

Chapter 1

Limits, Alternative, and Choices

Definition of economics:

Is the social science concerned with how individuals, institutions, and society make optimal (best) choices under conditions of scarcity.

Economics: the study of the allocation of scarce resources among alternative end uses.

الاقتصاد: هو ذلك العلم الذي يدرس كيف يوظف الأفراد والمجتمعات مواردهم الاقتصادية لإدارة ذات الاستخدامات المتعددة لإنتاج مجموعات متباينة من السلع وذلك لإشباع حاجاتهم ورضائهم.

The Economic Perspective:

The economic way of thinking has several critical and closely interrelated features.

Scarcity and Choice

Scarce economic resources mean limited goods and services. Scarcity restricts options and demands choices. Because we "can't have it all," we must decide what we will have and what we must forgo.

Scarce inputs of land, equipment, farm labor, the labor of cooks and waiters, and managerial talent are required. Because society could have used these resources to produce something else, it sacrifices those other goods and services in making the lunch available. Economists call such sacrifices opportunity costs: To obtain more of one thing, society forgoes the opportunity of getting the next best thing. That sacrifice is the opportunity cost of the choice.

الندرة تمثل المشكلة الأساسية في علم الاقتصاد لدرجة إن بعض الاقتصاديين يطلق على الاقتصاد "علم الندرة" وتنبع الندرة في الاقتصاد عن تعدد رغبات الإنسان وتحدد مقارنتها بالموارد الاقتصادية المتاحة مما يجبره على الاختيار ما بين البدائل المختلفة وبالتالي يضطره إلى التضحية ببعضها مقابل تحقيق البعض. إن عدم كفاية الموارد الإنتاجية لإنتاج جميع السلع التي يرغبها المجتمع هو ما يجعل الموارد الإنتاجية نادرة. مفهوم الندرة في الاقتصاد هو مفهوم نسبي، بمعنى أن الموارد الإنتاجية نادرة بالنسبة لرغبات الإنسان المتعددة والمتجددة، فلا تكفي هذه الموارد لإنتاج جميع السلع التي تشبع رغبات الأفراد أو المجتمع. كذلك إن ندرة المصادر الإنتاجية تجبر الإنسان على الاختيار من بين البدائل المختلفة وبالتالي تضطره إلى التضحية ببعضها مقابل تحقيق البعض.

Opportunity costs:

To obtain more of one thing, society forgoes the opportunity of getting the next best thing. That sacrifice is the opportunity cost of the choice.

عقبة الاختيار تتضمن التضحية: فاختيارك لأحد البدائل يعني تضحيك بالبدائل الأخرى. فالأرض التي تستخدم للزراعة يمكن أن تستخدم في نفس الوقت الأغراض السكنى. وكذلك الحال بالنسبة لتلك الجزء من الدخل الذي تدفعه أجرة سكن لا أن تستخدمه أيضاً للإفراق على المأكل مثلاً.

إن ندرة عناصر الإنتاج تعني أننا لا نستطيع إنتاج كل ما نرغب فيه من سلع وبالتالي تجبرنا على الاختيار بين الممكنة. أي إن ندرة عناصر الإنتاج تجبرنا على أن نختار ماذا ننتج (هل ننتج قمحاً أم العنب أظفالي؟) وتجبرنا كذلك على أن ننتج ما نرغب في إنتاجه (هل نستعمل هذه الأرض أم تلك الإنتاج القمح؟) وتجبرنا أيضاً أن لن نوزع !!

Purposeful Behavior (Rational Behavior)

Economics assumes that human behavior reflects "rational self-interest." Individuals look for and pursue opportunities to increase their utility—the pleasure, happiness, or satisfaction obtained from consuming a good or service. They allocate their time, energy, and money to maximize their satisfaction. Because they weigh costs and benefits, their economic decisions are "purposeful" or "rational," not "random."

Consumers are purposeful in deciding what goods and services to buy. Business firms are purposeful in deciding what products to produce and how to produce them. Government entities are purposeful in deciding what public services to provide and how to finance them. "Purposeful behavior" does not assume that people and institutions are immune from faulty logic and therefore are perfect decision makers. They sometimes make mistakes. Nor does it mean that people's decisions are unaffected by emotion or the decisions of those around them. "Purposeful behavior" simply means that people make decisions with some desired outcome in mind.

