structures - small, big business as an element of "region" will carry out its activities, focusing on the goals of the system, given its involvement in the socio - economic problems in the region. In our opinion, in the framework of improving the mechanism of innovation is necessary to: promote the development of outsourcing, in particular, the organization of small-scale production of components of large enterprises in small and

medium-sized settlements of the region; contribute to business combinations for the organization of promising industries; contribute to the development of leasing of industrial equipment; promote the development of R & D; improve the system of patenting and obtaining author‘s rights.

The level of innovation of the regional economy increases with the predominant focus within enterprises capable of maximizing utility in the long term. In this case, the effective implementation of innovative investment strategy is only possible through the active involvement of government entities at the regional level, providing institutional support to enterprises, consciously assuming an increased risk of innovation. Innovation and investment strategy in the region is based on the complementary interaction of four basic institutions (venture capital, leasing, tax, insurance). The basis of the system of institutional mechanisms to ensure the investment of regional development is business venture, generating and stimulating innovative activity of the subjects and agents of management. Promotional activity has a high degree of uncertainty and risk, which implies its complement with insurance and tax institutions, minimizing and stimulating such activity at the regional level. Leasing institutions are the final link in providing small businesses additional financial possibilities of using innovative technologies. In our opinion, this is why innovation and investment strategy for the region should be aimed at manufacturers with a higher level of production and economic and commercial flexibility.

Effective development of this type of manufacturers will allow, on the one hand, to develop the business itself as much as possible, to increase its competitiveness, employment, standard of living of workers, and, on the other hand, feel the real effect of the investment. The proposed system is expected to have four basic elements, each of which works in close conjunction with other elements. The basis for the functioning of the system is a business venture, which is an innovative type of enterprise that implements the results of their research into the industry. This type of business, potentially capable of producing relatively high profits, is also highly risky. Therefore, the system is proposed to include the insurance mechanism. This mechanism could be organized with the direct participation of regional authorities, which, at first, could organize regional insurance companies engaged in insurance of innovation. The system is complemented by a tax mechanism, also organized at the regional level. There are several fundamental features of tax optimization of innovative projects, including a temporary abolition of taxes on enterprises engaged in innovation, suspension of taxes on the financial results of innovative projects, or conversion of tax deductions for insurance premiums. The last element of fully integrated insurance and tax mechanism will create the financial basis for insurance support of innovative projects. Finally, the fourth mechanism acts as the leasing mechanism that will allow for more active development of innovative technologies, purchasing some of them under leasing schemes.

In summary, importance of an integrated and coordinated implementation of measures to improve the innovation system at the regional level should be noted. The formation of the national innovation system through the use of levers of state power should not preclude initiatives of regional administrations capable of organizing innovative development taking into account the economic, social, cultural and historical features and capabilities of each region.

Effective bank assets – the important source of economic growth

In the conditions of liberalizing the economy the improvement of financial stability and capitalization of commercial banks, further strengthening of their position in the financial Economy is of actual importance as the priority directions of economic reforms. In the basis of these problems there are issues such as further improvement in financial mediation role of banks in the economy, the constant increase of the volume of transactions related to assets.

In the activity of commercial banks the share of transactions related to the profit assets is high. For the purposes of getting profits by bank the ground of these transactions are completed by the measures on provision of positive adequacy of local and attracted funds.

While extension the participation sphere of the banks of Uzbekistan in economic processes, the volume of their assets is proportionally increased as well (table 1):

Table 1

Growth rates of assets of the banks of Uzbekistan
For the period from 01.01.2010 to 01.01.2015 years. (intrln. UZS)[1]

Years	01.2010	01.2011	01.2012	01.2013	01.2014	01.2015
The size of assets	15,7	20,7	27,5	33,7	43,9	56,2

Table's data show that the volume of assets of the republican banks from 2010 year as of 01.01.2015 year, has increased in 3,8 times. In turn, fast growth of bank assets growth requires analyzing the indices of assets efficiency.

Central Bank of the Republic of Uzbekistan, traditionally, making analysis of the condition in money-and-credit sphere for each date of the year, determines the main directions of monetary policy for the next year. In the result of rational performance of priority tasks, established regarding effective placement of bank assets in these directions, the financial opportunities of the banks increase.

The increasing of the efficiency of transactions associated with the assets of commercial banks is included in the number of issues having the important macro- and micro-economic significance.

Macroeconomic efficiency of bank assets is determined by the influence of transactions with inter-bank assets on international capital assets and Economy condition of financial Economy. Notably, the wastage of bank credits, on international scale, brings to high risk, leading to the crisis in the world's economy.

Microeconomic efficiency of bank assets is revealed as follows:

- active operations are the main source of increase of profitability of banks. This requires effective placement, proper diversification of Bank assets

- growth in the volume of active operations of banks facilitates the creation of new production system in such basic industries as oil and gas production, their refining, motor-car construction, textile and food industry, the introduction into the economy of modern technology, advanced methods of Microeconomics and management. Finally, these situations in the economy lead to the creation of new working places and qualitative increase in productivity;

- efficient use of bank assets in the economy takes the important place in the development of investment processes, being the major factors of economic growth;

[1]The picture is made on the basis of data of official site of Central Bank of the Republic of Uzbekistan www.cbu.uz

- Bank assets as the loan are very important in social protection of population. In particular, the allocation of consumer and mortgage loans to the wide population stratum gives the opportunity to increase their purchasing power and thus, the ability to support domestic manufacturers.

Actual analysis of commercial banks activity demonstrates a number of aspects on assets placement:

- legal issues
- organizational issues
- economic issues

As the practice shows, at the evaluation of bank assets profitability, application of economic methods and models tested in international practice is of actual importance. In particular, at present time, in bank practice the importance of financial condition of bank on the basis of recommendations of Basel Committee on bank supervision grows. The present method gives opportunity to determine serious influence on the efficiency of assets of factors such as the system of evaluation of liquidity level, operation activity, Economy price, management and risks.

Besides, it is wise to pay attention for the extension of practice of modern procedure for banking activity on scoring analysis for client's creditworthiness. The results of the analysis are of great importance for efficient management of bank assets and passives as well as for increase in their quality.

Summarizing,it can be said that the increase in effectiveness of commercial banks assets creates the ground for formation of banking-financial system in national economy fully complying with the modern Economy requirements and strengthening of banks competitiveness in internal and international financial Economys.

Investment projects as a means of developing the company future

The activity of investment must subscribe to the coordinates of a economic –social development strategy manifested through programmes or projects. Programmes have a less precise identification, with a wider spectrum and, in most cases, for their implementation it is necessary to detail one or several projects.

In this context the investment project can be defined as an optimal set of actions of investment based on sector, global and coherent planning on the basis of which a defined combination of human, material etc. resources leads to economically and socially determined development. From the definition we notice that in order to apply a project it needs a set of means, different in their nature, which, to be operated, must rely on well - coordinated actions. In other words, any activity must take place in a pre-established order, not too early a s this may mean a waste of resources, but not too late, as this may compromise the project’s purpose itself.

Finally, the project must have a well-defined and quantified purpose which, even if it cannot be assimilated with the purpose of the programme it derives from, must contribute to its achievement.

The investment project is the concrete motivation of some current expenses in the hope of future benefits. Its specific features, distinguishing it not only from current activities, but also from other types of projects, are: amplitude, finality and structure.

The execution of any investment project is under the pressure of two factors: time and cost. For managers, but also for the other factors involved in the project, respecting the periods for execution and the consumption of resources: human, material, financial,

technical etc. is a permanent preoccupation during execution. But for this they need adequate tools and techniques, both for the correct dimensions of the time and resource parameters and for later monitoring and control on site.

The activities which contribute to the execution of a project are of three types:

– actual - consuming resources and time;

– expectations- consuming only time (for example hardening the concrete);

– fictitious- consuming neither time nor resources, being just technological conditioning between certain activities in the first two categories.

For an investment project to succeed it is firstly necessary a common conception of the problem and its definition together with the beneficiary, a conception that implies:

– the clarification of the positions of those involved and the clear definition of the project theme, which means defining the objectives of the project, elaborating the strategy, planning the necessary means, tools and stages. The clear, quantifiable results of the different stages of the project will allow qualitative and quantitative evaluation, as well as an evaluation of reaching the objectives;

– the setting of ways and rules of cooperation with the beneficiary all along the project, an aspect that will allow clarification of language misunderstandings, interpretation of tasks, avoidance of conflicts, re-evaluation of different problems concerning the execution of the project al minimal expenses. Solving conflicting situations that occur in any project is easier if there is a basis for mutual trust, partnership and understanding the position of each participant in the project;

– access to information and provision of quality information by promoting information policies on the progress of the project that must be open, clear, unbiased for negative interpretation.

The information must be fairly complete, accurate, sent in adequate form and in due time to those using it in making decisions or in performing an activity, so that it allows a correct estimate of the situation at any time;

– a realistic evaluation of the resources available for the initiation and performance of the project.

The execution of an investment project cannot start on the idea that the source for certain facilities will appear later, when its use is urgent.

PRESENTATIONS ON THEMES AND VIDEO-ROLLERS

Microeconomics

Scarcity ... the fundamental problem of economics

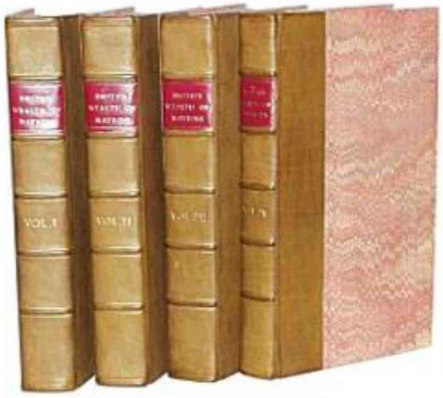
Resources are limited ... wants are not

White Sands, New Mexico in the1950s, during a water shortage
photo from National Park Service

Resources are limited; wants are unlimited

Scarcity = not enough resources to produce the goods to satisfy our wants.

Resources: **Adam Smith** in his ***Wealth of Nations*** **(1776)** divided resources into land, labor and capital.



http://www.adamsmith.org/smith/won-intro.htm

Adam Smith's 3 resources: Land, Labor and Capital

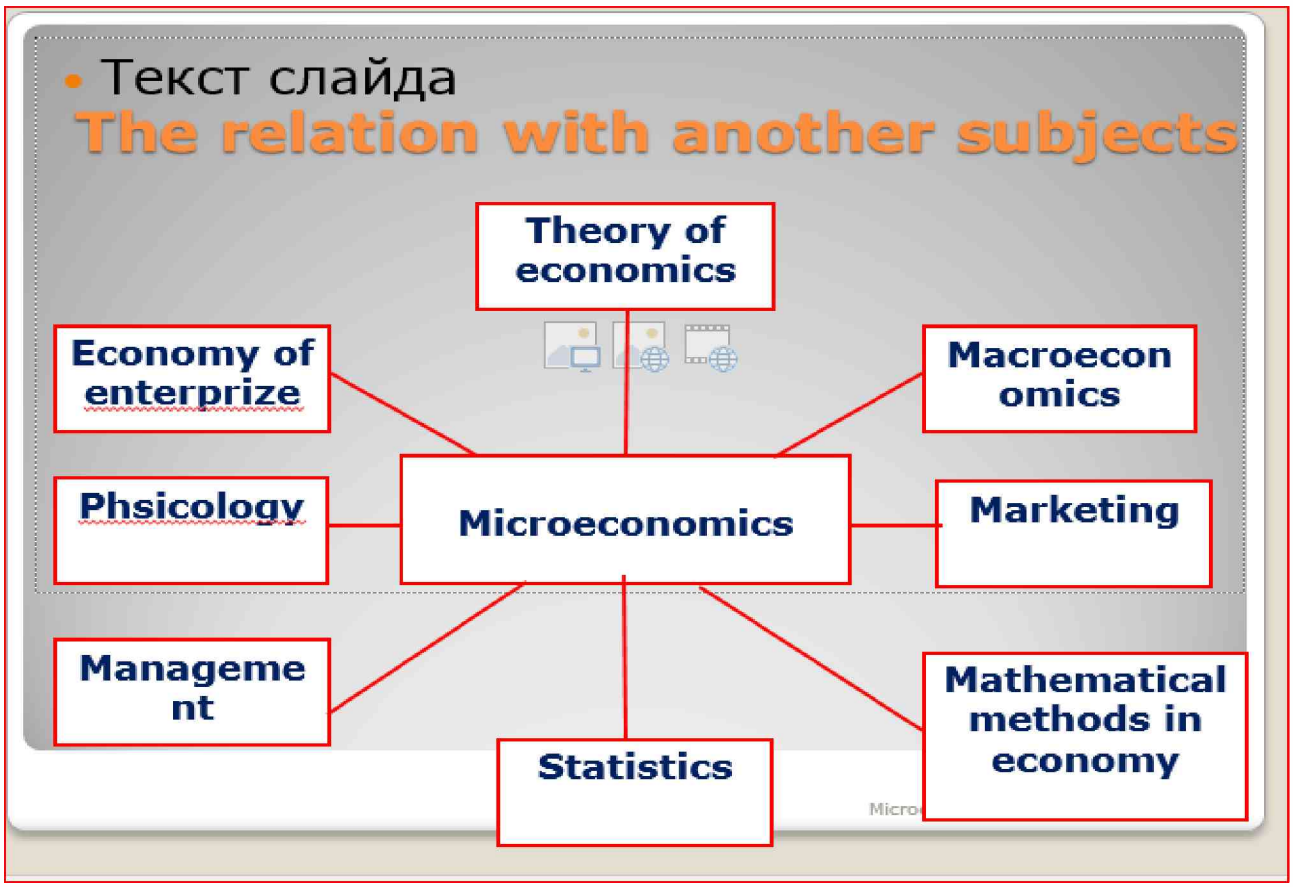
1. **LAND**: used as shorthand for **any natural resource,** not simply for agricultural land.

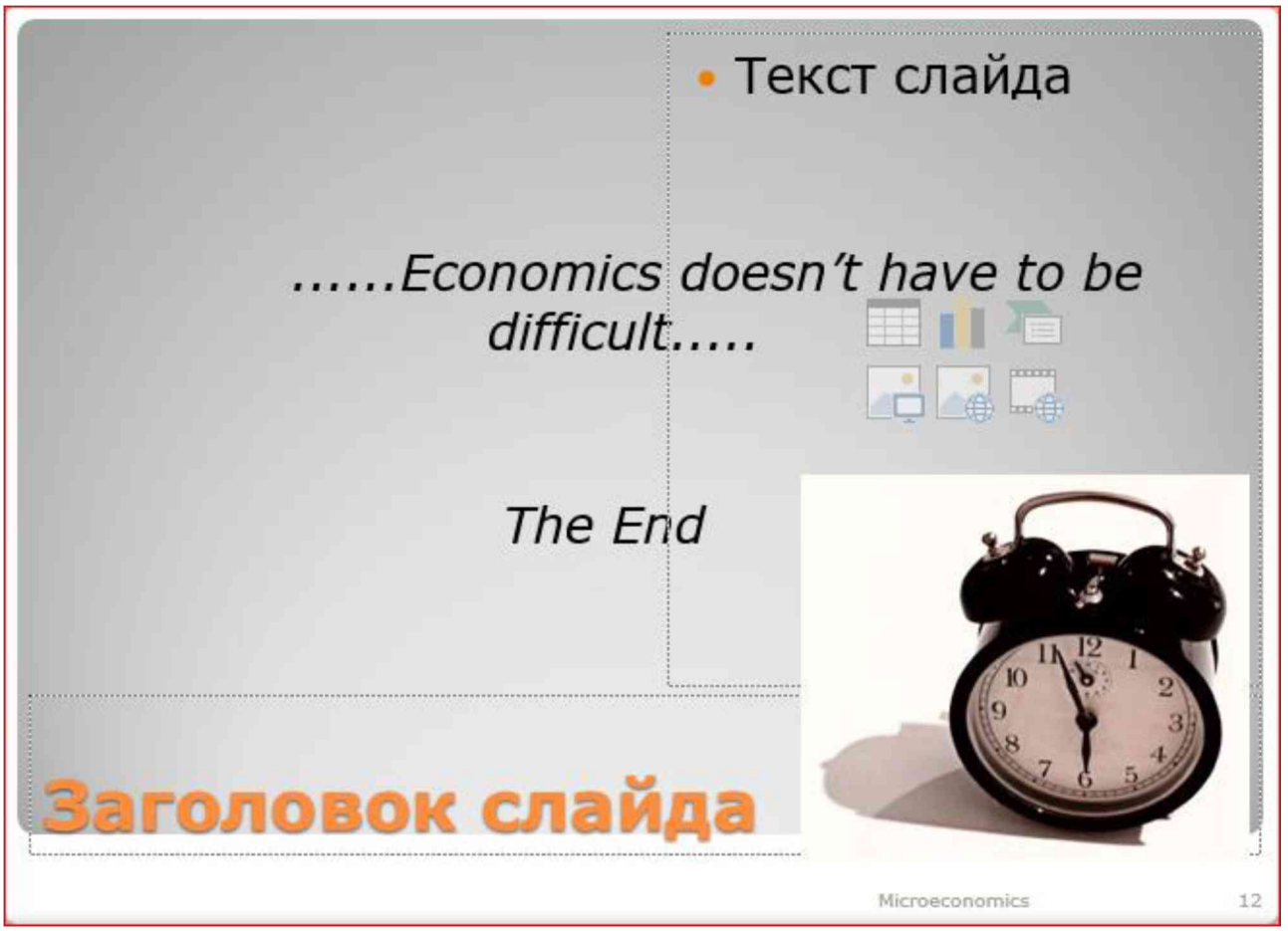
2. **LABOR**: manual power + skill (**"human capital"**)

3. **CAPITAL**: **produced means of production**
for example, hammers, drill presses, computers ... or even flint arrowheads of American Indians, which Smith used as an example.

Although money is used to BUY all the above, money is not itself a productive resource.

Capital grows through investment – and requires foregoing current consumption. The Indian must take time away from gathering berries to make the arrowheads.


Текст слайда
The relation with another subjects
Theory of economics
Economy of enterprize
Macroeconomics
Phsicology
Microeconomics
Marketing
Management
Mathematical methods in economy
Statistics


Текст слайда
.....Economics doesn't have to be difficult.....
The End
Заголовок слайда
Microeconomics
12


DEMAND AND SUPPLY
ECONOMIC CONCEPTS
PRESENTED BY SLIDESHOP


Demand and supply are two basic economic concepts that primarily affect pricing and production.

SUPPLY

Quantity of a good or service that **the market can offer**

DEMAND

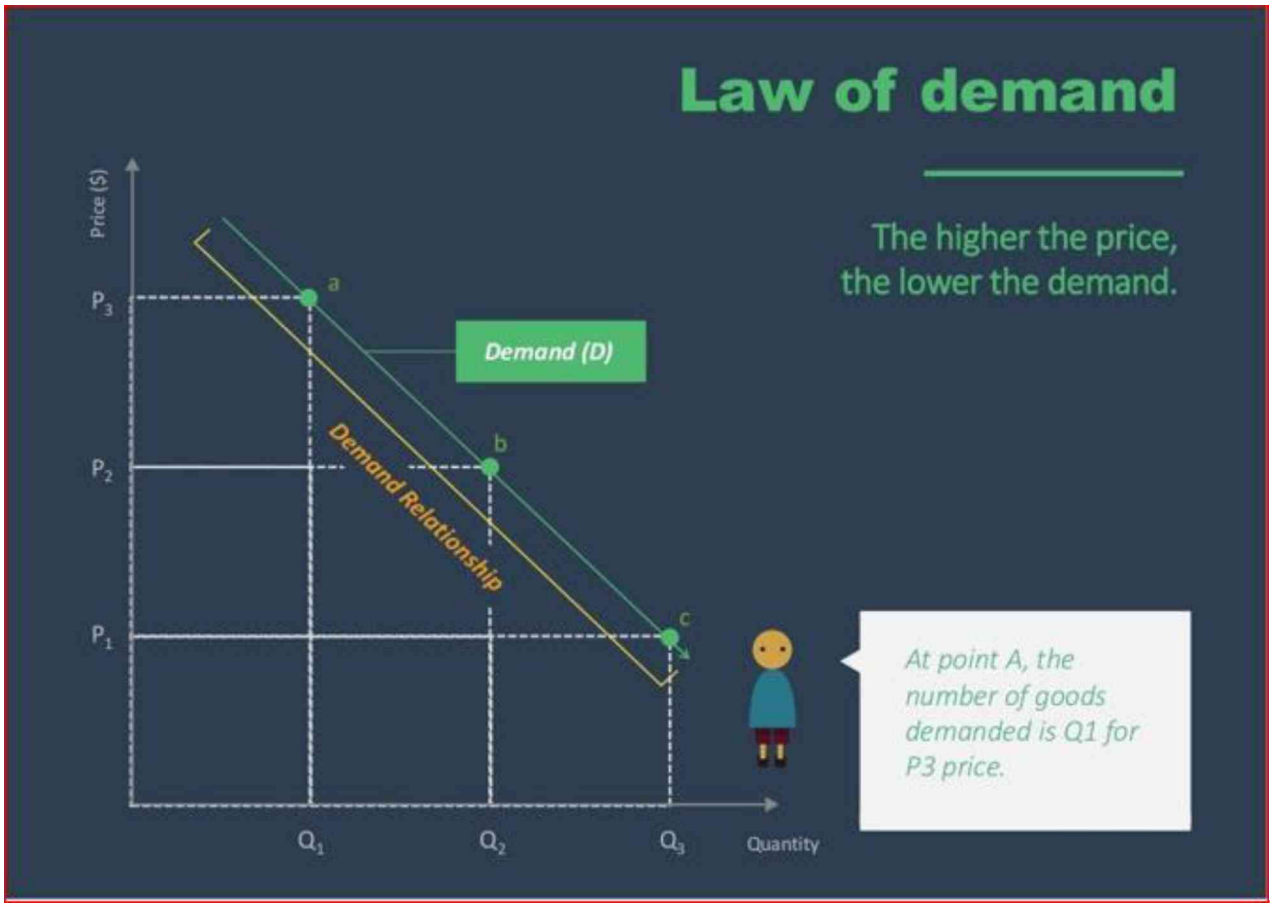
Quantity of a good or service that is **desired by buyers**

Demand is determined by

- Income
- Tastes and preferences
- Prices of related goods and services
- Consumers' expectations about future prices and incomes that can be checked
- Number of potential consumers

Source: Wikipedia


Supply is determined by:
Production costs (primarily labor, capital, energy, technology, and materials)
Firms' expectations about future prices
Number of suppliers
Source: Wikipedia

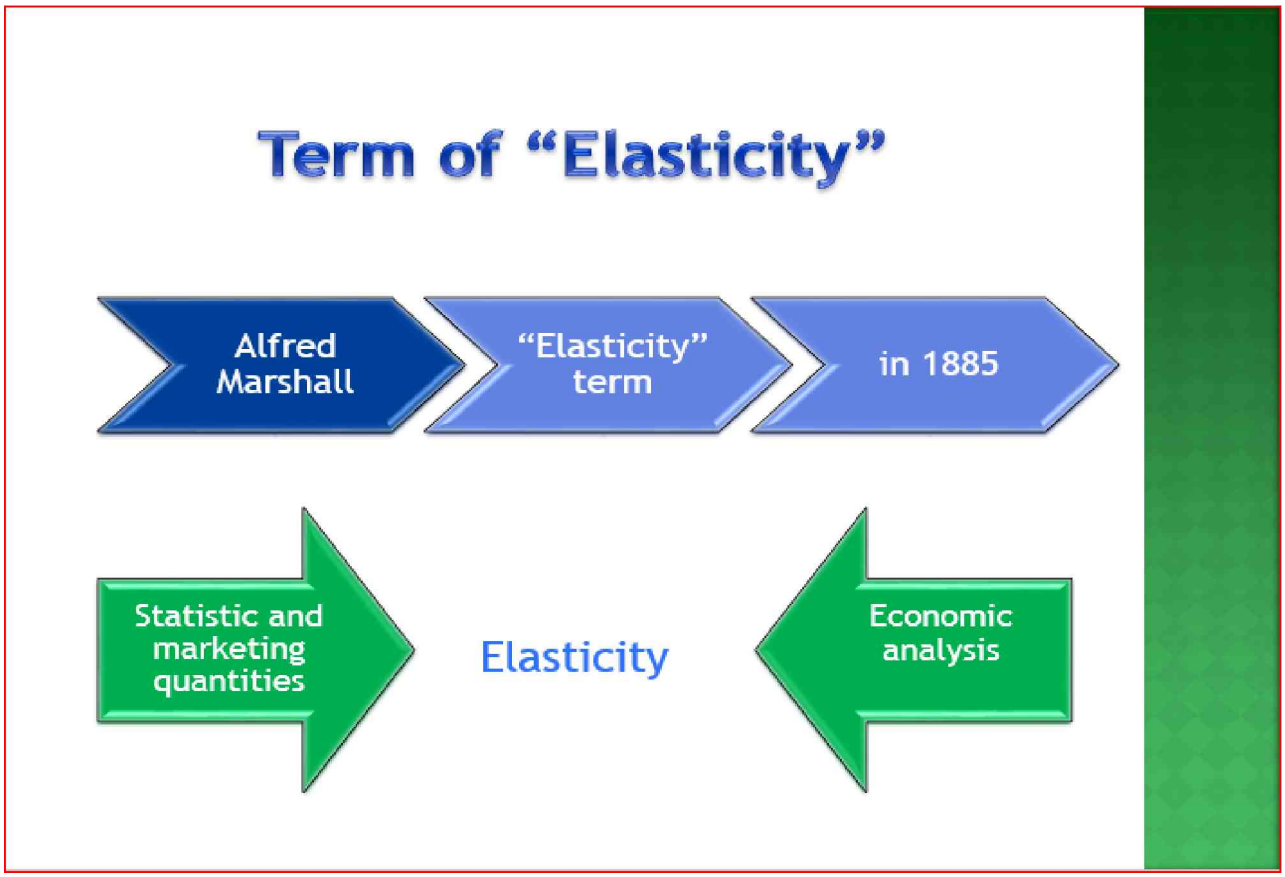

Law of demand
The higher the price, the lower the demand.
Price ($)
P3
P2
P1
a
b
c
Demand (D)
Demand Relationship
Q1
Q2
Q3
Quantity
At point A, the number of goods demanded is Q1 for P3 price.

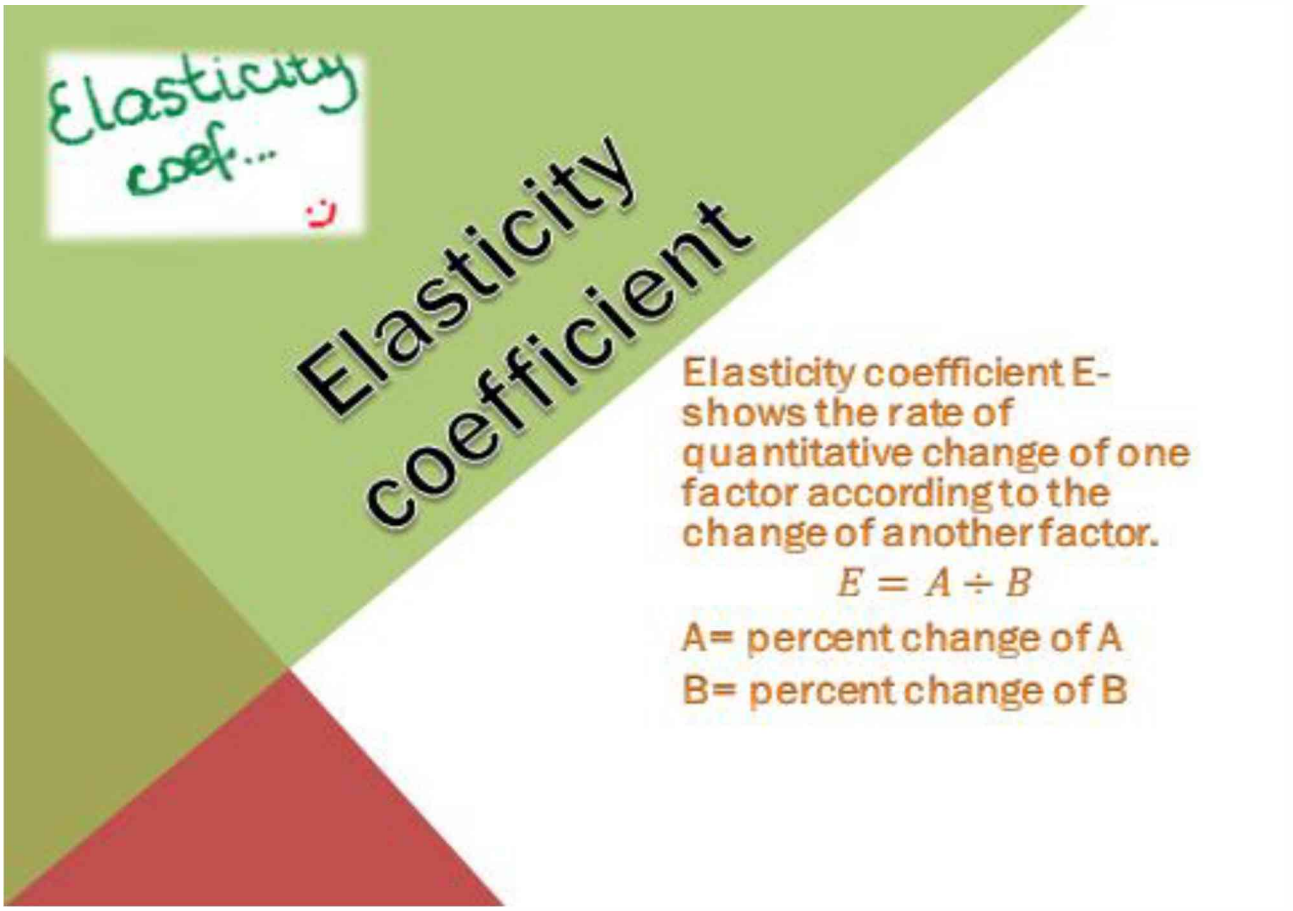
Elasticity of demand and supply

Prepared: Javlonbek Fayzullayev, assistent chair of Industry economics

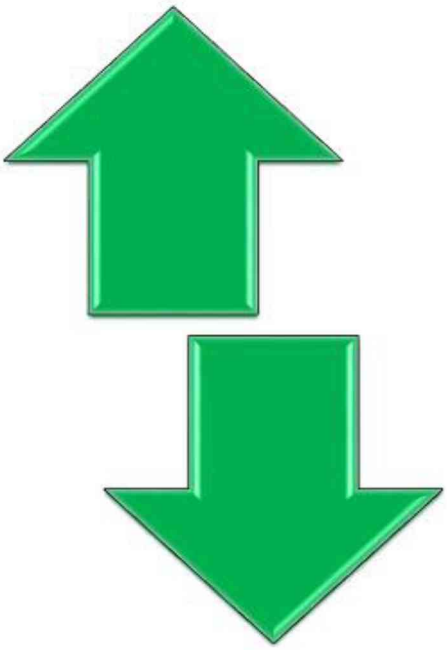
Plan:

- Term of "Elasticity";
- Elasticity coefficient;
- Elasticity of Demand;
- Elasticity of Supply;
- Conclusion.


Term of "Elasticity"
Alfred Marshall
"Elasticity" term
in 1885
Statistic and marketing quantities
Elasticity
Economic analysis


Elasticity coef...
Elasticity coefficient
Elasticity coefficient E- shows the rate of quantitative change of one factor according to the change of another factor.
$E = A \div B$
A= percent change of A
B= percent change of B

DEPENDENCE BETWEEN A&B



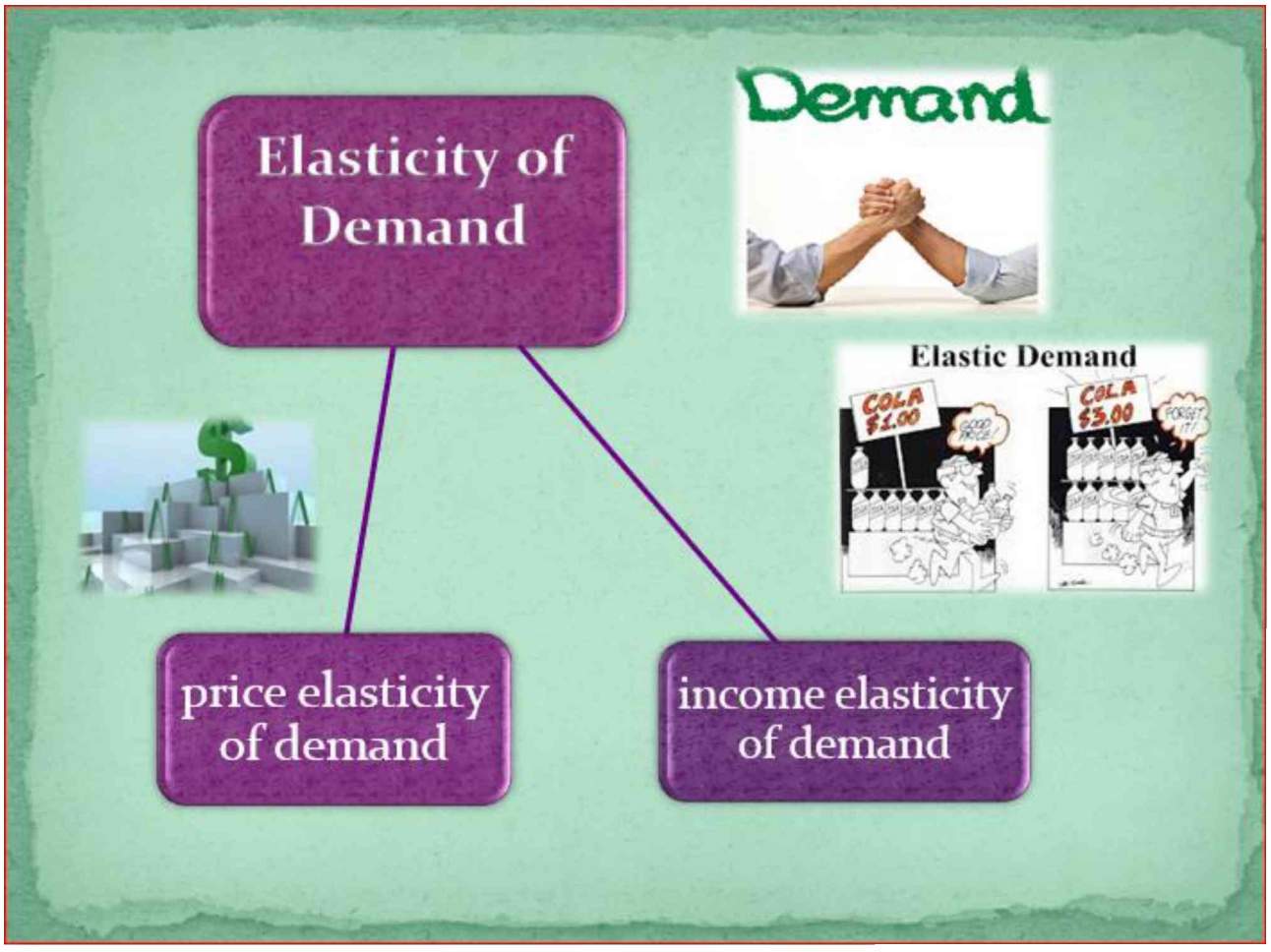
POSITIVE

↑A - B↑

↑A- B↓

↑B-A↓

NEGATIVE

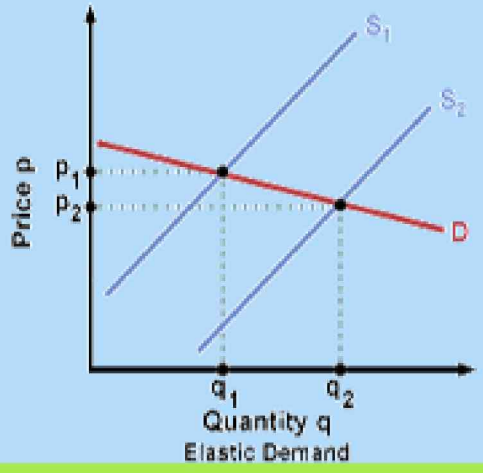


PRICE ELASTICITY OF DEMAND

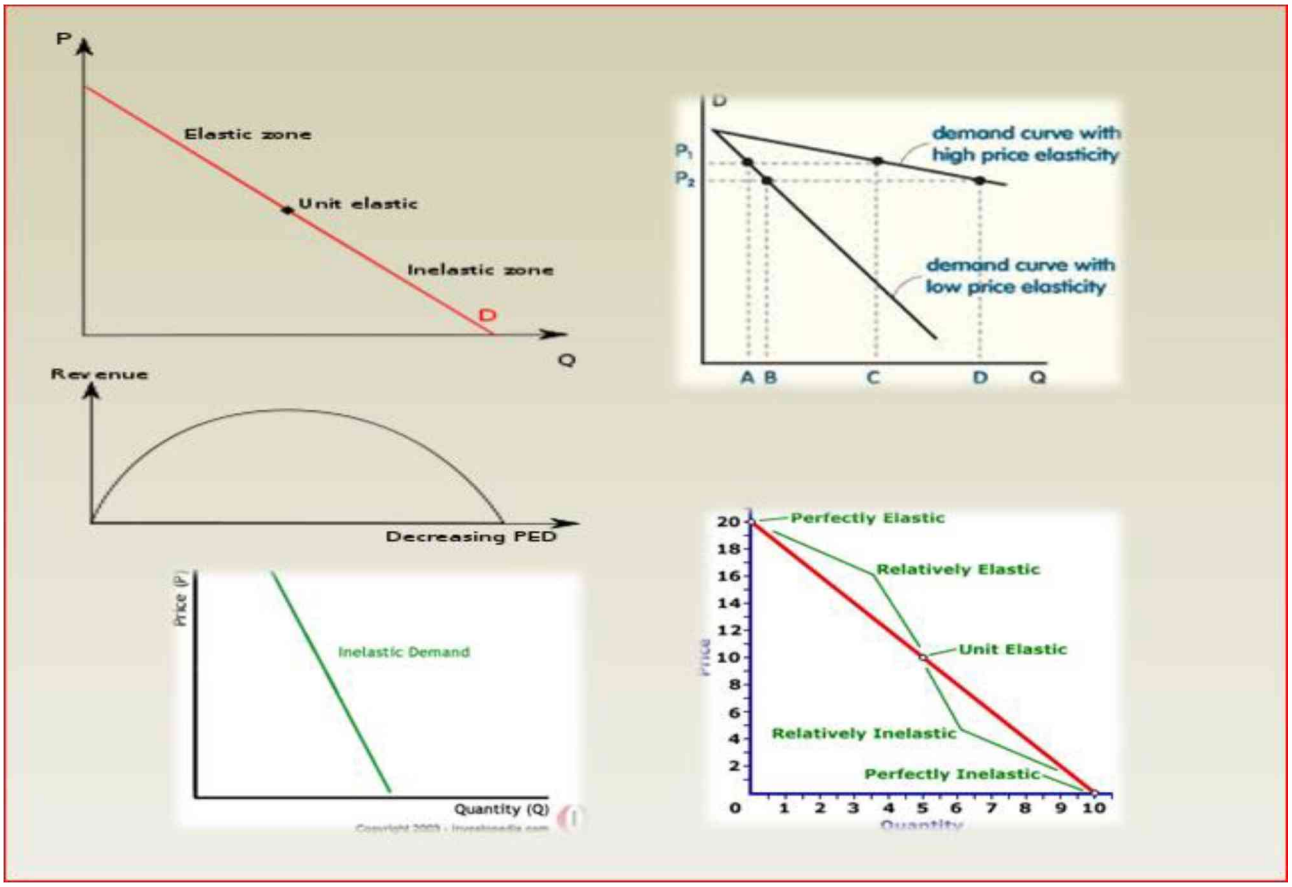
$$\frac{\%\,\Delta\,Q}{\%\,\Delta\,P}$$

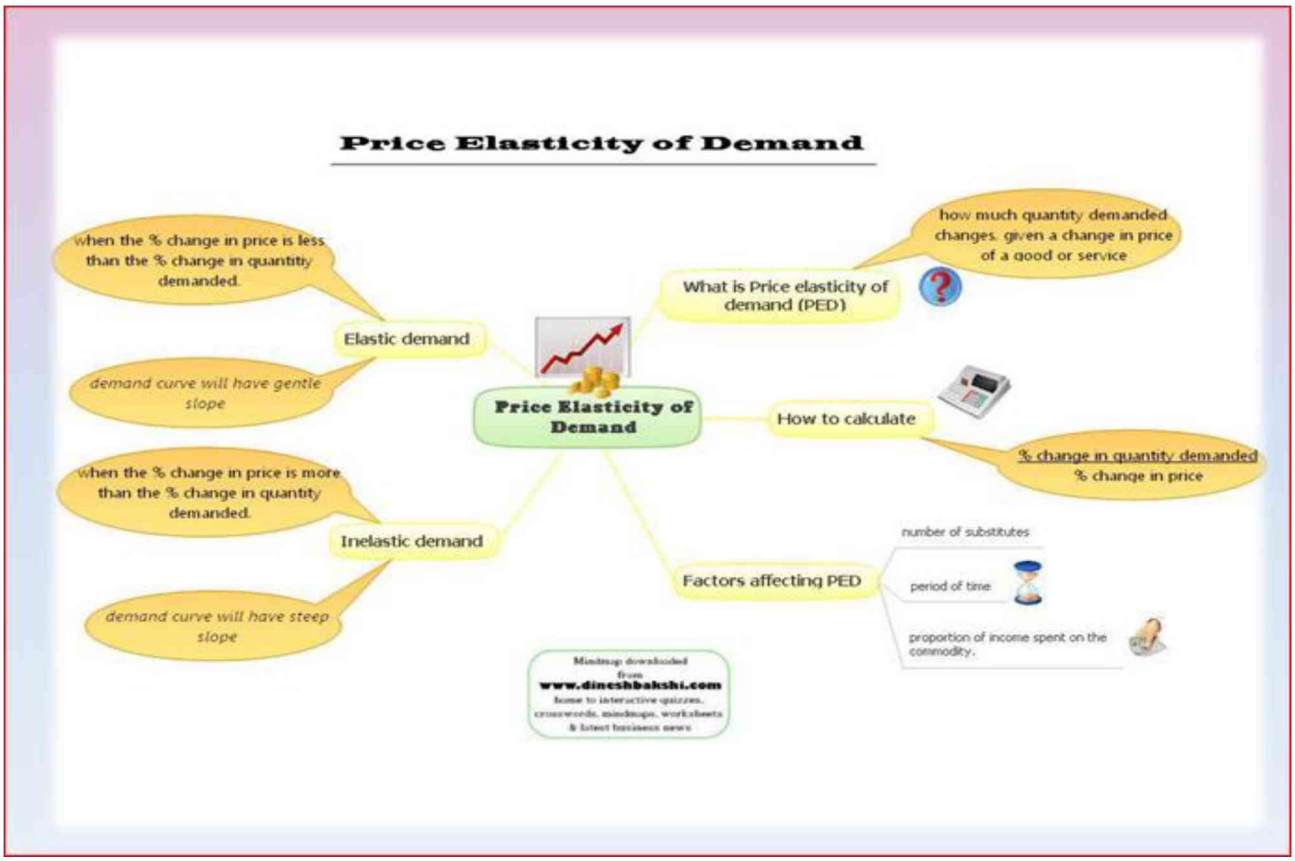
Numerator

Denominator



Price elasticity of demand E_d^p - shows the rate of quantitative change of demand according to the change of price to 1%





Point Elasticity method

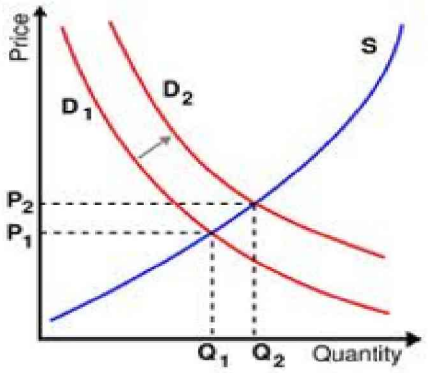
$$E = \acute{Q}(\mathrm{P})\frac{P}{Q(P)}$$