هدف المستهلك هو تحديد السلع والخدمات التي يرغب في شرائها. الشركات التجارية هدفها تحديد السلع والخدمات التي يجب أن تنتجها وكيف يتم إنتاجها. بينما تهدف الجهات الحكومية في اتخاذ قرار بشأن ما هي الخدمات العامة التي ستوفرها للمواطنين وكيفية تمويلها.

أن سلوك الإنسان عقلاني أو رشيد، بمعنى أن يتوافق السلوك مع تحقيق الهدف المنشود، فإذا لم يكن هناك توافق بين السلوك والهدف المنشود فإن هذا السلوك يسمى سلوكاً غير عقلاني أو غير رشيد. كما أن هدف الفرد هو زيادة المنفعة التي يحصل عليها من السلع التي يشتريها. أما إذا نظرنا إلى الإنسان كمنتج فإننا نفترض أن هدفه هو تعظيم أرباحه الاقتصادية.

Marginal Analysis: Benefits and Costs:

The economic perspective focuses largely on marginal analysis—comparisons of marginal benefits and marginal costs, usually for decision making. In making choices rationally, the decision maker must compare MB and MC.

Marginal benefits (MB): utility received from consuming goods and services.
Marginal costs (MC): opportunity cost.

The choice rationally if $MB > MC$

Multiple Choices:

- Purposeful behavior suggests that:
 - everyone will make identical choices.
 - resource availability exceeds economic wants.
 - individuals may make different choices because of different desired outcomes.
 - an individual's economic goals cannot involve tradeoffs.
- Purposeful behavior means that:
 - people are selfish in their decision-making.
 - people weigh costs and benefits to make decisions.
 - people are immune from emotions affecting their decisions.
 - decision-makers do not make mistakes when weighing costs and benefits.
- You should decide to go to a movie:
 - if the marginal cost of the movie exceeds its marginal benefit.
 - if the marginal benefit of the movie exceeds its marginal cost.
 - if your income will allow you to buy a ticket, because movies are enjoyable.

Theories, Principles, and Models

طريقة البحث العلمي Scientific Method

يتم البحث العلمي بصورة عامة بخمسة مراحل وهي
Scientific method procedure consists of several elements:

1. Observing real-world behavior and outcomes. ملاحظة الظاهرة وتحديد مشكلة البحث
2. Based on those observations, formulating a hypothesis. وضع فرضيات حول الظاهرة أو المشكلة
3. Testing this explanation by comparing the outcomes of specific events to the outcome predicted by the hypothesis. اختبار صحة أو عدم صحة فروض البحث
4. Accepting, rejecting, and modifying the hypothesis, based on these comparisons. جمع البيانات حول المشكلة وتحليلها
5. Continuing to test the hypothesis against the facts (results). الوصول للنتائج النهائية

Economic principle

A statement about economic behavior or the economy that enables prediction of the probable effects of certain actions

Economic models: which are simplified representations of how economic works.

هو عبارة عن تبسيط للواقع الذي نعيشه. ويتم عملية تبسيط الواقع لبناء النموذج الاقتصادي عن طريقين:
وضع بعض الافتراضات حول سلوك الإنسان.
تقليل عدد المتغيرات المستقلة (افتراض أن بعض العوامل المؤثرة في المتغير التابع ثابتة (Other-thing equal assumption)

Economic principles and models are highly useful in analyzing economic behavior and understanding how the economy operates. They are the tools for ascertaining cause and effect (or action and outcome) within the economic system. Good theories 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.

There are some other things you should know about economic principles.

Generalizations: Economic principles are generalizations relating to economic behavior or to the economy itself. Economic principles are expressed as the tendencies of typical or average consumers, workers, or business firms. For example, economists say that consumers buy more of a particular product when its price falls. Economists recognize that some consumers may increase their purchases by a large amount, others by a small amount, and a few not at all. This "price-quantity" principle, however, holds for the typical consumer and for consumers as a group.

Other- Things-Equal (ceteris paribus) Assumption: The assumption that factors other than those being considered do not change. They assume that all variables except those under immediate consideration are held constant for a particular analysis.

افتراض أن بعض العوامل المؤثرة في المتغير التابع ثابتة. أي أننا نركز على كيفية ومدى استجابة هذا المتغير للزيادة أو النقص في قيمة أحد المتغيرات المستقلة مع افتراض أن قيمة المتغيرات المستقلة الأخرى ثابتة.