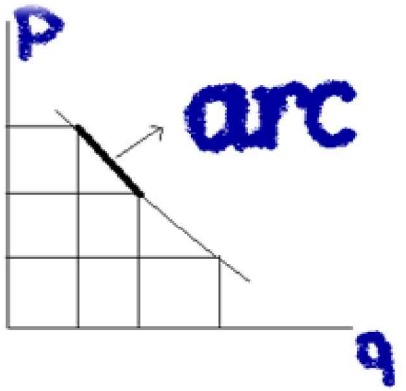
Here,

E- Elasticity coefficient

P- market price

$\acute{Q}(\mathrm{P})$ – derivative function of demand





ARC ELASTICITY METHOD

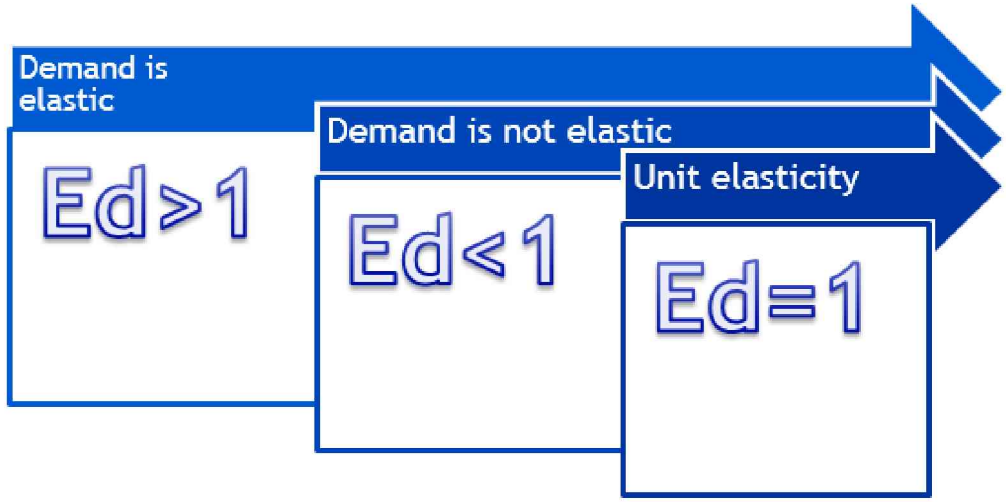
$$E = \frac{2(Q_2 - Q_1)}{(Q_2 + Q_1)} : \frac{2(P_2 - P_1)}{(P_2 + P_1)}$$

Here,

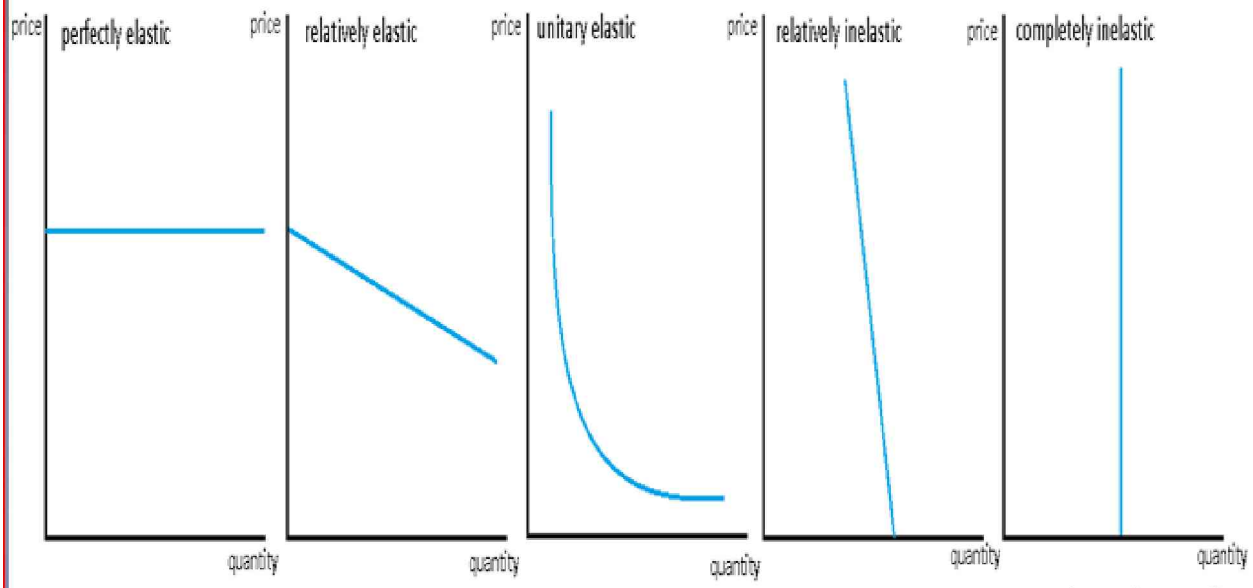
P_1 and P_2- initial and subsequent costs

Q_1 and Q_2- initial and subsequent quantities of demand

ACCORDING TO THE ELASTICITY COEFFICIENT DEMAND CAN BE:



Elasticities of Demand



PED= infinity. (Don't really need to know much else about this one).

PED>1. Decreasing the price will lead to a greater increase in quantity demanded.

PED=1. A change in the price will lead to a directly proportionate change in quantity demanded.

PED<1. A change in price will have little effect on quantity demanded.

PED=0. Changing the price will have no effect on quantity demanded.

FACTORS THAT AFFECT TO PRICE ELASTICITY OF DEMAND

- Presence and availability of substitute goods
- Time factor
- Unit weight of product`s expendi-ture
- Necessity of the product to the costumer

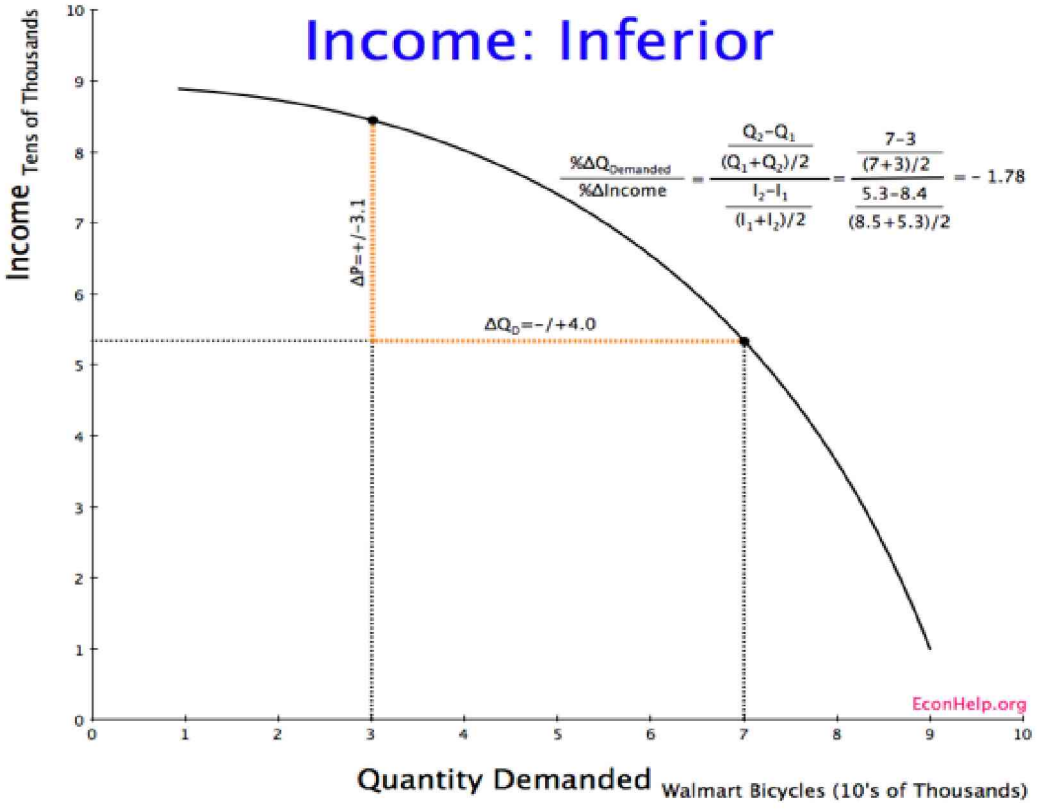
INCOME ELASTICITY OF DEMAND

Income elasticity of demand E_d^R - shows the rate of quantitative change of demand according to the change of costumers` income to 1%.

It`s a positive size.

According to the size goods are divided into:

- first-necessity / essential goods
- second-necessity goods
- third-necessity goods

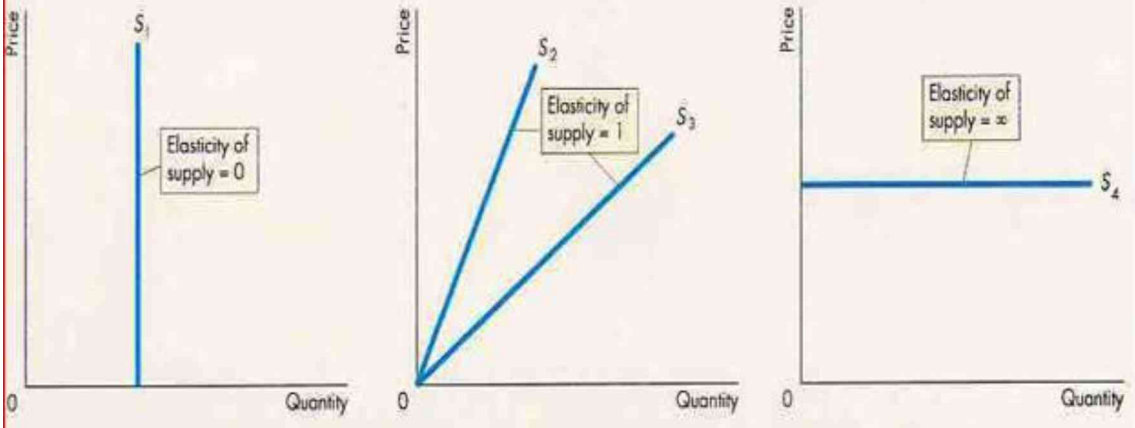


ELASTICITY OF SUPPLY

Price elasticity coefficient of supply E_s-shows the rate of quantitative change of supply according to the change of price to 1%.

$$Es^p = Q`_s(\mathrm{P})\frac{P}{Q_s}$$

Inelastic and Elastic Supply



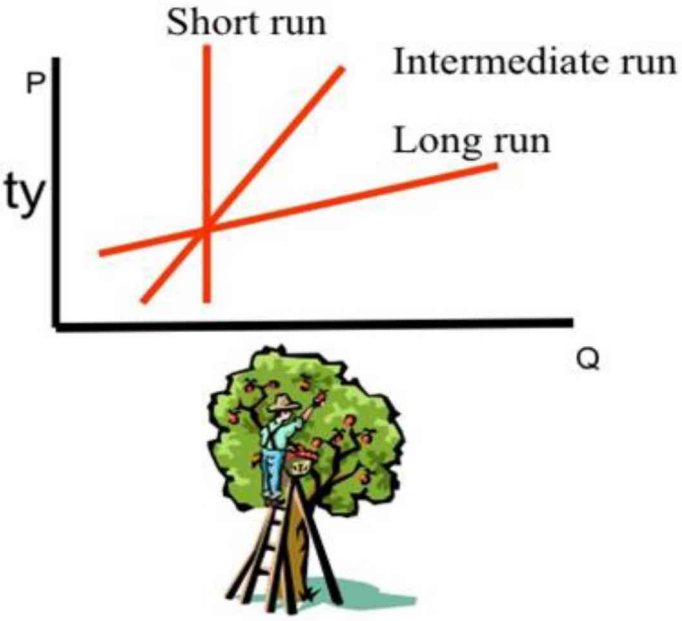
(a) Perfectly inelastic supply

(b) Unit elastic supply

(c) Perfectly elastic supply

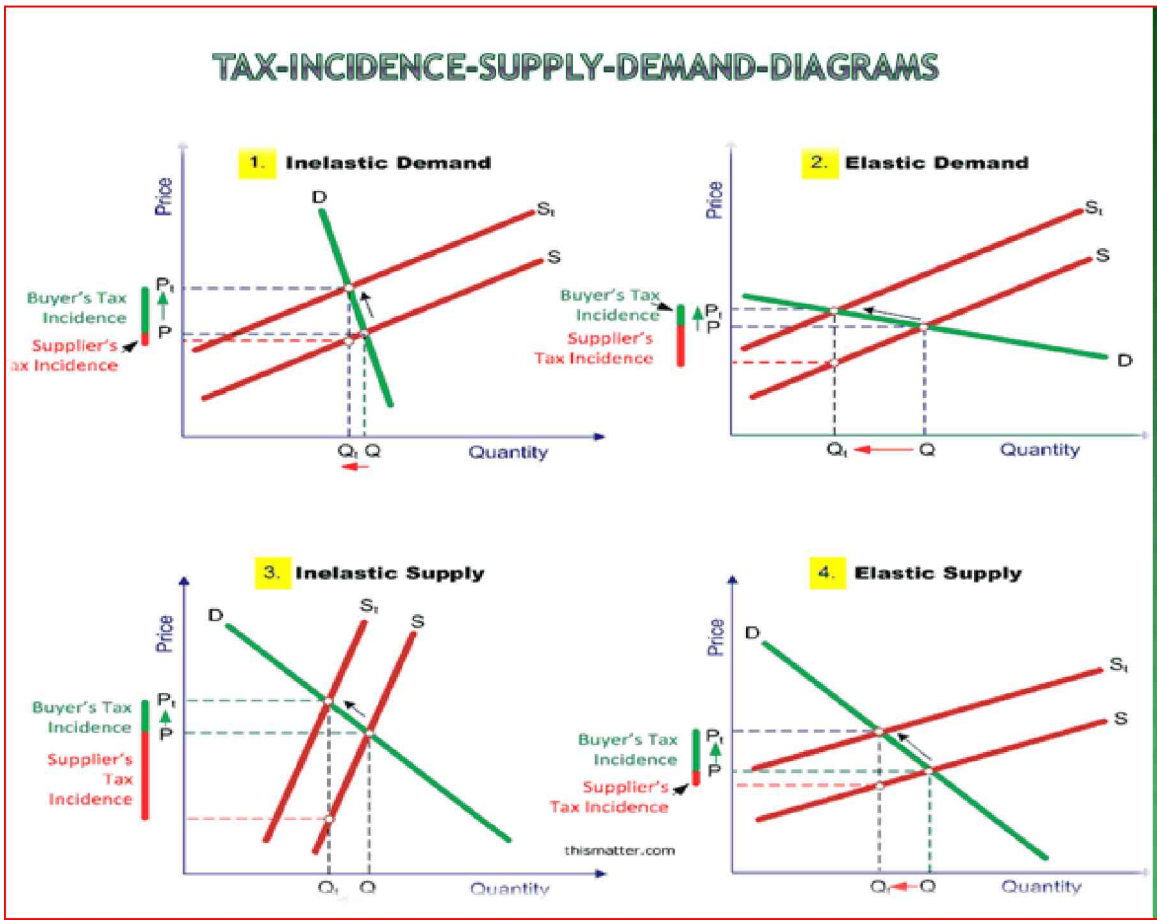
Determinants of Supply Elasticity

- Product type
- Time
- Production capacity
- Input substitution
  - Flexibility
  - Mobility



Factors that affect to price elasticity of supply

- Presence of unloaded producing forces
- kinds of goods and services prepared for selling
- Opportunity of long-term storage of production
- Minimum volume of expenditure necessary to the expansion of manufacturing
- Period of time
- economic activities(conjuncture) of the market



CONCLUSION:

Demand and supply elasticity are one of the main terms of micro economy and play efficient role in the market economy. With the help of demand and supply elasticity we can conduct very important economic analysis. Prices, revenue, market conjuncture depend on elasticity. Supply and demand elasticity assist to carry on statistic and analytic inquiries , marketing research, economic analysis.

The risk in entrepreneurship

The risk is:

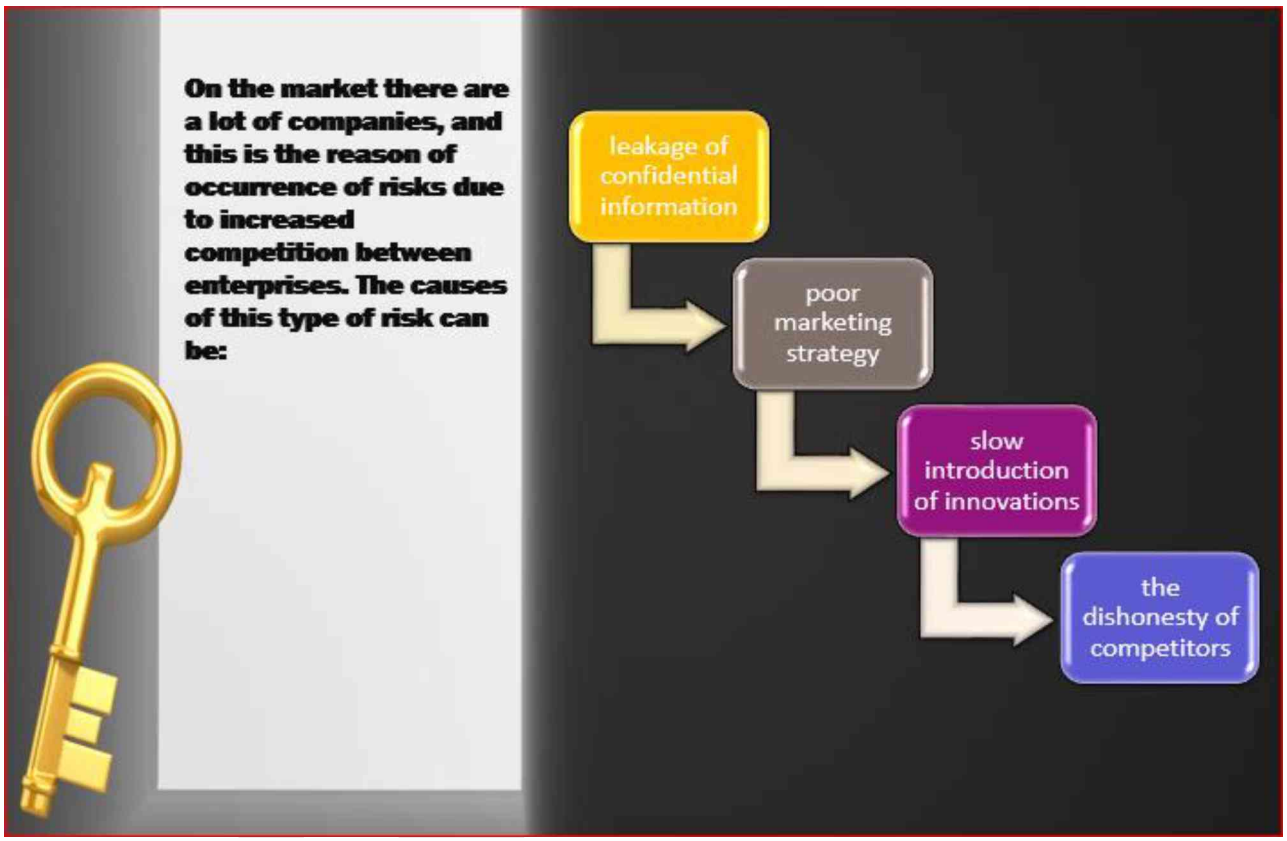
1) action at random in the hope of a happy outcome;
2) the action of the enterprise counting on luck, but with no clear outcome.

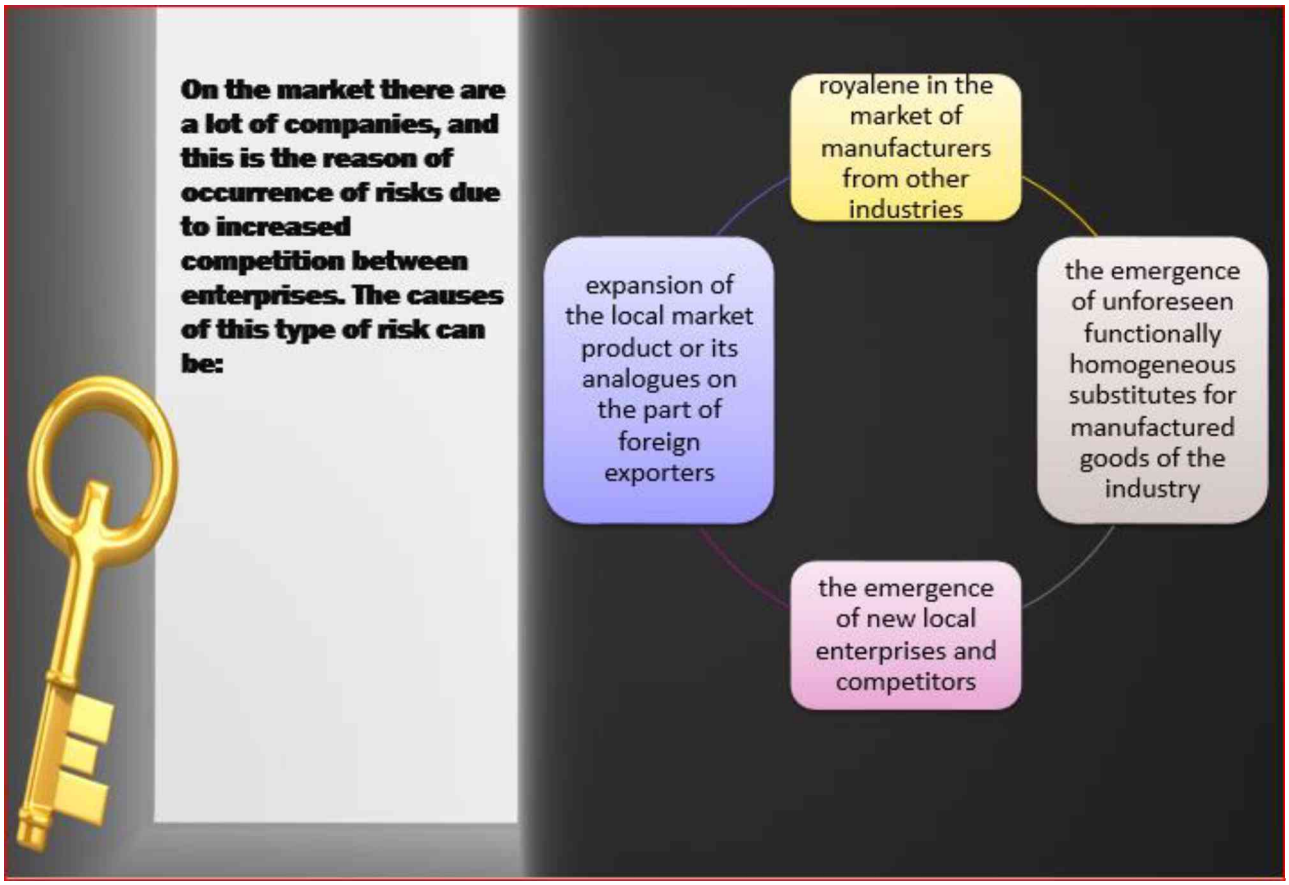
In business there are the following main types of risks:

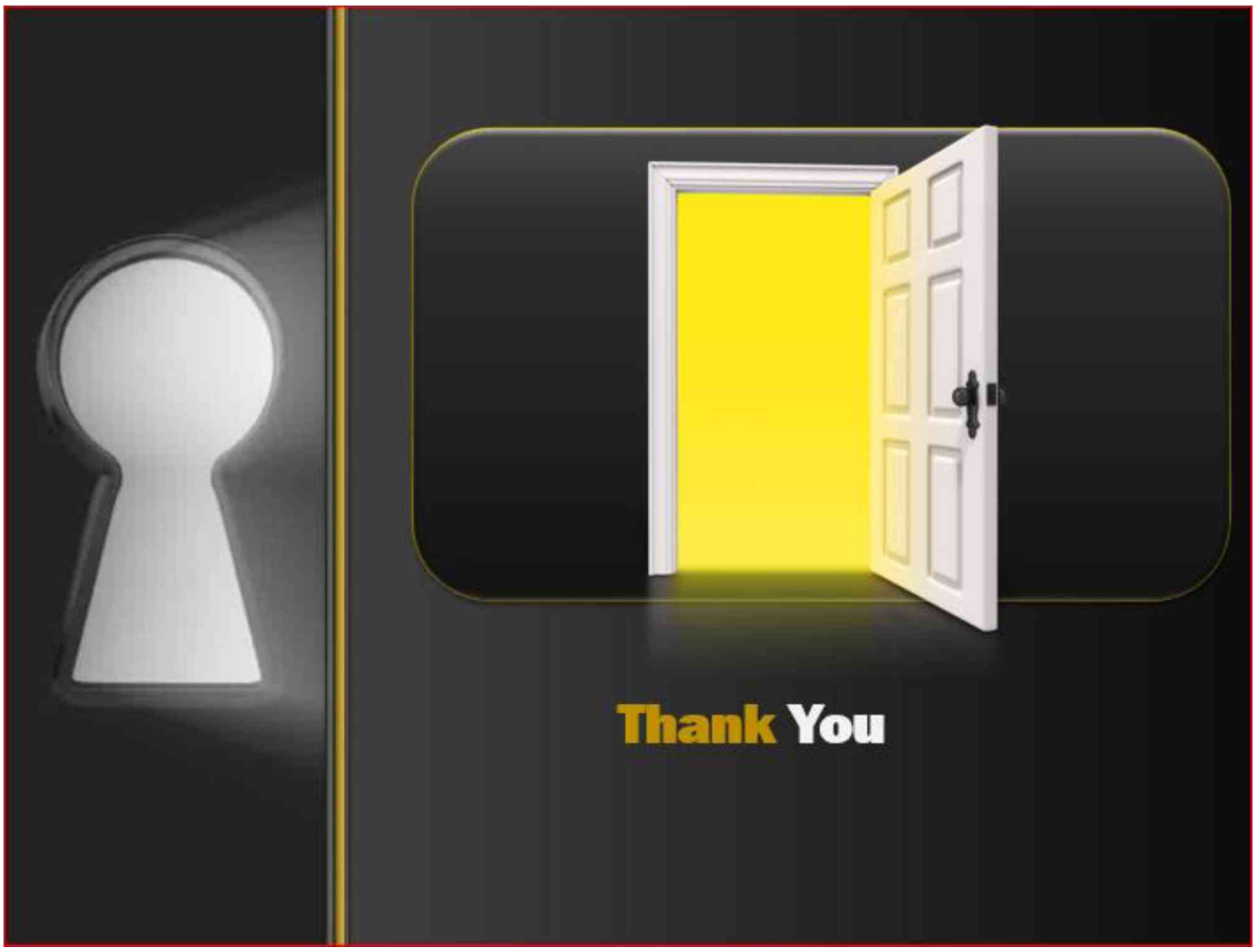
1. risks of making the wrong choice of investment project
2. the risk of investment project failure to ensure an adequate level of funding
4. marketing risks of the current supply and distribution
5. risks of non-fulfillment of economic contracts

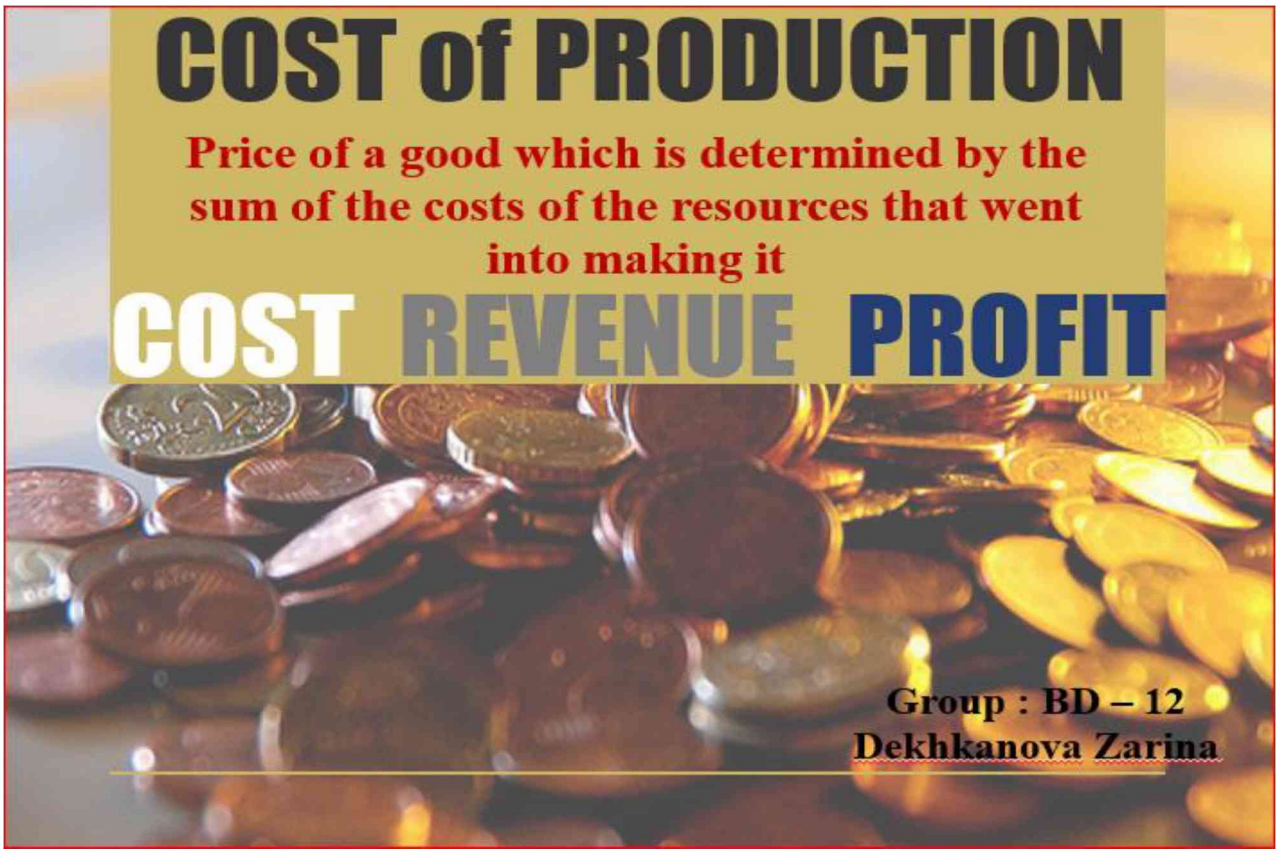
The risk in business contracts business activity involves several types of risks.

- The risk of failure of the partner to the contract after negotiation
- The risk of Contracting with a person under guardianship or insolvent partners
- The risk of concluding a company agreement on the conditions different from the most affordable companies in the industry
- The risk of default by contractual partners of obligations in a timely manner
- The risk of damage to a third party in the implementation of activities (pollution)


On the market there are a lot of companies, and this is the reason of occurrence of risks due to increased competition between enterprises. The causes of this type of risk can be:
leakage of confidential information
poor marketing strategy
slow introduction of innovations
the dishonesty of competitors


On the market there are a lot of companies, and this is the reason of occurrence of risks due to increased competition between enterprises. The causes of this type of risk can be:
royalene in the market of manufacturers from other industries
the emergence of unforeseen functionally homogeneous substitutes for manufactured goods of the industry
the emergence of new local enterprises and competitors
expansion of the local market product or its analogues on the part of foreign exporters


Thank You


COST of PRODUCTION
Price of a good which is determined by the sum of the costs of the resources that went into making it
COST REVENUE PROFIT
Group : BD – 12
Dekhkanova Zarina

OPPORTUNITY COST

The value of most appealing alternative that is not chosen is called opportunity cost

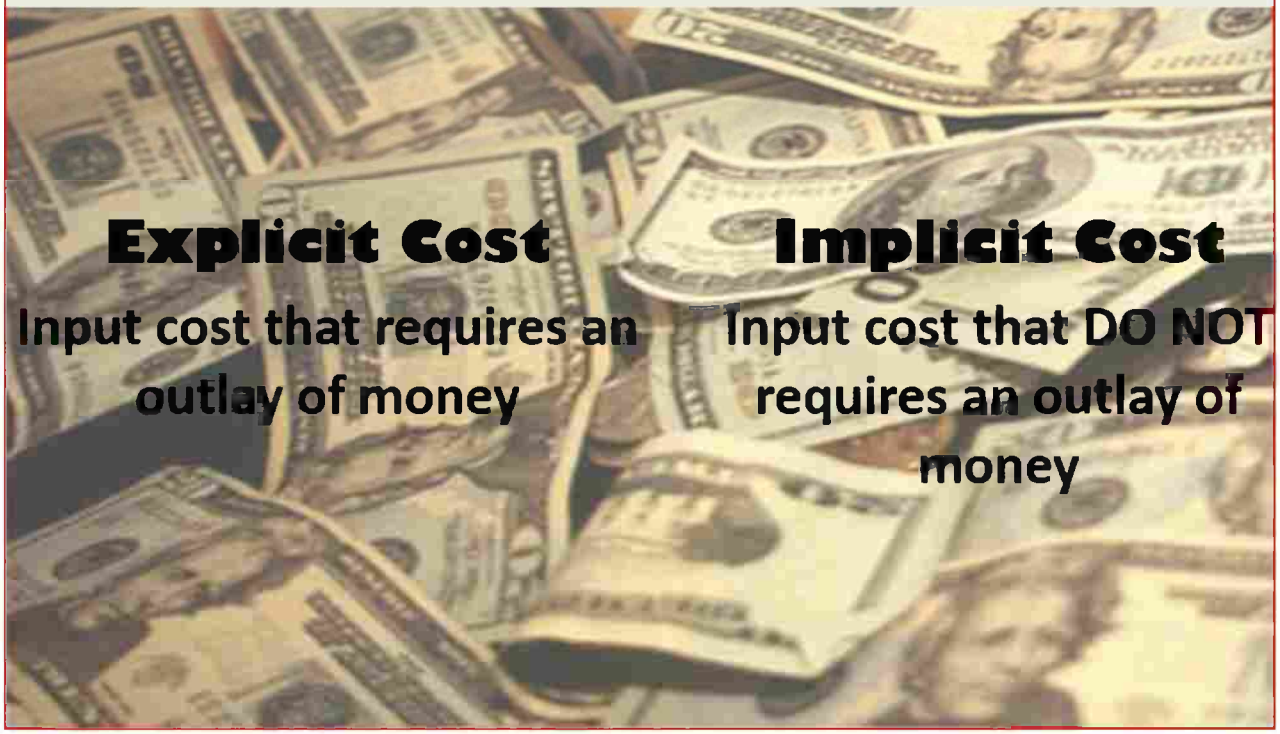
Opportunities
1. To work all day and make some money
2. To take the day off and go to a movie

You study late night for a final

The next day you are very sleepy

Your opportunity cost is a good night's sleep.

Opportunity cost = Explicit cost + Implicit cost

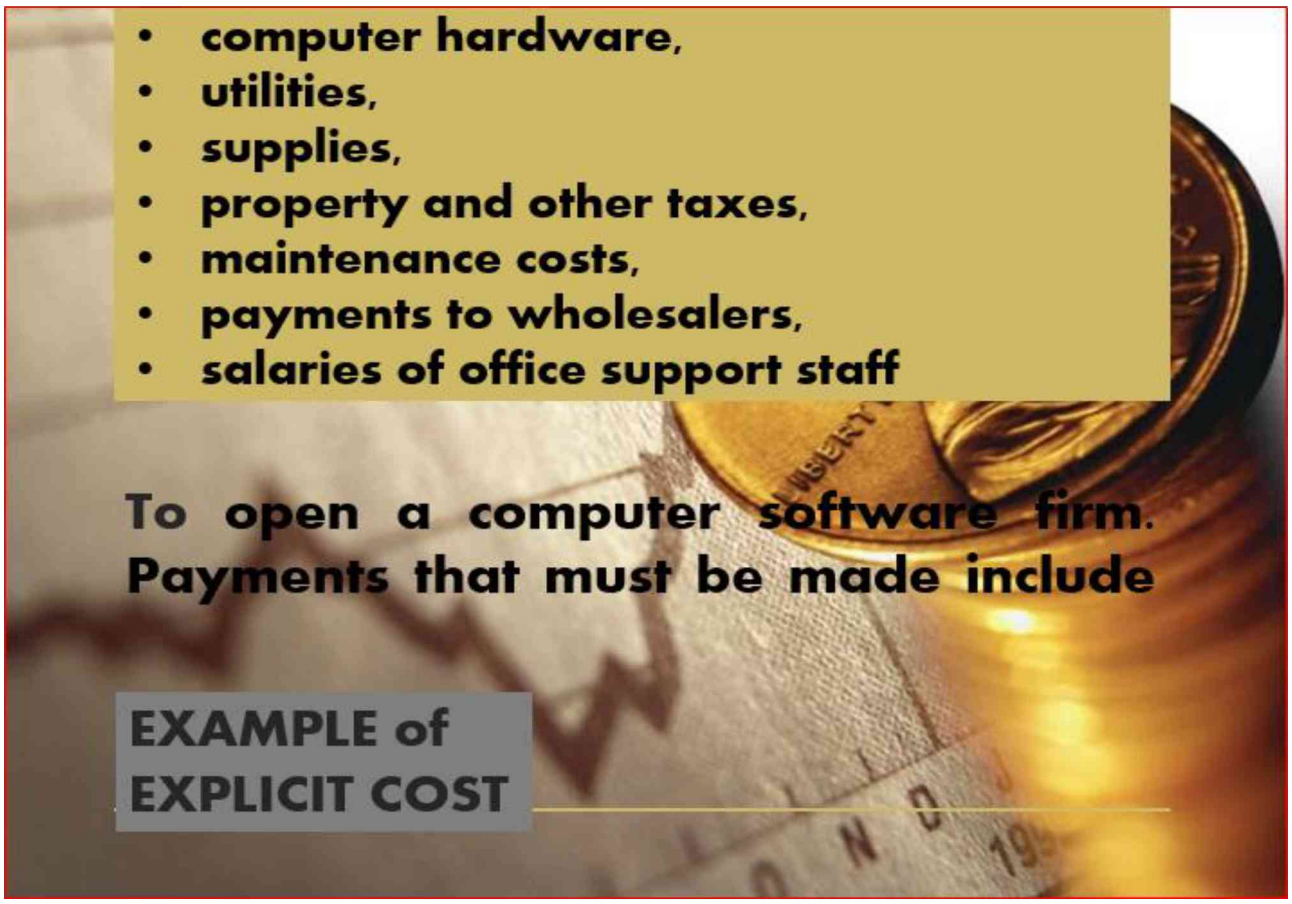


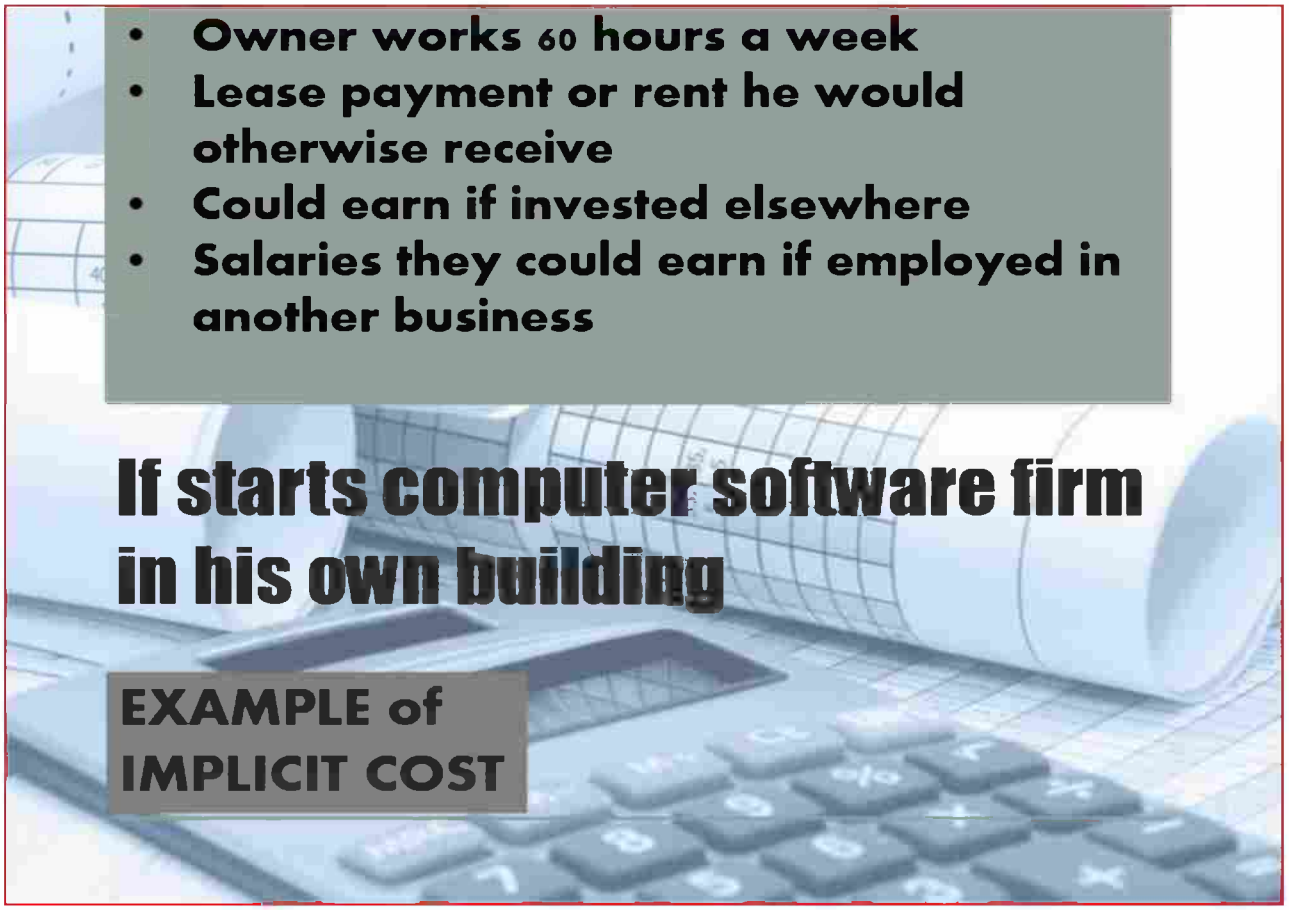
Explicit Cost

Input cost that requires an outlay of money

Implicit Cost

Input cost that DO NOT requires an outlay of money


computer hardware,
utilities,
supplies,
property and other taxes,
maintenance costs,
payments to wholesalers,
salaries of office support staff
To open a computer software firm. Payments that must be made include
EXAMPLE of EXPLICIT COST


Owner works 60 hours a week
Lease payment or rent he would otherwise receive
Could earn if invested elsewhere
Salaries they could earn if employed in another business
If starts computer software firm in his own building
EXAMPLE of IMPLICIT COST

Various Costs & their Measurements

Fixed Cost — Costs that do not vary with the quantity of output produced e.g. salaries or rents

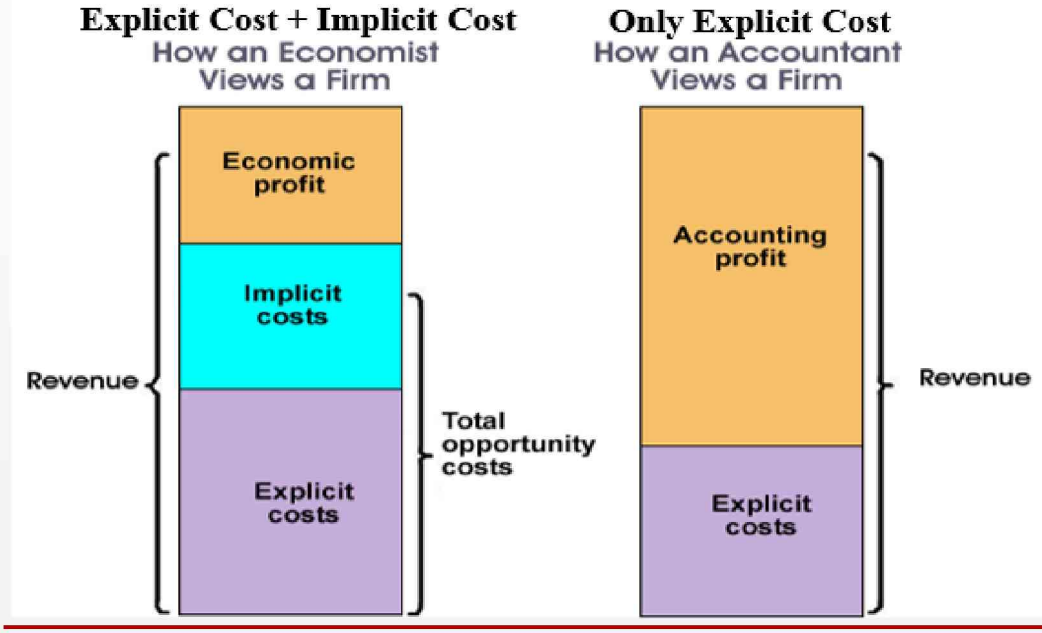
Variable Cost — Costs that do vary with the quantity of output produced e.g. raw materials and additional labors

Marginal Cost — The increase in total cost that arises from an additional unit of production.

Average Cost — How much does it cost to make a typical unit of production.

Quantity	Fixed cost	Variable cost	Total cost=F.C+V.C	Average fixed cost=FC/Q	Average variable cost=VC/Q	Average total cost= AFC+AVC	Marginal cost Change in total cost/change in quantity
0	$3	$0.0	$3	---	---	---	$0.3
1	3	0.3	3.3	$3.0	$0.30	$3.3	0.5
2	3	0.8	3.8	1.5	0.40	1.9	

Economic Profit versus Accounting Profit



Economic profit is always less than the accounting profit

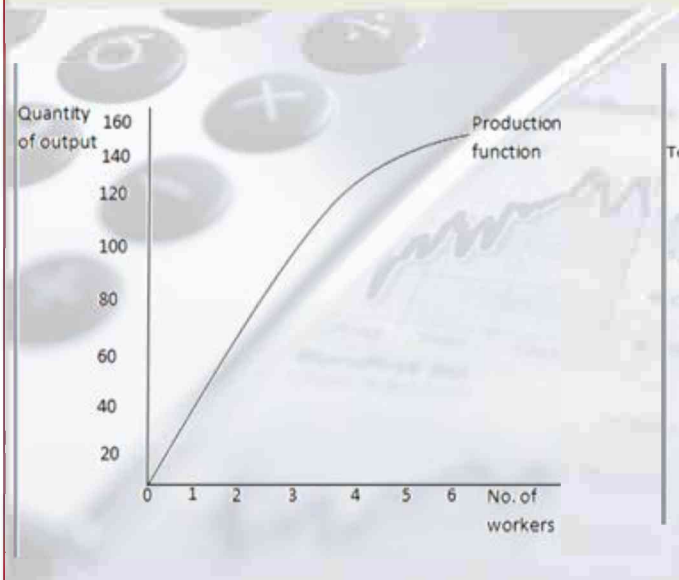
Production Function

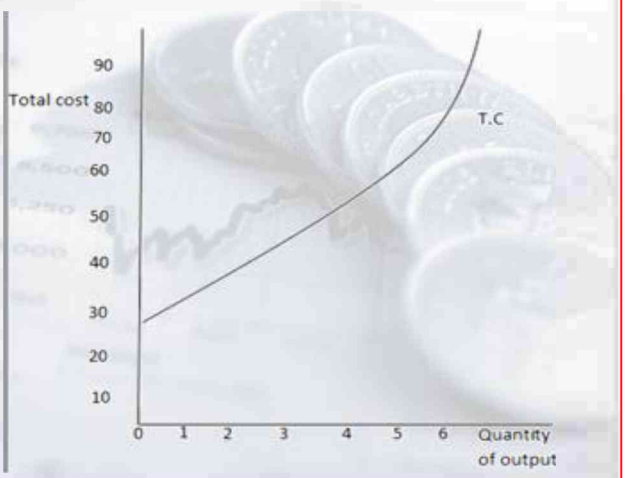
The relationship between quantity of input and output

Maximum output that can be produced from any combination of inputs available in a given time period

No. of workers/ quantity	Output quantity of cookies produced/ hour	Marginal product	Fixed cost/ cost of factory	Variable cost/ cost of workers	Total cost of inputs= F.C+V.C
0	0	$50	$30	$0	$30
1	50	40	30	10	40
2	90	30	30	20	50
3	120	20	30	30	60
4	140	10	30	40	70
5	150	5	30	50	80
6	155		30	60	90

Comparison of TC and Production Function

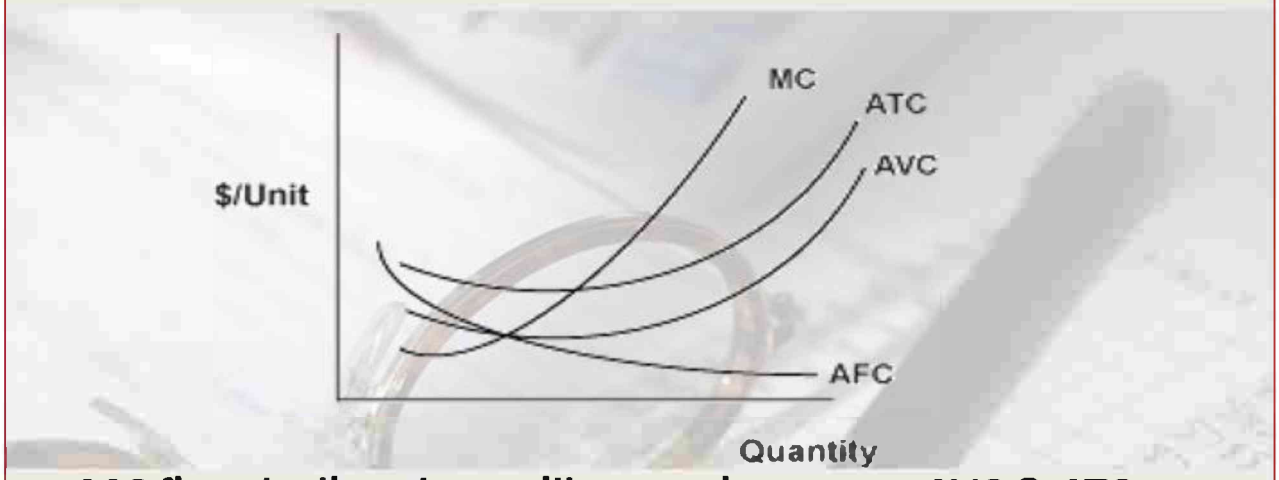




Law of Diminishing Marginal Product

The property where the marginal product of an input declines as the quantity of the input increases

Shapes of Cost Curves & their Relationships



- MC first decline then will go up, intersects AVC & ATC
- AVC go down, but not as steeply as MC, then go up
- AFC declines continuously
- ATC initially declines as FC is spread over a larger number of units, but will go up as marginal costs increase due to the law of diminishing returns

Competition and Monopoly

Подзаголовок слайда

Competition

- How supply and demand work
  - How "efficient" a market is
  - As well as how equitable
- … depends on competition

Competition in insurance, for example

- Textbook ideal:
  - Lower price
  - Better coverage -- Higher medical loss ratio
    - Oops! I mean "health benefit ratio."
  - Better service
- We get that (?), but also
  - Underwriting (higher premiums for the predictably sick)
  - Pre-existing condition exclusions
  - Retroactive cancellation

Textbook competition

- Each firm is a price-taker
  - Each is too small to influence market
  - Demand curve is flat
- Each firm expands production to the rate at which its marginal cost rises to equal the price.
- The price sends a good signal to consumers.
  - What you pay equals the opportunity cost

Monopoly theory and antitrust laws

- **Monopoly and Competition Theory**
- "Monopoly" means one seller. It comes from Greek words meaning one (mono) seller (polein, which is Anglicized to "poly"). The term is used broadly to include industries of several sellers who act as one. The correct term for a "buyers' monopoly," where there is only one buyer, is "monopsony."
- "Oligopoly" means a small number of sellers. The automobile industry is an example of an oligopoly. So is the hospital services industry in most small to medium-sized market areas.

Structure, Conduct, and Performance

- Economists analyze a market under three categories: Structure, Conduct, and Performance.
- Structure is the context in which the actors in the market make their decisions.
- Conduct is what decisions the actors make.
- Performance is what we get as a result in terms of efficiency and equity.

Structure

- **Concentration**: How many sellers are in the market and how big the bigger sellers are relative to the market as a whole.
- **Barriers to entry**: How hard it is for a new firm to enter the market. Another way to think of this is: Are there potential competitors?
- **Product differentiation**: Can you tell one firm's product from another's?

What monopolies do (that we don't like)

- Restrict output and raise price
  - Transfer income to themselves, a distributional issue.
  - Efficiency is lost, because society forgoes the opportunity to turn relatively low value resources into relatively high value products.
- Allow costs to rise, thanks to lack of competitive pressure. (Allocation issue.)
- Retard or distort innovation, to defend the monopoly. (Allocation issue.)
- Concentrate political power.

Natural monopolies

- **Natural monopolies** -- if it is most efficient to have one seller serve an entire market. Local utility service may be an example, because it would be costly to have two sets of water pipes, electrical lines, or telephone lines to each house.

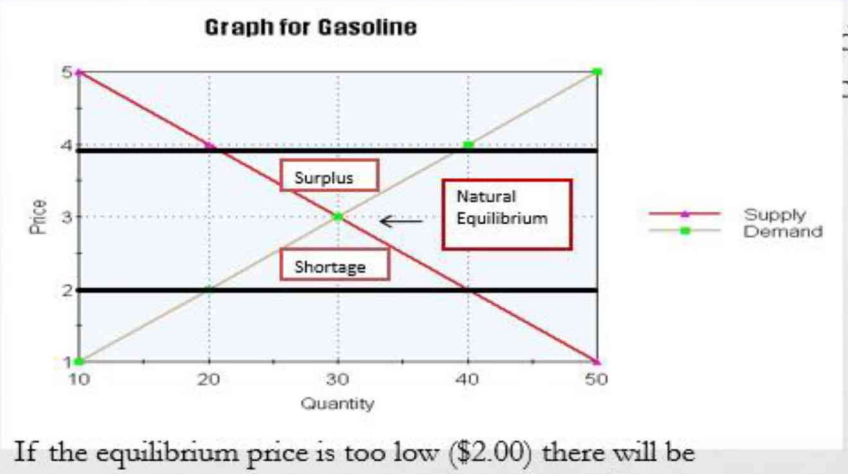
BASIC ECONOMIC CONCEPT

Demand

- Demand is the quantity of a product that consumers are willing to buy at a given price.
- If demand increases, the demand curve will shift to the right. If demand decreases the demand curve will shift to the left, "left is less".
- In all graphs Quantity goes along the bottom of your graph and Price goes up! Just remember, prices always go up!

Supply and Demand

(they meet and have a picnic at "equilibrium point")

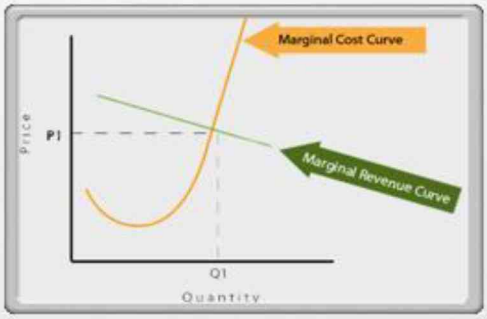


If the equilibrium price is too low ($2.00) there will be a shortage. If the equilibrium price is too high ($4.00) there will be a shortage.

Money and the Government

- The government needs money to operate. They get their money from taxes.
- Direct taxes go directly to the government
- Indirect taxes are collected by someone else and then sent to the government. Gasoline taxes are an example of an indirect tax.

Marginal Cost Analysis



Where the two lines meet is the most profitable place to produce.

Law of Diminishing Marginal Returns – at some point, adding resources will result in less output per additional unit of product. This causes the shape of the Marginal Cost curve.

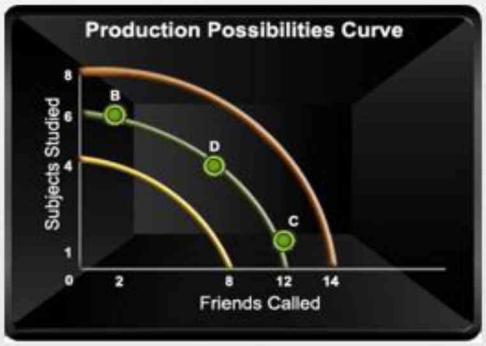
Go back and review how to figure out the Marginal Cost and Marginal Revenue. Remember it is the difference between the amount you have and the next unit produced.

Supply and Demand of Labor

- Works just like regular supply and demand – except the suppliers are the workers (laborers) and the demanders are the employers (owners of firms)
- If demand for a product decreased, the owner of the company might fire some workers to reduce the amount being produced and thus decrease supply to meet equilibrium
- Companies will continue to hire or fire workers until the additional profit is less than the costs of the workers
- The supply and demand for a certain job helps determine that jobs wages – or earnings of labor
- By cutting labor costs, the owner can increase profits

Investing in your Business

- Capital Investments – help to increase productivity – new technology
- Production Possibility Curve – PPC – shows how much of a product can be produced using limited resources



Barriers to Trade

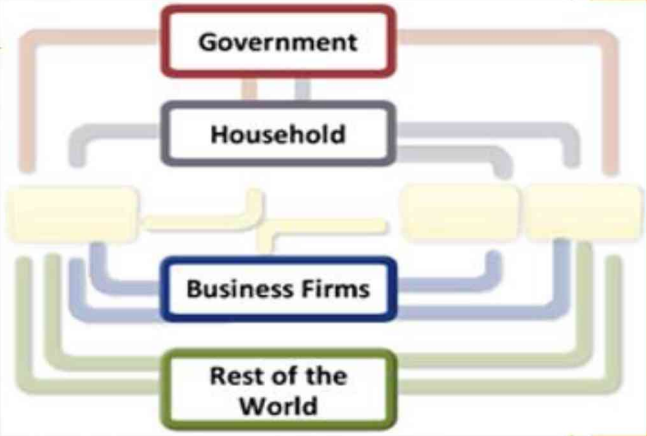
- Quota - A quota sets a maximum amount of a product for import. With less product available, quantity supplied decreases and price increases.
- Tariff - A tariff is a tax on imported goods. It is added onto the selling price when it enters the country and increases the price of import goods, thus decreasing the quantity demanded. In addition, it provides more tax revenue to the government.
- Regulation - A regulation is a safety and quality standard. It may result in the ban of specific ingredients proven to be hazardous. If a product includes these ingredients, it is not allowed to enter the country. A regulation also serves as a standard for environmental or ethical impact.
- Impact - Impact limits consumer access to goods that are considered to be of poor quality or do not meet social expectations.
- Embargo "Ban" - An embargo is the complete refusal to import a good or even all goods from a particular country. It can create a black market for those goods and hurts the political relationship with the country that has been banned. It could also potentially hurt the economy of one or both countries.
- FTA – Free Trade Agreement; Countries that trade freely with the U.S., beneficial because of the agreement which eliminates all barriers to trade and countries agree to work together economically.

The Circular Flow Model

A circular-flow diagram shows the flow of resources between four main players in the economy—households, businesses, the government, and the rest of the world.

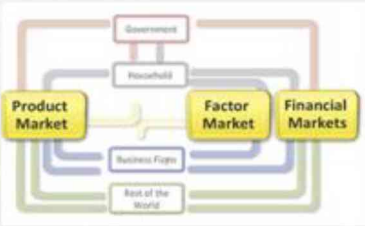
The Players

- The government represents any lawmaking body (local, state, or national) that collects taxes and provides services to individuals and businesses.
- Households include individuals like you and those living in the same home.
- Businesses include any company type that earns income from the sale of goods and services.
- The rest of the world represents interaction with all those three groups in foreign countries.