For example, consider the relationship between the price of Pepsi and the amount of it purchased. Assume that of all the factors that might influence the amount of Pepsi purchased (for example, the consumer incomes) unchanged.

Multiple Choices:

1. The term "ceteris paribus" means:
(A) that if event A precedes event B, A has caused B.
(B) that economics deals with facts, not values.
(C) other things equal
(D) prosperity inevitably follows recession.
2. Suppose an economist says that "Other things equal, the lower the price of bananas, the greater the amount of bananas purchased." This statement indicates that:
(A) The quantity of bananas purchased determines the price of bananas.
(B) All factors other than the price of bananas (for example, consumer tastes and incomes) are assumed to be constant.
(C) economists can conduct controlled laboratory experiments.
(D) One cannot generalize about the relationship between the price of bananas and the quantity purchased.

Microeconomics and Macroeconomics

علم الاقتصاد يبحث في سلوك الأفراد والمجتمعات. ويمكن دراسة وتحليل هذا السلوك بأسلوبين مختلفين، أو من زاويتين مختلفتين

Microeconomics:

Microeconomics is the part of economics concerned with individual units such as a person, a household, a firm, or an industry. At this level of analysis, the economist observes the details of an economic unit.

يعتمد الأسلوب الأول على دراسة الأجزاء أو الوحدات الصغيرة في الاقتصاد مثل دراسة سلوك المستهلك أو المنتج أو سعر سلعة معينة. ويطلق على هذا الأسلوب "الاقتصاد الجزئي".

Macroeconomics:

Macroeconomics examines either the economy as a whole or its basic subdivisions or aggregates, such as the government, household, and business sectors.

Macroeconomics approaches the study of economics from the viewpoint (من وجهة نظر) of the entire economy.

أما الأسلوب الثاني في دراسة التحليل الاقتصادي فيعتمد على دراسة الاقتصاد ككل أو القطاعات الرئيسية فيه أو المجموع الكلية مثل الإنتاج القومي (GDP) والارتفاع العام بمستوى الأسعار (التضخم) والبطالة وغيرها.

Example

Indicate whether each of the following statements applies to microeconomics or macroeconomics?

- a. The unemployment rate in the U.S was 4.9% in January 2008 (Macroeconomics)
- b. An expected freeze in central Florida reduced the citrus crop and caused the price of oranges to rise. (Microeconomics)
- c. U.S output, adjusted for inflation, grows by 2.2% in 2007. (Macroeconomics)

Multiple Choices:

1. Macroeconomics can best be described as the:
 - (A) analysis of how a consumer tries to spend income.
 - (B) study of the large aggregates of the economy or the economy as a whole
 - (C) analysis of how firms attempt to maximize their profits
 - (D) study of how supply and demand determine prices in individual markets
2. Microeconomics:
 - (A) is the basis for the "after this, therefore because of this" fallacy.
 - (B) is not concerned with details, but only with the overall big picture of the economy.
 - (C) is concerned with individual economic units and specific markets.
 - (D) describes the aggregate flows of output and income.
3. Which of the following is a microeconomic statement?
 - (A) The real domestic output increased by 2.5 percent last year.
 - (B) Unemployment was 6.8 percent of the labor force last year.
 - (C) The price of personal computers declined last year.
 - (D) The general price level increased by 4 percent last year.

Positive and Normative Economics:

الاقتصاد الموضوعي والاقتصاد المعياري

Both microeconomics and macroeconomics contain elements of positive economics and normative economics.

Positive Economics

Positive economics focuses on facts and cause-and-effect relationships. It includes description, theory development, and theory testing (theoretical economics).

Positive economics avoids value judgments

Theoretical economics is a positive economics.

في التحليل الموضوعي يعتمد الباحث على بيانات حقيقية يتم تحليلها للوصول للنتيجة النهائية. ويمكن القول بأنه لو بحث عدد من الباحثين ظاهرة اقتصادية معينة باستخدام نفس البيانات ونفس طريقة التحليل فإننا نتوقع أن يصل جميعهم لنفس النتيجة في وصف تلك الظاهرة.

Normative Economics

Normative economics involves value judgments; about what the economy should be like or what particular policy actions should be recommended to achieve a desirable goal (policy economics).