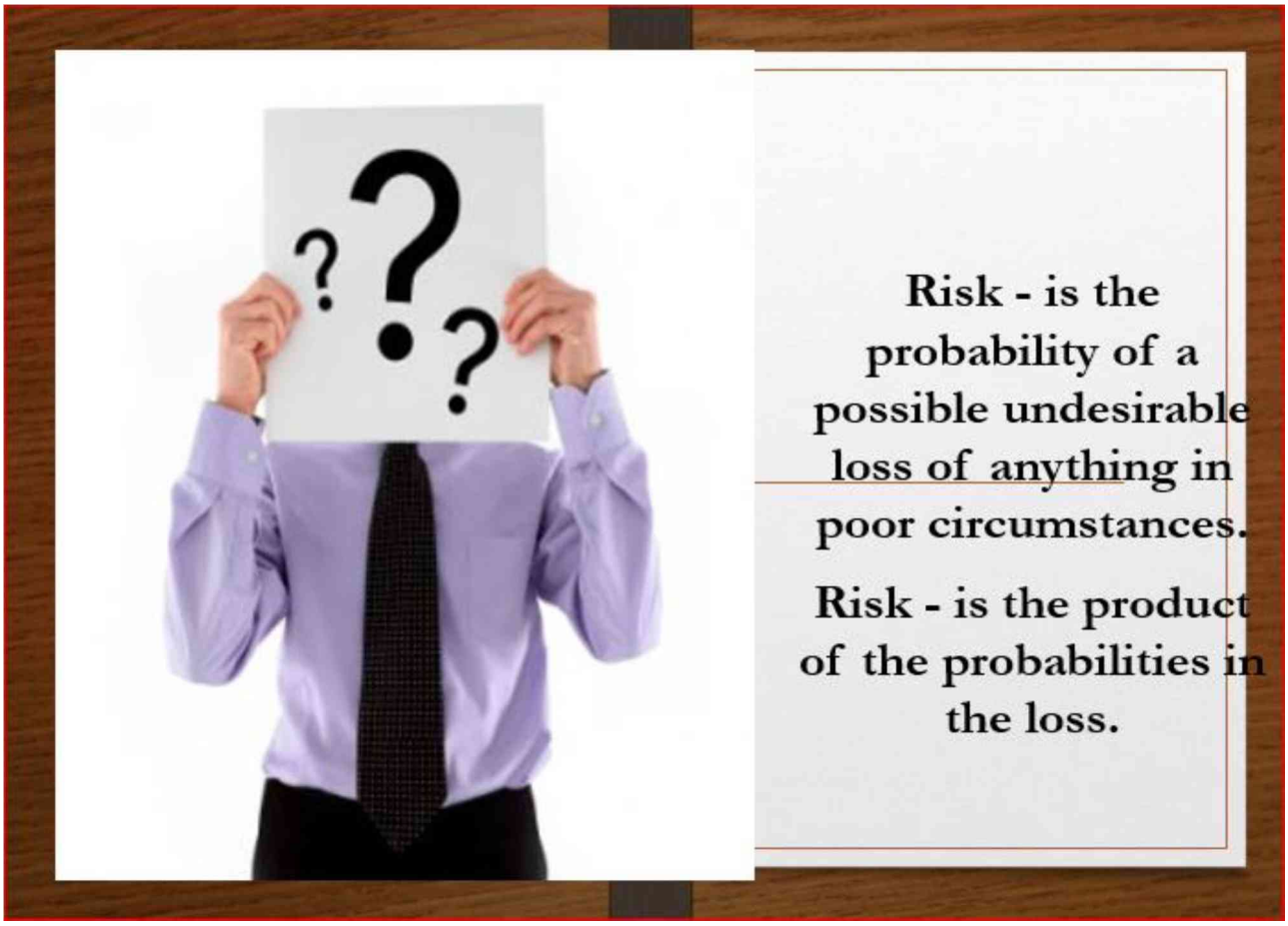
The Circular Flow Model

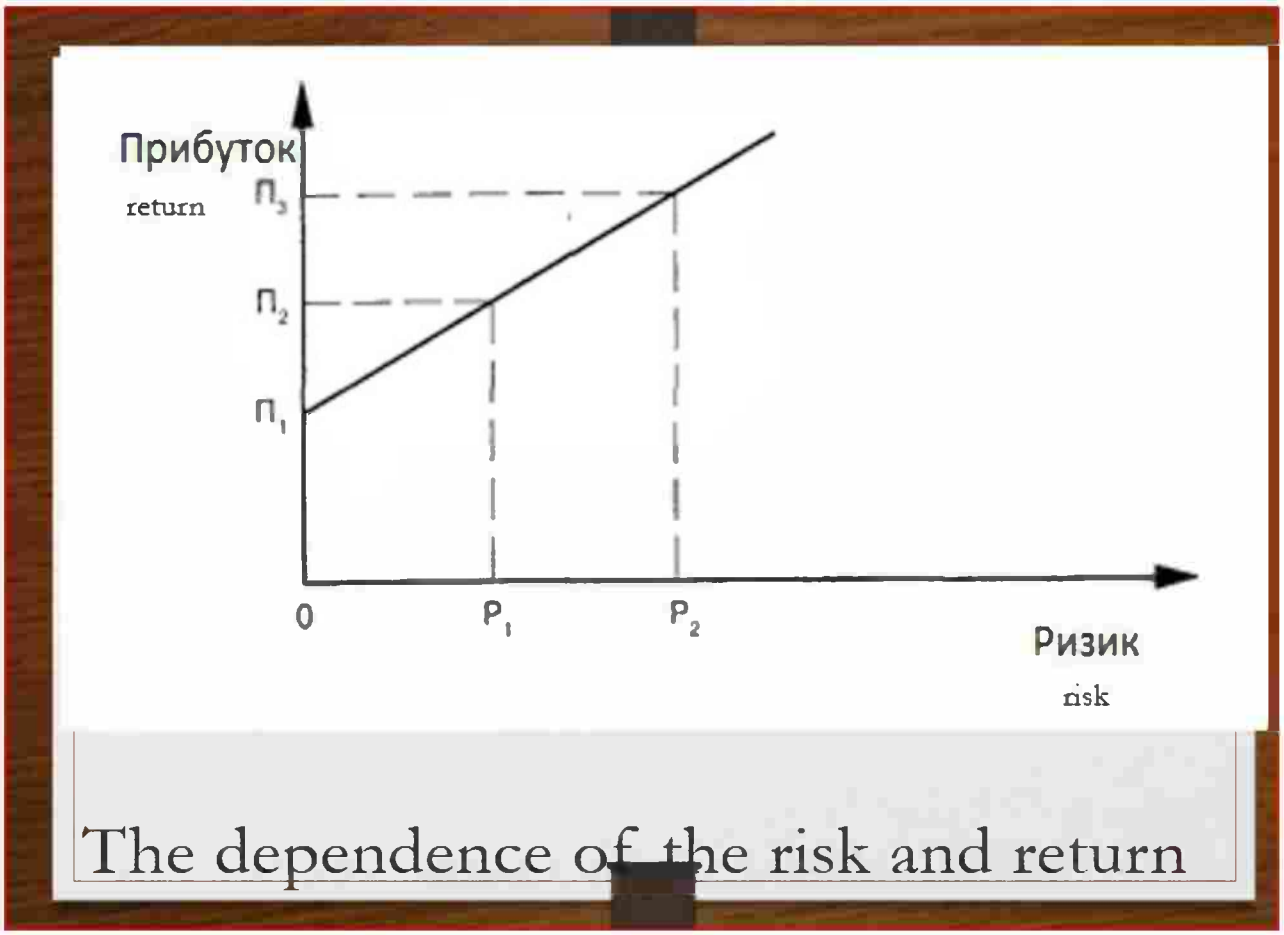
The Markets



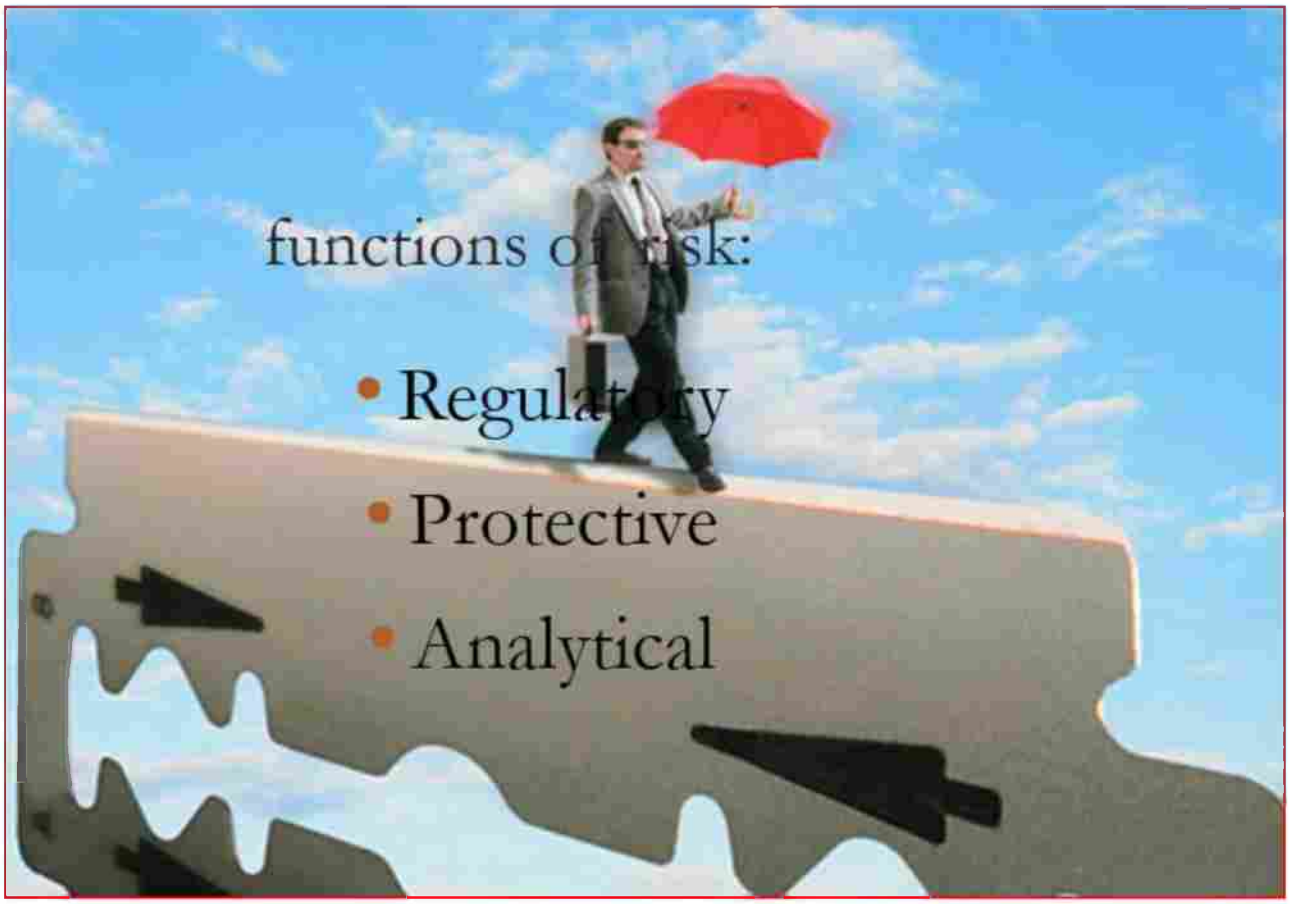
- The four main players interact in three types of markets —factor, product, and financial.
- The product market is the buying and selling of finished goods and services, like your morning latte.
- The factor market is the exchange of the factors of production including components of land, labor, and capital, such as a coffee company purchasing equipment to process coffee beans.
- The financial market refers to the stock market and banking services, including the loans all the other economic players use to meet their goals.


RISK
RISK
Types of risks


Risk - is the probability of a possible undesirable loss of anything in poor circumstances.
Risk - is the product of the probabilities in the loss.



The dependence of the risk and return

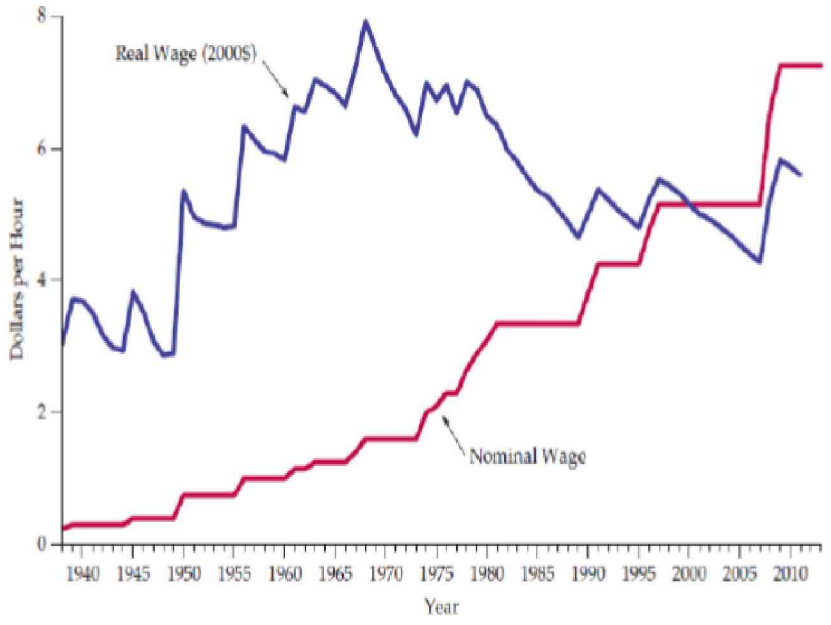


Technical risk - is a threat to equipment failures, reduce technical reliability electro - and heat supply interruptions to consumers.

Production risk is associated with the production of products, goods and services

Innovative risk - the probability of losses arising in the business by investing resources in the production of new goods and services

- The minimum wage in the U.S. across time



The supply-and-demand model

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- The basic *model of supply and demand* is a fundamental and powerful tool in microeconomics that helps to understand why and how prices change, and what happens when the government intervenes in a market.

- The model of supply and demand, notwithstanding its limitations, provides a good description of how *competitive markets* function.
  - **Competitive markets** are those with many buyers and sellers, such as most agriculture markets, labor markets, and stock and commodity markets.

- Like all good theories, the supply-and-demand model can be tested—and possibly shown to be false. But in competitive markets, where it works particularly well, it allows us to make accurate predictions easily.

The demand curve

- Let's consider demand for apartments located in the Mirabad district. But let's first assume that all apartments in this district are identical. Thus it will make sense to speak of "the price" of apartments, without worrying about whether the apartments have one bedroom, two bedrooms, or whatever.

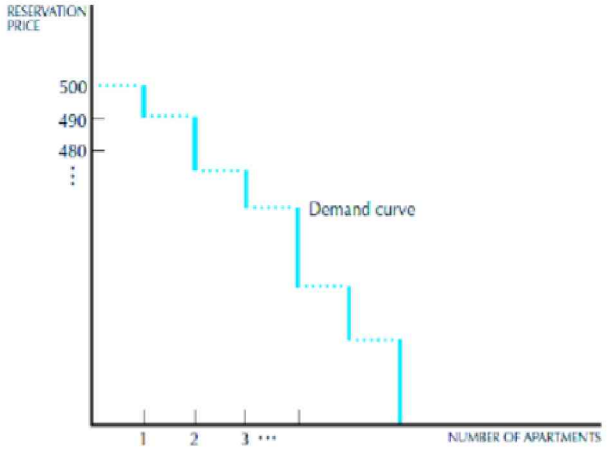
- Suppose that we consider all of the possible renters of the apartments and ask each of them the maximum amount that he or she would be willing to pay to rent one of the apartments.

The demand curve (cont.)

- Let's start at the top. There must be someone who is willing to pay the highest price. Perhaps this person has a lot of money, perhaps he is very lazy and doesn't want to walk far to his workplace that is located nearby … or whatever. Suppose that this person is willing to pay $500 a month for an apartment.
- If there is only one person who is willing to pay $500 a month to rent an apartment, then if the price for apartments were $500 a month, exactly one apartment would be rented—to the one person who was willing to pay that price.
- Suppose that the next highest price that anyone is willing to pay is $490. Then if the market price were $499, there would still be only one apartment rented: the person who was *willing* to pay $500 would rent an apartment, but the person who was willing to pay $490 wouldn't. And so it goes.

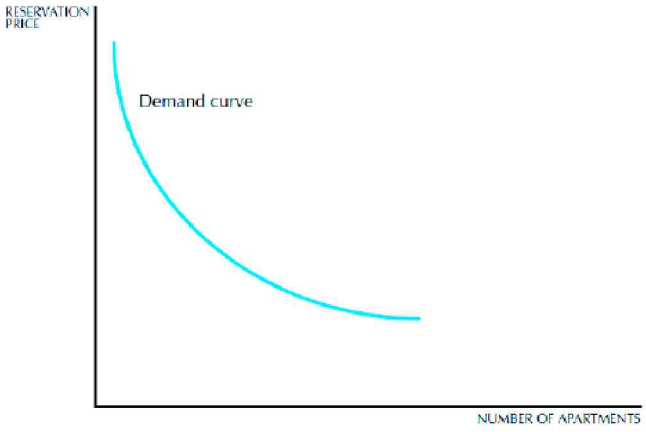
The demand curve (cont.)

- We can plot these reservation prices in a diagram as below.



The demand curve for apartments. The vertical axis measures the market price and the horizontal axis measures how many apartments will be rented at each price.

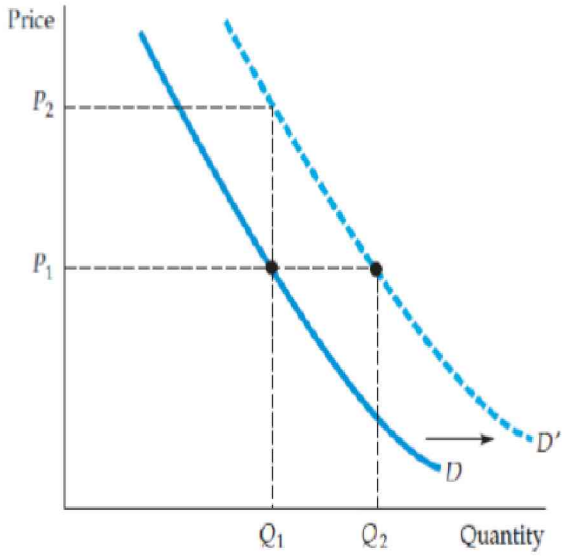
The demand curve (cont.)



Demand curve for apartments with many demanders. Because of the large number of demanders, the jumps between prices will be small, and the demand curve will have the conventional smooth shape.

Shifts in the demand curve (cont.)

- For example, suppose that the city council no longer allows to build bungalows or detached houses due to an ever-increasing population in the city. This would then raise the demand for apartments, including those in the Mirabad district, at any given price of those apartments: there would be a rightward shift in the demand curve for apartments, as in the figure on the right.

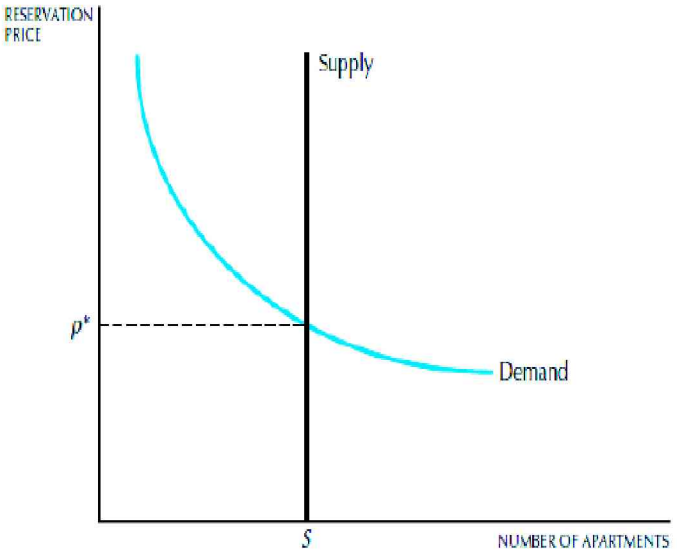


The supply curve (cont.)

- The vertical supply curve for apartments (in the short run) is a special case of supply curves.
- In general, however, for most goods we have an upward-sloping supply curve, which shows a positive relationship between price and quantity supplied, as in the figure on the right.
  - The **quantity supplied** is the amount of a good that producers are willing and able to produce and sell at a given price.

The market mechanism

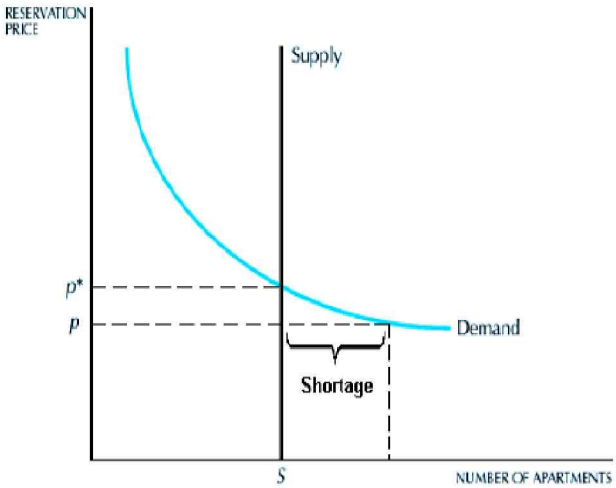
- We can now put the demand curve and the supply curve together to see how they determine the price and quantity at which goods are bought and sold. Returning to our example, the demand and supply curves for apartments intersect at the **equilibrium (or market-clearing) price**, which we denote by p^*. At this price, the quantity demanded and the quantity supplied are just equal.



Equilibrium in the apartment market. The equilibrium price, p^*, is determined by the intersection of the supply and demand curves.

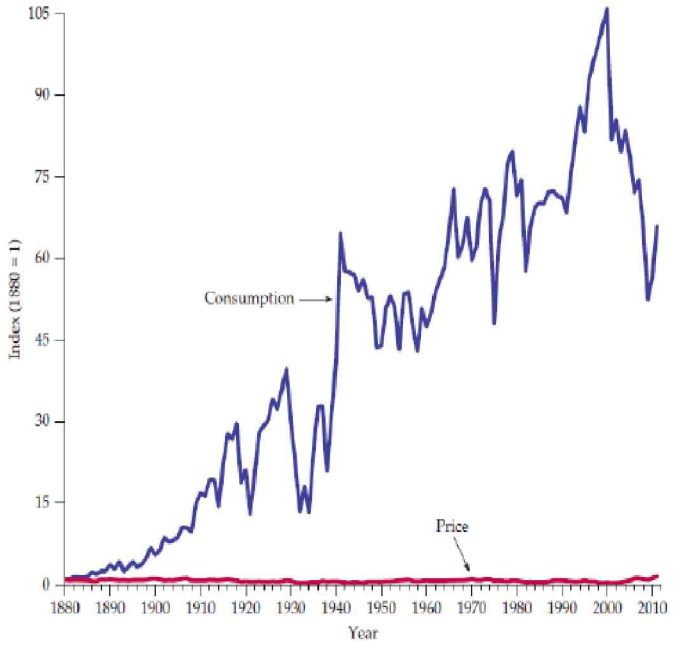
The market mechanism (cont.)

- To understand why markets tend to clear, let's consider what would happen at a price other than p^*. For example, consider some price $p < p^*$ where the quantity demanded exceeds the quantity supplied. At this price at least some of the landlords will have more renters than they can handle. There will be lines of people hoping to get an apartment at that price; there are more people who are willing to pay the price p than there are apartments. This situation is known as an **excess demand**, or **shortage**.



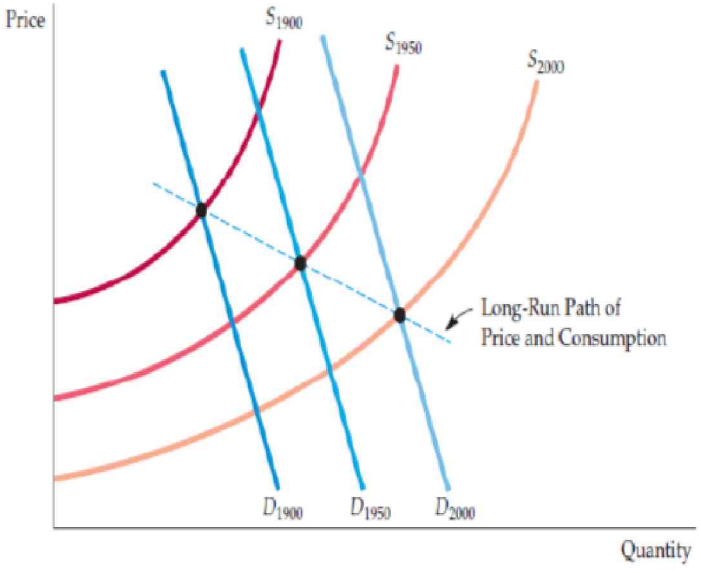
Application: natural resource prices (cont.)

- Consumption and price of copper: Although annual consumption of copper has increased about a hundredfold over the long run, the inflation-adjusted price has not changed much, as can be seen in the figure on the right.
- How can we explain this huge increase in copper consumption but very little change in price?



Application: natural resource prices (cont.)

- The answer is shown graphically on the right. Even as demands for these resources grew along with the world economy, production costs fell over time, increasing the supply by more than the increases in demand. The decline in costs was due, first, to the discovery of new and bigger deposits that were cheaper to mine, and then to technical progress and the economic advantage of mining and refining on a large scale.



Profit maximization (cont.)

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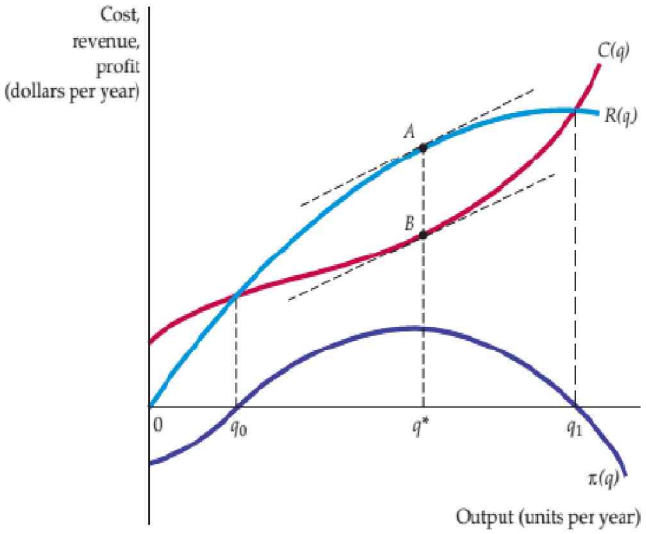
PROFIT MAXIMIZATION IN THE SHORT RUN

A firm chooses output q^* so that profit, the difference AB between revenue R and cost C, is maximized.
At that output, marginal revenue (the slope of the revenue curve) is equal to marginal cost (the slope of the cost curve).



Competitive markets

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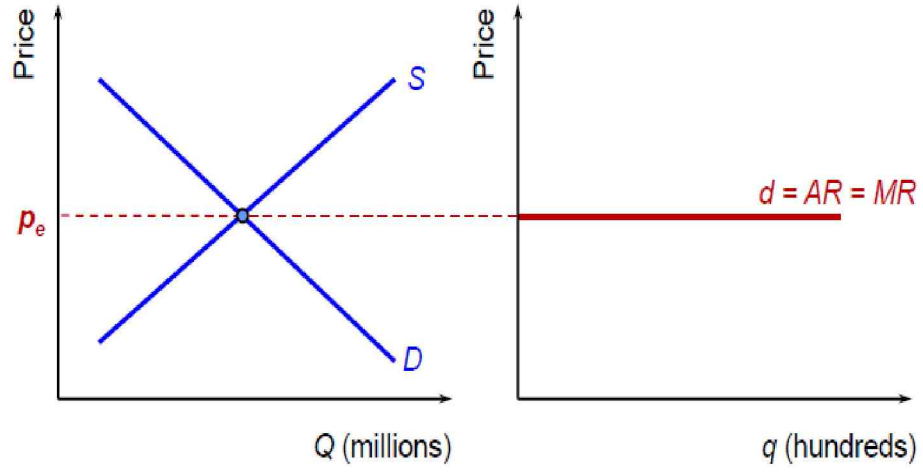
- Although many markets do not exhibit all characteristics of perfect competition, they can be reasonably described as competitive (e.g. many agricultural markets, other commodity markets, and stock exchanges).

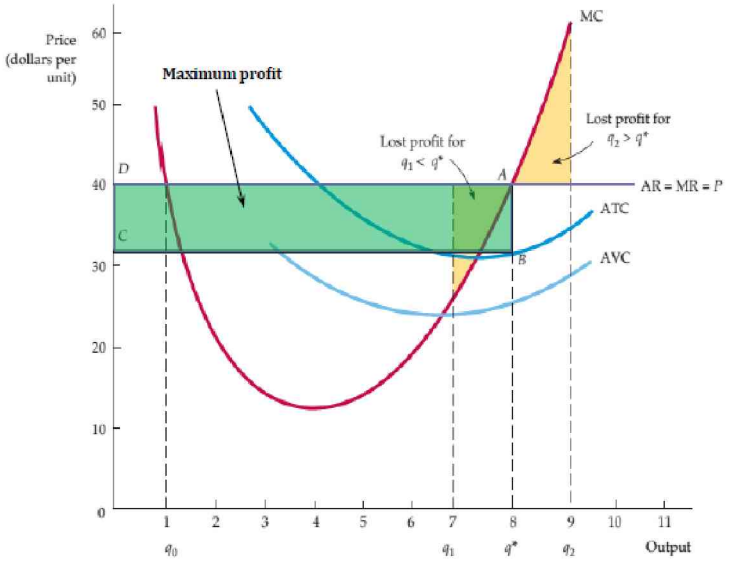
- A perfectly competitive market has many desirable properties which are used as a **benchmark** to compare to real world markets.