Normative economics embodies subjective feelings about what ought to be.

الاقتصاد المعياري يبحث بما يجب أن يكون عليه الوضع، أو ما يجب أن نفعل تجاه ظاهرة معينة. وبالتالي فإن هذا النوع من التحليل يحاول أن يطرح حلولاً للظاهرة أو المشكلة معتمداً على التقدير الذاتي للباحث. والتي قد تختلف من باحث لآخر حسب البيئة الاجتماعية والديانة وغيرها من العوامل.

Example

Decide whether the following statements are positive or normative:

1. Luxuries should be taxed more heavily than necessities → (Normative Statement)
2. The price and quantity demanded of a good is inversely related. → (Positive Statement)
3. It is too hot to jog (يركض) today". → (Normative Statement)
4. We should buy Palestinian goods and boycott (مقاطعة) Israeli product. → (Normative Statement)
5. A rise in the price of petrol will lead to an increase in the demand for rail transport. → (Positive Statement)
6. Unemployment is more harmful than inflation → (Normative Statement)
7. A rise in the price of petrol will lead to an increase in the demand for rail transport. → (Positive Statement)
8. As a general rule, people are happier in more equal societies. → (Normative Statement)

Multiple Choices:

1. A positive statement is one which is:
(A) derived by induction
(B) derived by deduction
(C) subjective and is based on a value judgment
(D) objective and is based on facts
2. Normative statements are concerned primarily with:
(A) facts and theories
(B) what ought to be
(C) what is
(D) rational choice involving costs and benefits
3. "Economics is concerned with how individuals, institutions, and society make optimal choices under conditions of scarcity." This statement is:
(A) positive, but incorrect
(B) positive and correct
(C) normative, but incorrect
(D) normative and correct
4. Basel says that "An increase in the tax on smoke will raise its price." Ruba argues that "Taxes should be increased on smoke because college students consume too much." We can conclude that:
(A) Basel's statement is normative, but Ruba's is positive.
(B) Ruba's statement is normative, but Basel's is positive.
(C) Both statements are normative.
(D) Both statements are positive.

Economizing Problem

The fundamental problem of economics is the scarcity of productive resources relative to economic wants.

The economizing problem is one of deciding how to make the best use of limited resources to satisfy virtually unlimited wants.

تتجمل المشكلة الاقتصادية بسبب ندرة المصادر الإنتاجية مقارنة بتعدد رغبات الإنسان وتجدها.

Individuals' Economizing Problem

المشكلة الاقتصادية على مستوى الأفراد
على مستوى الأفراد فإن مشكلة الندرة تتضح في الدخل الذي يحصل عليه الفرد، حيث أن محدودية دخل الفرد تشكل قيداً على سلوكهم الاستهلاكي.

Limited Income and Unlimited Wants:

Individual has a fixed amount of income, and have unlimited wants. Because wants exceed income, individual face an economizing problem; they must decide what to buy and what to forgo.

A Budget Line (Budget Constraint):

لتحليل مشكلة الندرة على مستوى الأفراد سيتم دراسة خط الميزانية، حيث أن محدودية دخل الفرد تشكل قيداً على سلوكهم الاستهلاكي، بمعنى إذا أراد الفرد زيادة استهلاكه من سلعة يجب عليه أن يضحى من استهلاكه من السلع الأخرى.

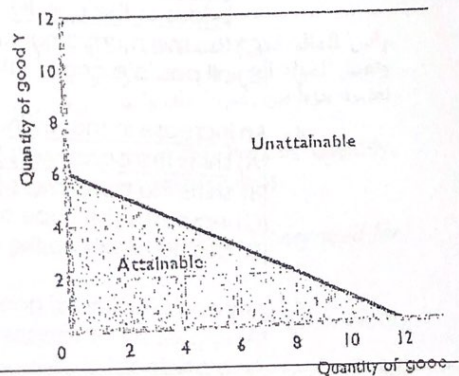
We can clarify the economizing problem facing consumers by visualizing a *budget line* (or, more technically, a *budget constraint*). It is a schedule or curve that shows various combinations of two products a consumer can purchase with a specific money income. Although we assume two products, the analysis generalizes to the full range of products available to an individual consumer.

Budget line (or, more technically, a budget constraint): It is a schedule or curve that shows various combinations of two products a consumer can purchase with a specific money income.