Demand curve under perfect competition



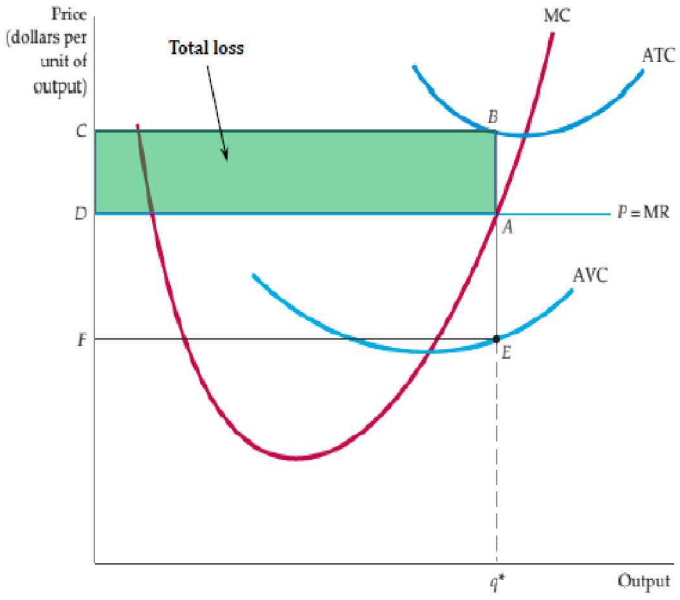
(a) The market **(b)** The firm

Short-run output choice



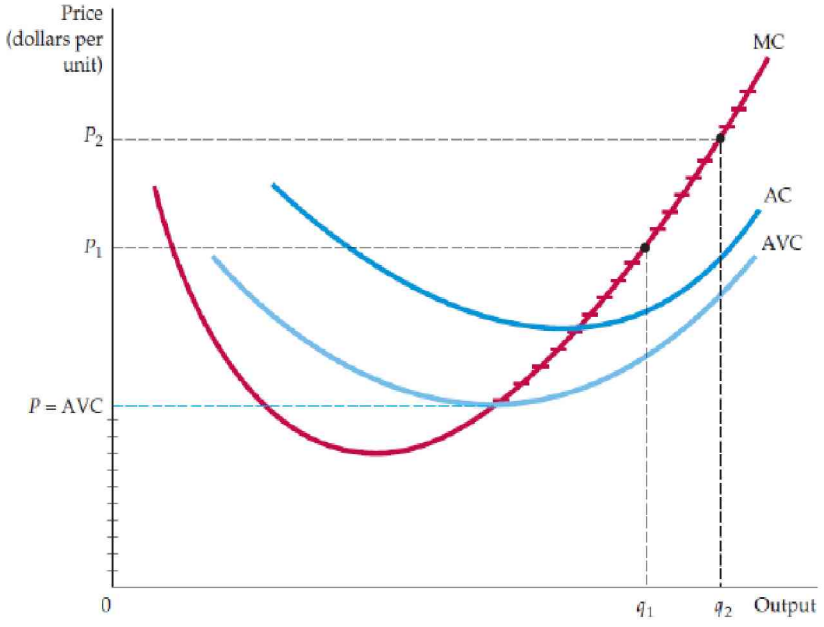
Output Rule: Any profit-maximizing firm sets its output q at the level where $MR = MC$.

Short-run loss minimization



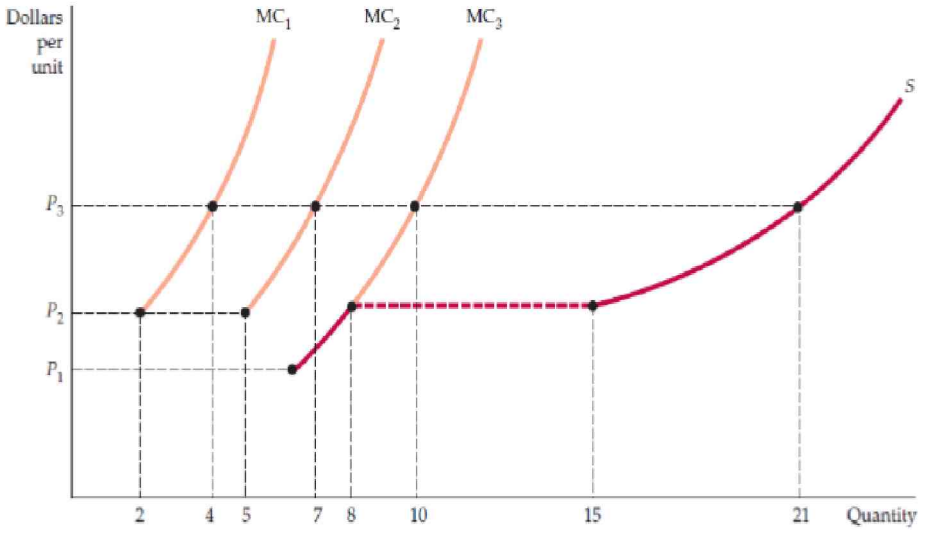
- If, at the profit-maximizing output q^*, the market price is less than average cost (ATC), then the firm incurs a **loss** by continuing its operation.
- However, as long as $R > VC$, or $p > AVC$, the firm may continue operating in the short run. This is because, if its fixed cost is *sunk*, it will **minimize its loss** by producing at q^*, since it can cover a portion of its fixed cost by doing so.

Short-run supply of a competitive firm (cont.)

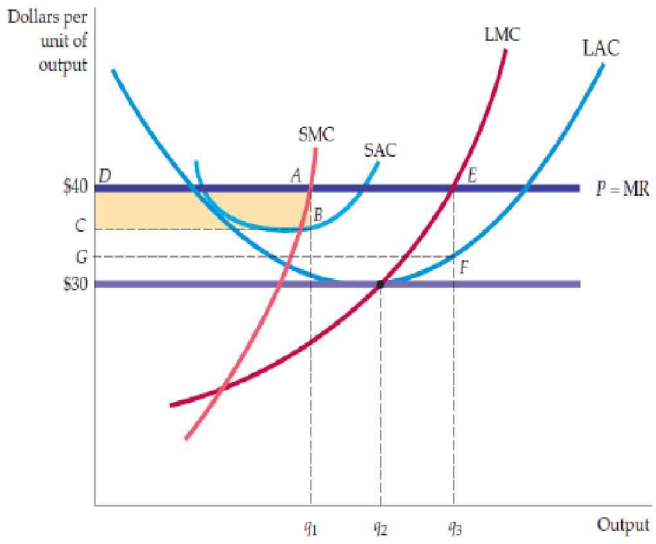


Short-run market supply

In the short run, the maximum number of firms in a market is fixed because new firms need time to enter the market. The market supply curve is the *horizontal sum* of the supply curves of all the individual firms in the market.

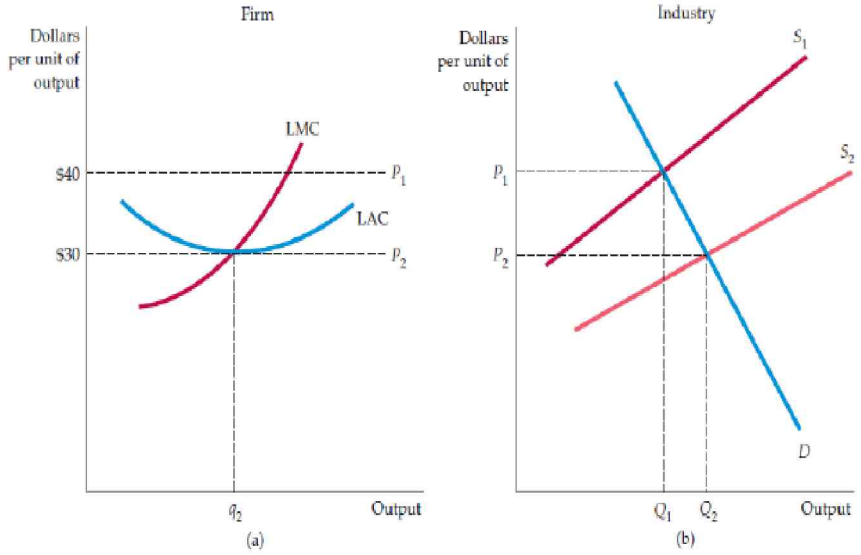


Long-run output choice



If the firm illustrated in the left-hand diagram believes that the market price will remain at $\$40$, it will want to increase the size of its plant to produce at q_3, at which $LMC = p = \$40$ (and where its profit will increase from $ABCD$ to $EFGD$). Output q_3 is profit-maximizing because at any lower output (say, q_2), $MR > LMC$, and at any output greater than q_3, $MR < LMC$. In summary, the long-run output of a profit-maximizing competitive firm is the point at which $LMC = p$.

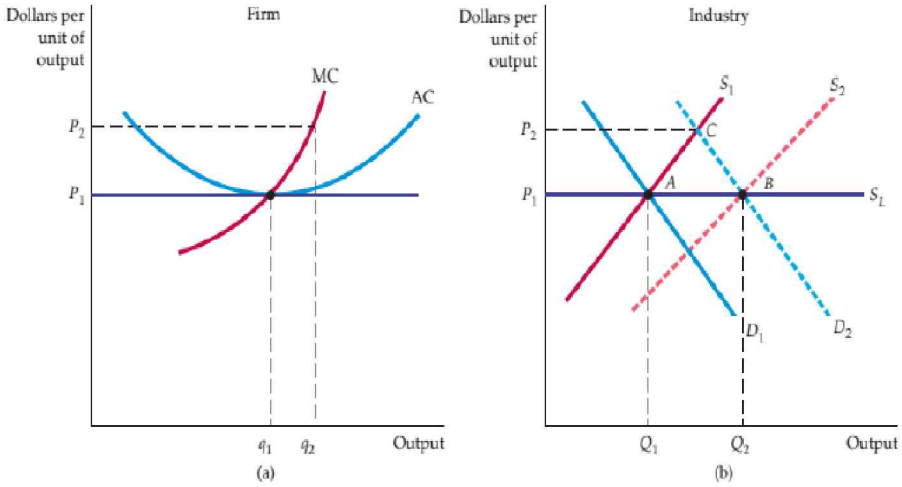
Long-run competitive equilibrium



Positive profit encourages entry of new firms and causes a rightward shift in the market supply curve. The long-run equilibrium occurs at $p = LAC_{\min}$ ($30 in the diagram), where each firm earns zero profit and there is no incentive to enter or exit the industry.

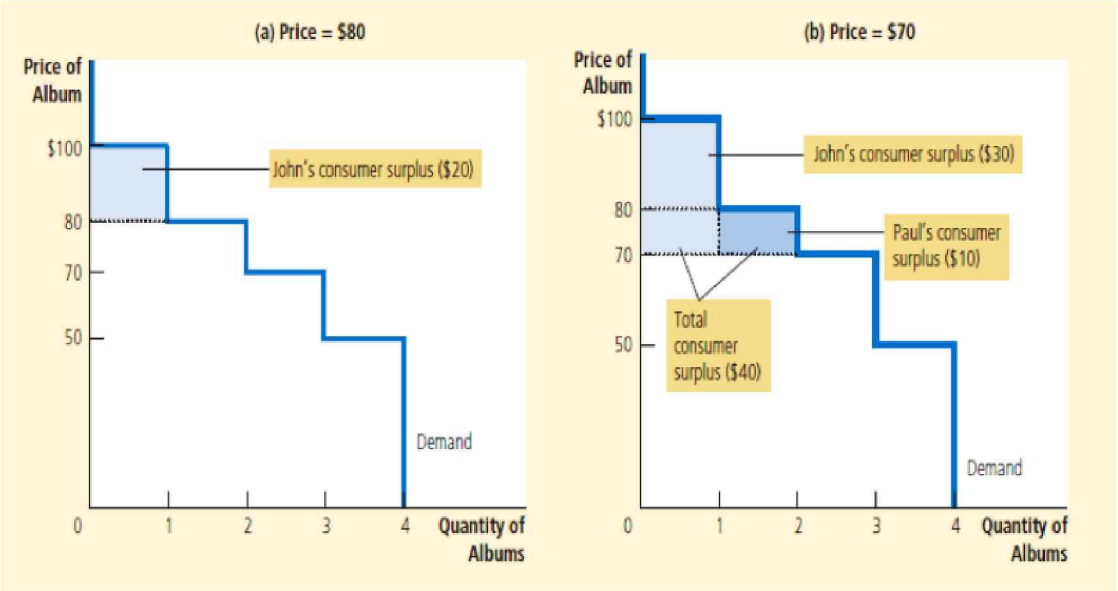
Long-run market supply (cont.)

Constant-cost industry – industry where firms have identical costs and input prices are constant

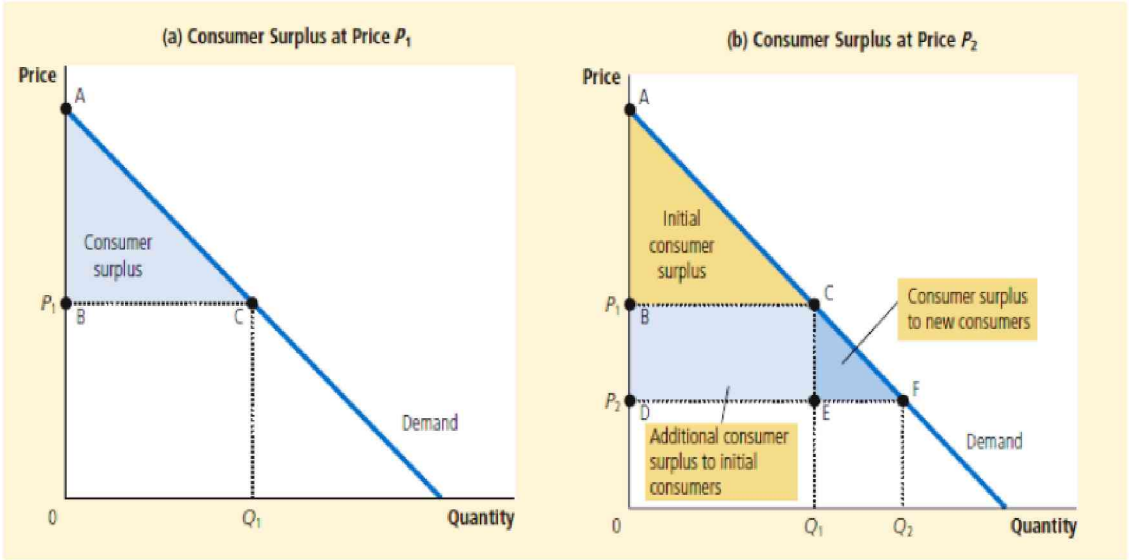


- The long-run market supply curve in a constant-cost industry is horizontal at the minimum long-run average cost

Consumer surplus (cont.)



Consumer surplus (cont.)



Producer surplus

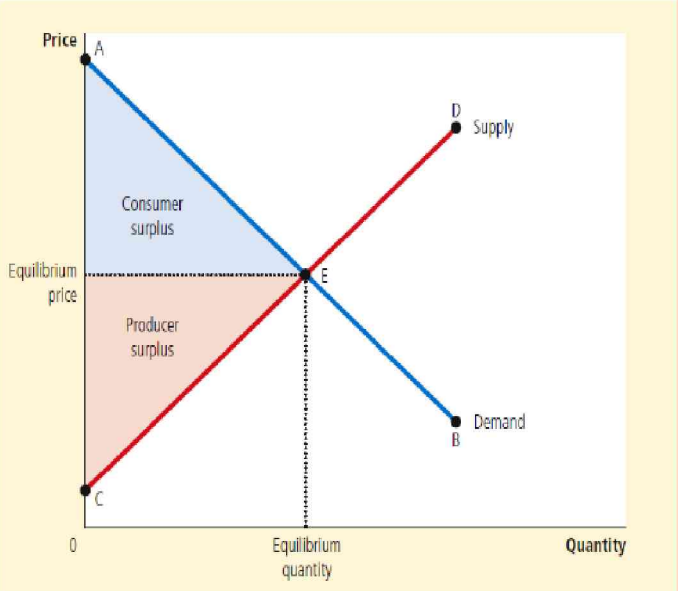
- **Producer surplus for a firm** – difference between the minimum amount for which a firm would be willing to sell its output and the amount it actually receives. It can be measured as the sum of differences between the market price of a good and the marginal cost of production over all units produced by the firm. Alternatively, it can be measured as the *difference between the firm's revenue and its total variable cost*, $R(q) - VC(q)$.

- **Total (or aggregate) producer surplus** – sum of the producer surpluses of all the firms producing (and selling) a good, measured by the area above the market supply curve and below the market price up to the quantity produced.

Producer surplus (cont.)

Total surplus

- **Total economic surplus** – sum of total consumer surplus and total producer surplus. It is a measure of the total economic welfare or the total benefit to society from exchange in a market.
- It turns out that, in equilibrium, perfectly competitive markets maximize the total economic welfare measured by the sum of producer and consumer surplus.



Monopoly and market power

- **Monopoly** – a market where there is only *one* supplier of a product for which there is no close substitute.
- **Monopsony** – a market where there is only one buyer of a good or service. (*We are not interested in monopsony markets for now.*)
- **Market power** – the ability of a seller (or buyer) to affect the price of a product.
- Firms with market power are ***price setters***, or ***price makers***.

Average revenue and marginal revenue

- A monopolist's *average revenue* is the price it receives per unit sold:

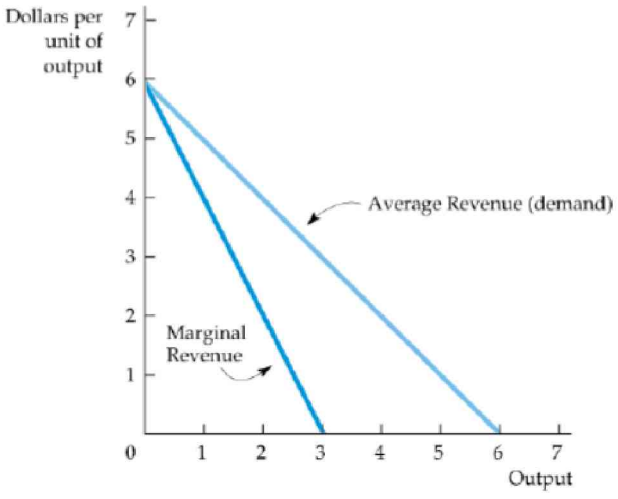
$$AR(Q) = \frac{R(Q)}{Q} = \frac{p(Q)Q}{Q} = p(Q)$$

- Then, *AR* curve of the monopolist is precisely the market demand curve.
- But the monopolist's *marginal revenue* is always less than the price of its good:

$$MR(Q) = \frac{dR(Q)}{dQ} = \frac{d[p(Q)Q]}{dQ} = p(Q) + \frac{dp(Q)}{dQ}Q$$

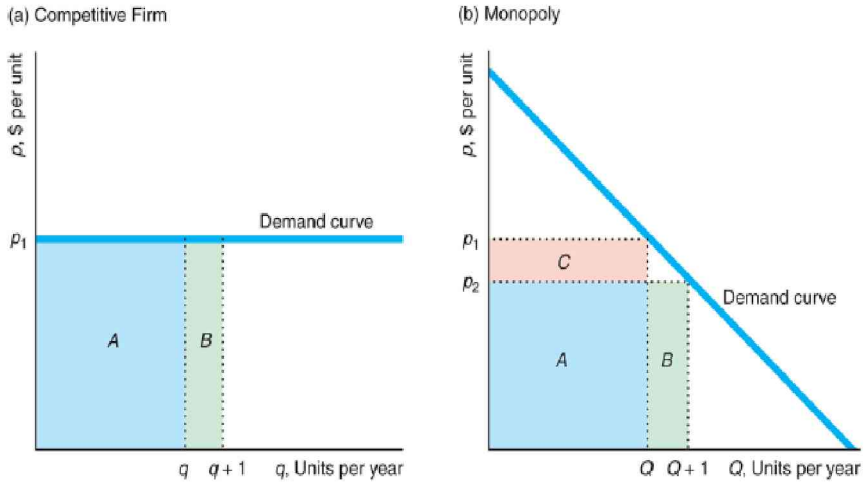
with $\frac{dp(Q)}{dQ} < 0$.

Average revenue and marginal revenue (cont.)



- Because $MR(Q) < AR(Q)$, the monopolist's marginal revenue curve lies below the demand curve (=*AR* curve) at every positive quantity.
- In the diagram on the left, the monopolist's demand curve is given by $P = 6 - Q$, and its marginal revenue curve is given by $MR = 6 - 2Q$.

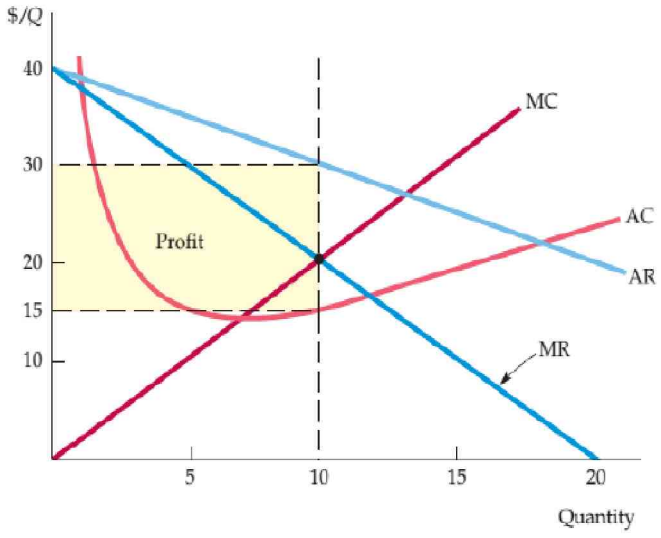
MR under competition and monopoly



	Initial Revenue, R_1	Revenue with One More Unit, R_2	Marginal Revenue, $R_2 - R_1$
Competition	A	$A + B$	$B = p_1$
Monopoly	$A + C$	$A + B$	$B - C = p_2 - C$

Monopoly profit maximization

- A monopolist, like any other firm, maximizes its profit by choosing its output, Q, such that $MR(Q) = MC(Q)$ (recall the profit-maximizing rule derived in the last lecture).
- However, because the monopolist's demand curve lies above its *MR* curve, the price the monopolist charges exceeds the marginal cost: $P > MR = MC$.



MR and price elasticity of demand

- Earlier we derived that $MR = p + \frac{dp}{dQ}Q$.
- This can also be written as

$$MR = p + \left(\frac{dp}{dQ}\frac{Q}{p}\right)p$$

- Recalling that $\left(\frac{dp}{dQ}\frac{Q}{p}\right)$ is the reciprocal of the elasticity of demand, $\frac{1}{\varepsilon^d}$, we get:

$$MR = p\left(1 + \frac{1}{\varepsilon^d}\right)$$

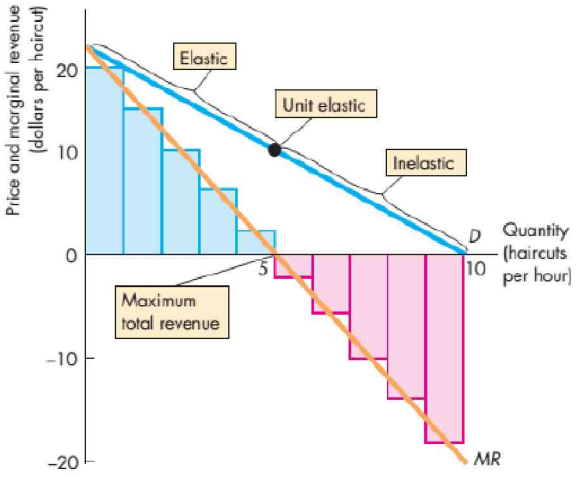
MR and price elasticity of demand (cont.)

- Because ε^d is a negative number, the above equation can be rewritten as

$$MR = p\left(1 - \frac{1}{|\varepsilon^d|}\right)$$

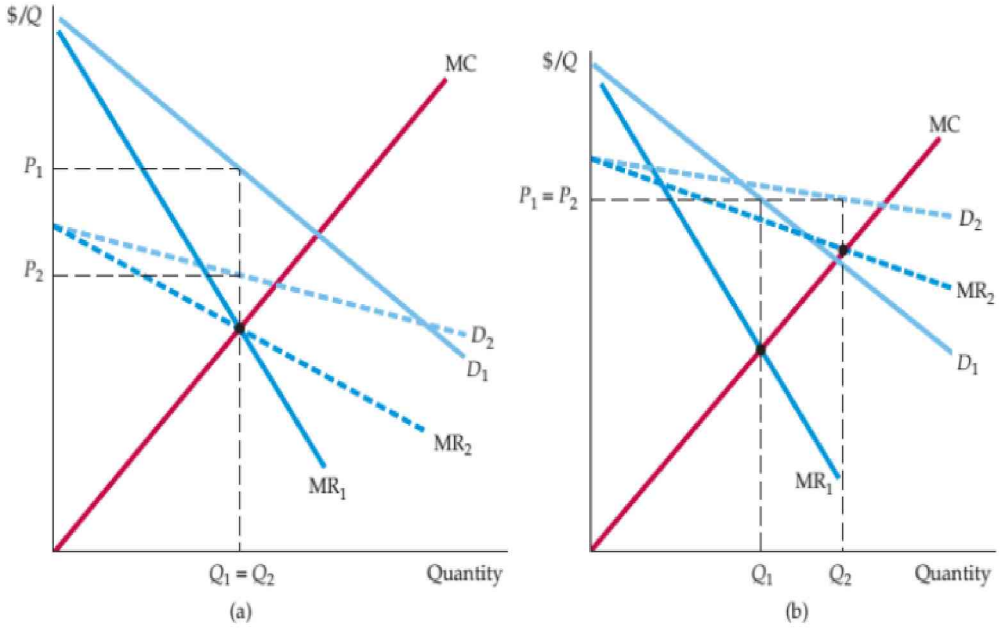
- From here it can be noticed that a profit-maximizing monopolist will never choose to operate on the *inelastic* portion of the demand curve: if $|\varepsilon^d| < 1$, then $MR < 0$, i.e., reducing Q will increase $R(Q)$. But because reducing Q will also reduce $C(Q)$, profits will necessarily increase. It follows that a monopolist's profit-maximizing point can only occur where $|\varepsilon^d| \geq 1$.

MR and price elasticity of demand (cont.)

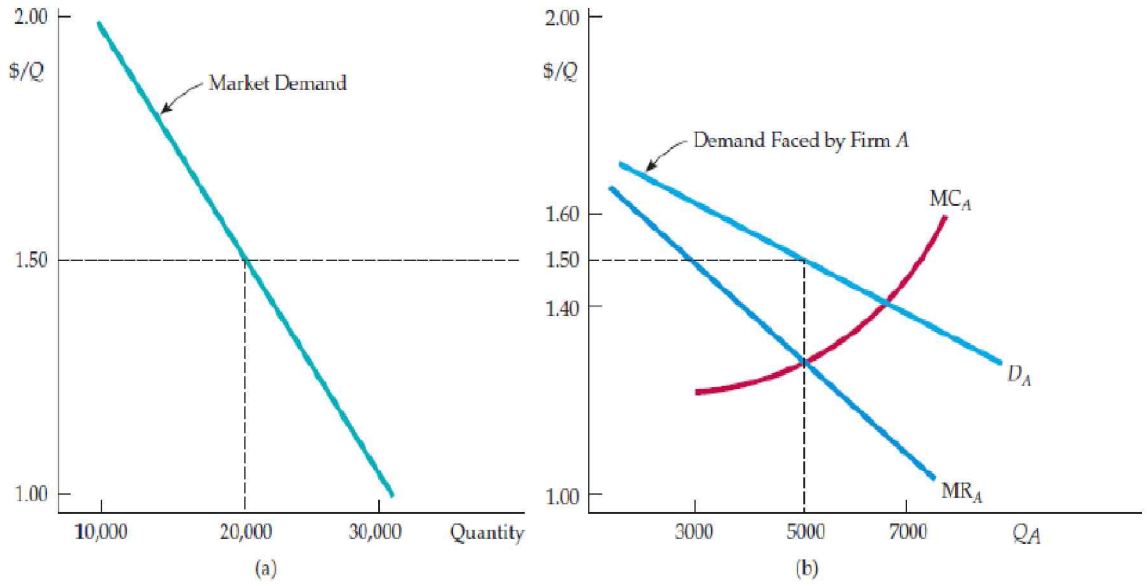


A monopolist's profit-maximizing point ($MR = MC$) always lies in the elastic portion of its demand curve. This is because MC can never be negative, and so it crosses the *MR* curve where $MR > 0$, which corresponds to the elastic portion of the demand curve.

Shifts in demand (cont.)



Market vs. firm demand



Market vs. firm demand: example

- Soft drinks provide a good example of the difference between a market elasticity of demand and a firm's elasticity of demand.

$0.8 < |\varepsilon^d| < 1$

$|\varepsilon^d| \approx 5$

Measuring monopoly power (cont.)

- The Lerner Index of monopoly power can also be expressed in terms of the elasticity of demand facing the firm. Recall that

$$MR = p\left(1 - \frac{1}{|\varepsilon^d|}\right)$$

- Since the monopolist's profit is maximized at $MR = MC$, we have:

$$MR = p - \frac{1}{|\varepsilon^d|}p = MC \implies \frac{p - MC}{p} = \boldsymbol{L} = \frac{1}{|\varepsilon^d|}$$

- Remember that ε^d here is the elasticity of the *firm's* demand curve, not the market demand curve. Also note that a large $\boldsymbol{L}$ does not necessarily imply large profits because the amount of profit depends on *average* cost relative to price.

Markup pricing

- By rearranging the relationship $MR = p\left(1 - \frac{1}{|\varepsilon^d|}\right) = MC$ we get the so-called **'markup pricing rule'**:

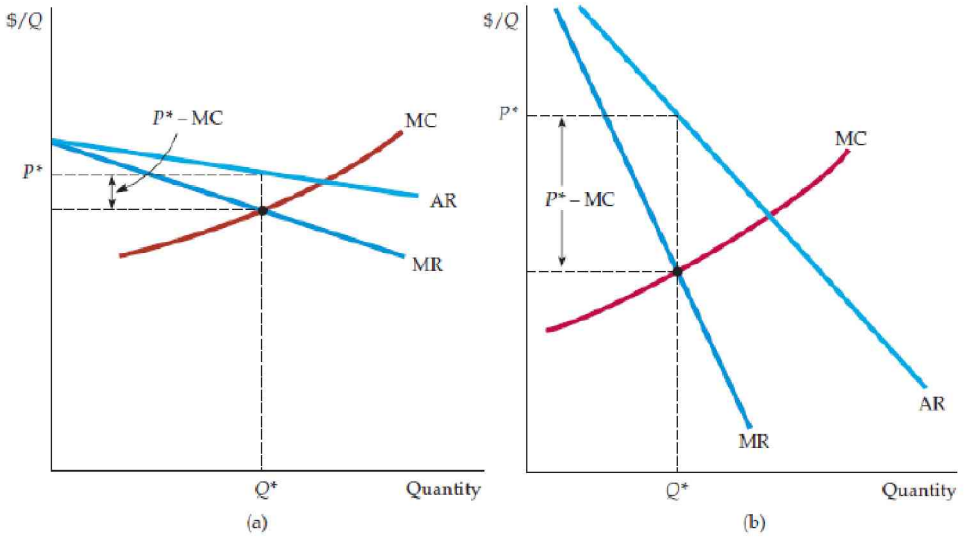
$$p = \frac{1}{1 - 1/|\varepsilon^d|}MC$$

- The above expression says that any profit-maximizing firm with monopoly power sets its price by adding a markup over its marginal cost, and this markup depends only on the *elasticity* of demand that the firm faces.

- The markup in this case is simply the proportion added on top of MC to get p:

$$\mu = \frac{p - MC}{MC} = \frac{1}{1 - 1/|\varepsilon^d|} - 1 = \frac{|\varepsilon^d|}{|\varepsilon^d| - 1} - 1 = \frac{1}{|\varepsilon^d| - 1}$$

Markup pricing (cont.)



The Prisoners' Dilemma: example (cont.)

PAYOFF MATRIX FOR PRICING GAME			
		UMS	
		Charge $4	Charge $6
Beeline	Charge $4	$12, $12	$20, $4
	Charge $6	$4, $20	$16, $16

The payoff matrix above shows profit earned by each firm given its decision and the decision of its competitor. For both firms, charging $4 is a dominant strategy. So, the Nash equilibrium is where each firm charges $4 and makes a $12 profit. Note that the Nash equilibrium outcome is inferior to the collusive (or cartel equilibrium) outcome where each firm would make a $16 profit.

Presentations on themes and video-rollers

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https://www.youtube.com/watch?v=H8aZr-Ula1wEconomics Mix: Pricing Strategies
https://www.youtube.com/watch?v=XBmWEduod5k ecomy Strategies
https://www.youtube.com/watch?v=GZgFdPWtVGYPromotion
https://www.youtube.com/watch?v=ys7zx1Vc9poThe Seven Ps of micro and makro
https://www.youtube.com/watch?v=H8FANR-2u2QStrategic Planning: SWOT & TOWS Analysis
https://www.youtube.com/watch?v=qbyb0ht-dskMcDonalds SWOT
https://www.youtube.com/watch?v=mCdcdf-b8AUPEST Analysis
https://www.youtube.com/watch?v=Zq391bgs6h0 - What is Economy Research? An Informative Presentation.
https://www.youtube.com/watch?v=sdQfId91Y0g - Ethical Behavior in Microeconomics
https://www.youtube.com/watch?v=n_L4tBP_KFQ - Economy Segmentation: Geographic, Demographic, Psychographic & More - Study.com
https://www.youtube.com/watch?v=IyjDjr33wAQ - Live affiliate Microeconomics case study
https://www.youtube.com/watch?v=2Zwlb_lQ23I - Economy Feasibility Study: More Important Than a Business Plan
https://www.youtube.com/watch?v=b0hle7pVLmMHow to Create a Digital Microeconomics Strategy - A Silverstone Case Study
https://www.youtube.com/watch?v=ZzPjSqvm9P8Infragistics Microeconomics Dashboard Case Study
https://www.youtube.com/watch?v=laTzwz08M94Economy segmentation: a case study
https://www.youtube.com/watch?v=bqaEhW3xOCkEconomy Orientation and Sales Orientation
https://www.youtube.com/watch?v=IgqKinwxbZ4Part 5: Microeconomics, Community and Apps Case Study featuring Coca-Cola - Salesforce World Tour Chicago
https://www.youtube.com/watch?v=z-9Yxo02hRkCase Study 2016: When Content Microeconomics Meets SEO
https://www.youtube.com/watch?v=lcoLoIyGw7INike Microeconomics Strategy | Successful Microeconomics #1
https://www.youtube.com/watch?v=9_XWp5fnXKcWhat is Microeconomics & Brand Strategy?
https://www.youtube.com/watch?v=CjieRgtjvlcEno Mobile Microeconomics Case Study: 70% Increase in Product Sales
https://www.youtube.com/watch?v=No67z1C4HPwHeineken India - Viral Campaign 2013
https://www.youtube.com/watch?v=-cvv1oC-ZaMGuerrilla Microeconomics - Coca-Cola Dancing Vending Machine

USING OF PROFESSIONAL TECHNOLOGY AND ITS COMMENT

1. Using of professional technology and its comment

The form of the scientist	**Seminar, on expansion and deepening of knowledge**
План семинара	The list of questions for discussion • Open concept about economy; • Explain formation, the maintenance, a subject and object of economy as sciences; • acquaint with interrelations of economy with other sciences • Open scientifically - research methods of economy • explain value, the purposes and economy problems
The purpose of educational employment: to Fix and expand knowledge of a course microeconomics.	
Pedagogical problems: • To open concept about economy; • To explain formation, the maintenance, a subject and object of micro as sciences; • to acquaint with interrelations of economy with other sciences • To open scientifically - research methods of economy • to explain value, the purposes and economy problems	Results of educational activity: • Open concept about economy; • Explain formation, the maintenance, a subject and object of economy as sciences; • acquaint with interrelations of economy with other sciences • Open scientifically - research methods of economy • explain value, the purposes and economy problems
Tutorials	Texts of lectures, graphic organizers, projector
Training methods	Discussion, the question-answer technics
Modes of study	Face-to-face, collective work.
Monitoring and estimation	Estimation of lecturers, reviewers.
Training conditions	Lessons with a hardware, adapted for face-to-face and works

Technological card of a seminar on deepening and expansion Knowledge

Work stages	**The activity maintenance**	
	The teacher	**Listeners**

	Discusses with lecturers structure and style of performance at a seminar. to reviewers explains their role, an order and regulations of performances Gets acquainted with the maintenance finished reports. If necessary something that it is necessary to add or specify.	Choose the theme, to seminar. Those who has chosen a performance theme, make the plan. Lecturers bring changing in the plan, specify, supplement. Write.
1 stage. Introduction in educational employment (10 mines)	1.1. Declares a theme of a seminar, the purpose and planned results educational represents the leader. 1. 2. Declares that the seminar is spent in the form of discussion with the purpose of deepening and expansion of knowledge on a lecture theme. 1.3. Represents the leader, lecturers and reviewers, acquaints with "the Instruction of participants of discussion" and the table "Kre Tory" of an estimation» (Appendices 2 and 3)	The leader represents lecturers, reviewers. Get acquainted with an instruction and tables of criteria of an estimation.
2	2.1. Will organise performances of lecturers, Watches logic of expansion of the maintenance of a material, way reaction specifies report substantive provisions. 2.2. Suggests to act to reviewers and to ask questions. Will organise collective discussion of the maintenance of reports. Together with the conducting regulates process collective: - Asks questions; - Specifies report substantive provisions; - Shows interest in statements. Estimates how much the maintenance to clearly students (under the maintenance of the questions set by participants of a seminar to the lecturer and under answers to questions). 2.3. Gradually translates a seminar in the form of the organized discussion. Shows democratic character and з in stated judgements, creates conditions of intellectual relaxedness, uses a trustworthy tone of dialogue. 2.4. Discussion of each report in all finishes short generalization, fixes substantive provisions of the report and results of discussion (discussion). 2.5. Results of discussion of each report finishes exhibiting of points to the lecturer, reviewers.	The leader asks to speak lessoner, and then to reviewers. The reviewer underlines positive sides of the report and the opinion expresses, sets quetions, participates in discussion. Participants collectively discuss the report maintenance.

3	3.1. Sums up discussion of the maintenance of a theme of a seminar: - Estimates readiness of lecturers and participants of a seminar, their activity during discussion; - In brief allocates high lights and formulates the conclusion; - Summarises the exposed points to lecturers, reviewers, declare them; - States the general estimation of productivity of a seminar. 3.2. Independent work: for a theoretical reinforcement of materials of seminar employment once again to work texts of lecture on a theme 13.	Write down the task for independent work.

Role instrumentation of a seminar-discussion

The leader receives all powers training - supervises over a discussion course, watches for refutations, accuracy of use terms, a dialogue correctness and so forth is strict behind regulations of performances. The reviewer as a whole characterises performance and marks Report positive sides by criteria: an urgency, sequence, logic and clearness of a statement, The accurate formulation of conclusions.

INDEPENDENT WORK

Independent work

1. Introduction: markets and prices. Preliminaries.
2. The basics of supply and demand
3. Consumer behavior
4. Individual and market demand
5. Choice under uncertainty
6. Production
7. The cost of production
8. Profit maximization and competitive supply
9. The analysis of competitive markets
10. Market power: monopoly and monopsony
11. Pricing with market power
12. Monopolistic competition and oligopoly
13. Game theory and competitive strategy
14. Markets for factor inputs
15. Investment, time, and capital markets
16. General equilibrium and economic efficiency
17. Market and asymmetric information
18. Externalities and public goods

GLOSSARY

GLOSSARY

Uzbek	English	Definition
Jami	**Aggregate**	A collection of specific economic units treated as if they were one unit.
Agrobiznes	**Agribusiness**	Large corporate firms in farming.
Samaradorlik	**Efficiency**	The apportionment of resources among firms and industries to obtain the production of the products most wanted by society (consumers); the output of each product at which its marginal cost and price or marginal benefit are equal.
O'rtacha o'zgarmas xarajat	**Average fixed cost**	A firm's total fixed cost divided by output (the quantity of product produced).
O'rtacha ishlab chiqarish	**Average product**	The total output produced per unit of a resource employed (total product divided by the quantity of that employed resource).
O'rtacha daromad	**Average revenue**	Total revenue from the sale of a product divided by the quantity of the product sold.
O'rtacha umumiy xarajat	**Average total cost**	A firm's total cost divided by output (the quantity of product produced); equal to average fixed cost plus average variable cost.
O'rtacha o'zgaruvchan xarajat	**Average variable cost**	A firm's total variable cost divided by output (the quantity of product produced).
Qora bozor	**Black markets**	Markets in which products are illegally bought and sold at prices above the legal limits.
Budjet cheklovi	**Budget constraint**	The limit that the size of a consumer's income (and the prices that must be paid for goods and services) imposes on the ability of that consumer to obtain goods and services.
Budjet chizig'i	**Budget line**	A line that shows the different combinations of two products a consumer can purchase with a specific money income, given the products' prices.
Kapital	**Capital**	Human-made resources (buildings, machinery, and equipment) used to produce goods and services; goods that do not directly satisfy human wants; also called capital goods.
Talab o'zgarishi	**Change in demand**	A change in the quantity demanded of a good or service at every price; a shift of the demand curve to the left or right.
Talab miqdori o'zgarishi	**Change in quantity demanded**	A movement from one point to another on a fixed demand curve caused by a change in price of the product under consideration.

Taklif miqdori o'zgarishi	**Change in quantity supplied**	A movement from one point to another on a fixed supply curve caused by a change in the price of a product under consideration.
Taklif o'zgarishi	**Change in supply**	A change in the quantity supplied of a good or service at every price; a shift of the supply curve to the left or right.
Kesishgan talab elastikligi	**Cross elasticity of demand**	The ratio of the percentage change in quantity demanded of one good to the percentage change in the price of some other good; a positive coefficient indicates the two products are substitute goods; a negative coefficient indicates they are complementary goods.
Iste'molchiliar mahsuloti	**Consumer goods**	Products and services that satisfy human wants directly.
Talab chizig'i	**Demand curve**	A curve that illustrates demand.
Talab jadvali	**Demand schedule**	A schedule showing the amounts of a good or service buyers (or a buyer) wish to purchase at various prices during some period.
Iqtisodiy xarajat	**Economic (opportunity) cost**	A payment that must be made to obtain and retain the services of a resource; the income a firm must provide to a resource supplier to attract the resource away from an alternative use; equal to the quantity of other products that cannot be produced when resources are instead used to make a particular product.
Iqtisodiy foyda	**Economic (pure) profit**	The total revenue of a firm less its economic costs (which includes both explicit costs and implicit costs); also called above normal profit.
Iqtisodiy o'sish	**Economic growth**	(1) An outward shift in the production possibilities curve that results from an increase in resource supplies or quality or an improvement in technology; (2) an increase either in real output (gross domestic product) or in real output per capita.
Iqtisodiy muammo	**Economic problems**	Choices are necessary because society's material wants for goods and services are unlimited but the resources available to satisfy these wants are limited (scarce).
Talab elastikligi	**Elastic demand**	Product or resource demand whose price elasticity is greater than one; means the resulting change in quantity demanded is greater than the percentage change in price.
Talabning resursga bog'liq elastikligi	**Elasticity of resource demand**	The percentage change in resource quantity divided by the percentage change in resource price; if the result is greater than one, resource demand is elastic; if the result is less than one, resource demand is inelastic; and when the result equals one, resource demand is unit-elastic.
Firma	**Firm**	An organization that employs resources to produce a good or service for profit and that owns and operates one or more plants.
O'zgarmas xarajat	**Fixed costs**	Any cost that in total does not change when the firm changes its output; the cost of fixed resources.
Daromat samarasi	**Income effect**	A change in the quantity demanded of a product that results from the change in real income (purchasing power) produced by a change in the product's price.

THE RECOMMENDED LITERATURE AND THE INTERNET SITES

The recommended literature and the internet sites

Magazine

1. International Journal of Business Forecasting and Microeconomics Intelligence. www.inderscience.com

2. Ansoff matrix. www.free-management-ebooks.com

3.Иқтисодиёт ва инновацион технологиялар. Илмий-электрон журнал. www.iqtisodiyot.uz

4. Экономическое обозрение. www.cer.uz

5. Microeconomics science. www.science.com

6. Economics magazine Interest. www.ama.org

7. Articles of Microeconomics. www.books.com

Internet sites

1. www.microeconomics.com

2. www.Economy.com

3. www.bizneslab.uz

4. www. study.com

5. www.inderscience.com

6. www.free-management-ebooks.com

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Study-methodical complex on Microeconomics

For lecture

Tashkent: Economics, 2016 year, 172 pages.