Example:

If a consumer has \$120 to spent on two goods: good X and good Y. If the price of good X is \$20 and the price of good Y is \$10.

- All the combination of good X and good Y on or inside the budget line are *attainable* from the \$120 of money income (يقدر على شرائها).
- All combinations beyond the budget line (خارج خط الميزانية) are *unattainable*.
- The slope of the budget line measures the ratio of the price of good X (P_x) to the price of good Y (P_y).

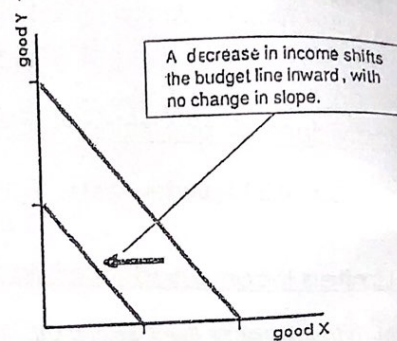
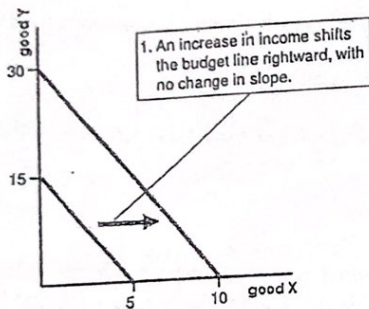


The Budget Line equation: $P_x \cdot X + P_y \cdot Y = I$

Where: P_x : the price of good X, P_y : the price of good Y, and I : is the consumer income

Income Changes : The location of the budget line varies with money income. An increase in money income shifts the budget line to the right; a decrease in money income shifts it to the left.

That shifts their budget lines outward and enables them to buy more goods and services. But even with more income, people will still face spending trade-offs, choices, and opportunity costs.



Multiple Choices:

- The economizing problem is one of deciding how to make the best use of:
 - Virtually unlimited resources to satisfy virtually unlimited wants.
 - limited resources to satisfy virtually unlimited wants.
 - Unlimited resources to satisfy limited wants.
 - Limited resources to satisfy limited wants.
- The scarcity problem:
 - Persists only because countries have failed to achieve continuous full employment.
 - Persists because economic wants exceed available productive resources.
 - Has been solved in all industrialized nations.
 - Has been eliminated in affluent societies such as the United States and Canada.
- The budget line shows:
 - the amount of product A that a consumer is willing to give up to obtain one more unit of product B.
 - all possible combinations of two goods that can be purchased, given money income and the prices of the goods.
 - the minimum amount of two goods that a consumer can purchase with a given money income.
 - all possible combinations of two goods that yield the same level of utility to the consumer.
- An increase in money income:
 - shifts the consumer's budget line to the right.
 - shifts the consumer's budget line to the left.
 - increases the slope of the budget line.
 - has no effect on the budget line.
- Any combination of goods lying outside of the budget line:
 - implies that the consumer is not spending all his income.
 - is attainable (نقدر على شرائها), given the consumer income.
 - yields less utility than any point inside the budget line.
 - is unattainable, given the consumer's income.

Society's Economizing Problem المشكلة الاقتصادية على المستوى القومي

إن أي قطر من الأقطار يمتلك مجموعة من الموارد الإنتاجية والتي تستعمل لإنتاج السلع الاستهلاكية المختلفة. ولكن عملية إنتاج تلك السلع الاستهلاكية تتطلب استخدام مكائن والآلات، والتي تتطلب بدورها استخدام موارد إنتاجية (عمال، وأراضي، ورأس مال). وبسبب ندرة الموارد الإنتاجية فإن ذلك يحتم علينا عملية الاختيار حول استخدام هذه الموارد. وهذا ويمكن أن ندرس الندرة والاختيار والتضحية على المستوى القومي باستخدام فكرة منحني إمكانيات الإنتاج.

Scarce Resources:

Society has limited or scarce economic resources, meaning all natural, human, and manufactured resources that go into the production of goods and services. This includes the entire set of factory and farm buildings and all the equipment, tools, and machinery used to produce manufactured goods and agricultural products; all transportation and communication facilities; all types of labor; and land and mineral resources.

يعرف المورد الإنتاجي (الاقتصادي) بأنه أي شخص أو أي شيء يساهم في عملية إنتاج السلع والخدمات.

Resource Categories

Economists classify economic resources into four general categories.

A. Land: To the economist land includes all natural resources ("gifts of nature") used in the production process, such as arable land, forests, mineral and oil deposits, and water resources.

الأرض هي الموارد الطبيعية وتشمل جميع الأشياء التي على سطحها، مثل النباتات والغابات، آبار البترول ومناجم المعادن، الغازات وغيرها.

B. Labor (العمل): The resource labor consists of the physical and mental talents of individuals used in producing goods and services. The services of a logger, retail clerk, machinist, teacher, professional football player, and nuclear physicist all fall under the general heading "labor."

يعرف العمل أنه الجهد الإنساني المبذول ويمكن أن يكون هذا الجهد جسمانياً أو فكرياً.

C. Capital (رأس المال): Capital (or capital goods) includes all manufactured aids used in producing consumer goods and services. Included is all factory, storage, transportation, and distribution facilities, as well as tools or machinery. Economists refer to the purchase of capital-goods as investment.

رأس المال في الاقتصاد هو ما يقوم الإنسان بتصنيعه من وسائل الإنتاج المختلفة، من آلات وأجهزة ومعدات ومباني. وتعتبر المواد الخام بعد استخراجها من باطن الأرض جزءاً من رأس المال (بع استخراج البترول وتعبئته في براميل فإننا نعتبره جزءاً من رأس المال وليس جزءاً من الأرض).

- Capital goods differ from consumer goods because consumer goods satisfy wants directly, whereas capital 'goods' do so indirectly by aiding the production of consumer goods.

- Because money produces nothing, economists do not include it as an economic resource. Money used for purchasing capital goods.

D. Entrepreneurial Ability (الإدارة والتنظيم): There is the special human resource, distinct from labor, called entrepreneurial ability.

التنظيم ويتمثل في أخذ المبادرة في جمع وتصور وتنظيم وتنسيق العملية الإنتاجية وحسن استخدام عناصر الإنتاج المختلفة. ويشمل التنظيم أيضاً عملية اختراع واستخدامات أنماط وطرق جديدة في الإنتاج، ويرى البعض أن التنظيم هو نوع متقدم من العمل فيدخلونه ضمن العناصر الإنتاجية الأولى للعمل.

The entrepreneur performs several functions: يقوم الريادي بمجموعة وظائف منها

- The entrepreneur takes the initiative in combining the resources of land, labor, and capital to produce a good or a service. The entrepreneur is the driving force behind production and the agent who combines the other resources in what is hoped will be a successful business venture.

المنظم أو الريادي يأخذ زمام المبادرة في استخدام الموارد الانتاجية الأرض والعمل ورأس المال لإنتاج سلعة و الخدمات وحسن استخدام عناصر الإنتاج المختلفة.

- The entrepreneur makes the strategic business decisions that set the course of an enterprise. الريادي يعمل القرارات التجارية الاستراتيجية التي تحدد مسار مؤسسة.
- The entrepreneur is an innovator. He or she commercializes new products, new production techniques, or even new forms of business organization. الريادي هو مبتكر، بحيث يقوم بتسويق منتجات جديدة، وتقنيات الإنتاج الجديدة، أو حتى أشكال جديدة من تنظيم الأعمال التجارية.
- The entrepreneur is a risk bearer. The entrepreneur has no guarantee of profit. The reward for the entrepreneur's time, efforts, and abilities may be profits or losses. الريادي هو من يتحمل المخاطر. الريادي لا يضمن ان يحقق أرباح للمشروع فقد يحقق ارباح او خسارة.

Because land, labor, capital, and entrepreneurial ability are combined to produce goods and services, they are called the factors of production, or simply "inputs."

Multiple Choices:

- Which of the following is a labor resource?
 - a computer programmer
 - a computer
 - silicon (sand) used to make computer chips
 - a piece of software used by a firm
- Which of the following is a capital resource?
 - a computer programmer
 - a corporate bond issued by a computer manufacturer
 - silicon (sand) used to make computer chips
 - a piece of software used by a firm
- The four factors of production are:
 - land, labor, capital, and money
 - land, labor, capital, and entrepreneurial ability
 - labor, capital, technology, and entrepreneurial ability
 - labor, capital, entrepreneurial ability, and money
- Which of the following is a land resource?
 - a farmer
 - an oil drilling rig
 - a machine for detecting earthquakes
 - natural gas

5. Money is not an economic resource because:
- money, as such, does not produce anything.
 - idle money balances do not earn interest income.
 - it is not scarce.
 - money is not a free gift of nature.

Production Possibilities Model منحنى إمكانيات الإنتاج

Production Possibilities Curve

Lists the different combinations of two products that can be produced with a specific set of resources, assuming full employment.

هو شكل (منحنى) يمثل أقصى ما يمكن أن ينتجه المجتمع من بضائع وخدمات خلال فترة زمنية معينة بكمية الموارد الإنتاجية المتوفرة.

Assumptions:

لكي نستطيع رسم منحنى إمكانيات الإنتاج لمجتمع معين فإننا نضع عادة بعض الافتراضات التبسيطية الهامة:

- Full employment:** The economy is employing all its available resources.
(تشغيل كامل)
إن جميع الموارد الإنتاجية المتوفرة لدى المجتمع موظفة بالكامل. ويعني ذلك أنه لا توجد موارد إنتاجية معطلة أو غير مستغلة.
- Fixed resources:** The quantity and quality of the factors of production are fixed.
أن كمية ونوعية الموارد الإنتاجية المتوفرة لدى المجتمع ثابتة.
- Fixed technology:** The methods used to produce output are constant.
أن الأساليب الإنتاجية (التكنولوجيا) التي يستخدمها المجتمع لا تتغير.
- Two goods:** The economy is producing only two goods (consumer goods and capital goods).
أن يقوم المجتمع بإنتاج سلعتين فقط.

Production Possibilities Table

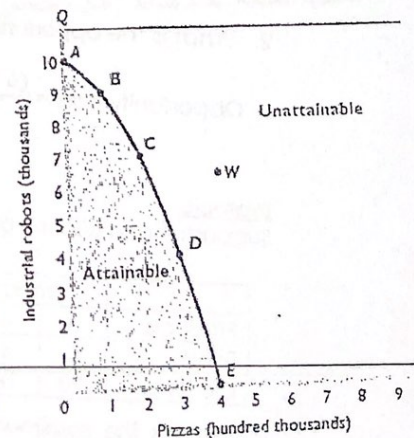
A production possibilities table lists the different combinations of two products that can be produced with a specific set of resources, assuming full employment. Table below presents a simple, hypothetical economy that is producing pizzas and Industrial Robots.

Example

Production Possibilities of Pizzas and Industrial Robots:

Type of product	Production Alternative				
	A	B	C	D	E
Pizzas	0	1	2	3	4
Robots	10	9	7	4	0

- At alternative A, this economy would be devoting all its available resources to the production of industrial robots (capital goods)
- At alternative E, all resources would go to pizza production (consumer goods).



- An economy typically produces both capital goods and consumer goods, as in B, C, and D.
- As we move from alternative A to E, we increase the production of pizzas at the expense of the production of industrial robots.
- In producing more pizzas, society increases the current satisfaction of its wants. But there is a cost. More pizzas mean fewer industrial robots.
- Each point on the production possibilities curve represents some maximum output of the two products.
- Any combination of industrial robots and pizzas lying outside the curve (such as at W) unattainable.
- Points inside the curve are attainable, but they indicate that full employment is not being realized (unemployment point).

Opportunity cost: the number of units of a specific good that must be given up (يتخلى عن) to obtain one more unit of another good.

Opportunity cost = negative slope of the production possibilities curve at each point

Example

Using the table (Production Possibilities of Pizzas and Industrial Robots) to answer the following questions:

Type of product	Production Alternative				
	A	B	C	D	E
Pizzas	0	1	2	3	4
Robots	10	9	7	4	0

1. If the economy at point D. What is the opportunity cost of one more unit of industrial robots?

$$\text{Opportunity cost of one more units of robots} = \frac{(\Delta \text{ in Pizzas})}{\Delta \text{ in industrial robots}} = \frac{(3-2)}{(4-7)} = -\frac{1}{3} \text{ units of Pizzas.}$$

2. What is the opportunity cost of the second unit of Pizza?

$$\text{Opportunity cost} = \frac{(\Delta \text{ in industrial robots})}{\Delta \text{ in pizzas}} = \frac{(7-9)}{(2-1)} = -2 \text{ units of robots.}$$

Example

Suppose that a nation's production possibilities can be represented by the table below:

Products	Production Alternatives				
	A	B	C	D	E
Food	0	4	8	12	16
Clothing	20	18	14	8	0

a. What is the maximum amount of food this economy can produce? How much clothing can it produce at this point?

The greatest amount of food is 16 units, achieved by producing at alternative E. At this point, all resources are devoted to food production and none to clothing production. Clothing production is zero.

b. If the economy is producing at alternative C, what is the opportunity cost of one more unit of food?

$$\text{Opportunity cost of one more unit of food} = \frac{\Delta \text{Clothing}}{\Delta \text{food}} = \left| \frac{(8-14)}{(12-8)} \right| = \frac{6}{4} = 1.5 \text{ units of clothing}$$

c. If the economy is producing at alternative C, what is the cost of one more unit of clothing?

$$\text{Opportunity cost of one more unit of clothing} = \frac{\Delta \text{food}}{\Delta \text{clothing}} = \left| \frac{(4-8)}{(18-14)} \right| = \frac{4}{4} = 1 \text{ unit of food}$$

d. If the economy is producing at alternative C, what is the cost of 4 more unit of food?

From part b, the opportunity cost of one more unit of food = 1.5 units of clothing
 Opportunity cost of 4 more unit of food = 1.5 * 4 = 6

Or from the table, as we move from point C to D, the consumer increase production of food by 4 units (8 to 12), while decrease consumption of clothing by 6 (14 to 8).

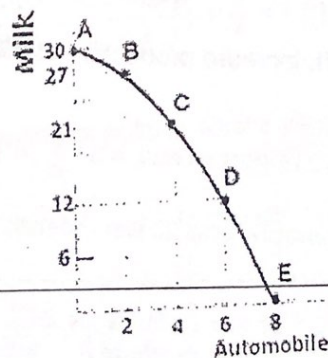
Example

Below is a production possibilities table for consumer goods "automobiles" and capital goods "Milk"

Type of product	Production Alternative				
	A	B	C	D	E
automobiles	0	2	4	6	8
Milk	30	27	21	12	0

1. Graph the production possibilities curve

ملاحظة: عند الرسم يجب الإنتباه الى ان الرسمة ليست خط مستقيم لانه كلما زاد عدد السيارات المنتجة ب 2 قل عدد لترات الحليب المنتجة بعدد متزايد (ميل المنحنى متزايد).



2. If the economy at point C, what is the opportunity cost of one more automobile?

$$\text{Opportunity cost} = \frac{\Delta \text{ Milk}}{\Delta \text{ Automobile}} = \left| \frac{(12-21)}{(6-4)} \right| = \frac{9}{2} = 4.5 \text{ liters of milk}$$

3. If the economy at point B, what is the opportunity cost of two more automobile?

$$\text{Opportunity cost of one more automobile} = \frac{\Delta \text{ Milk}}{\Delta \text{ Automobile}} = \left| \frac{(21-27)}{(4-2)} \right| = \frac{6}{2} = 3$$

Opportunity cost of two more automobile = Opportunity cost of one more * numbers of units

$$\text{Opportunity cost of two more automobile} = 3 * 2 = 6$$

Or: From the table the economy must move from point B to point C. When the economy moving from point B to point C, the economy must give up $(27 - 21) = 6$ liters of milk.

4. If the economy at point B, what is the opportunity cost of one more liter of milk?

$$\text{Opportunity cost} = \frac{\Delta \text{ Automobile}}{\Delta \text{ Milk}} = \left| \frac{(0-2)}{(30-27)} \right| = \frac{2}{3} \text{ Automobile}$$

5. What is the opportunity cost of producing the 7th units of automobile?

The economy must move from point D to point E.

$$\text{Opportunity cost} = \frac{\Delta \text{ Milk}}{\Delta \text{ Automobile}} = \left| \frac{(0-12)}{(8-6)} \right| = \frac{12}{2} = 6 \text{ liters of milk}$$

6. What is the opportunity cost of producing the 24th liters of milk?

The economy must move from point C to point B.

$$\text{Opportunity cost of one more liter of milk} = \frac{\Delta \text{ Automobile}}{\Delta \text{ Milk}} = \left| \frac{(2-4)}{(27-21)} \right| = \frac{2}{6} \text{ Automobile}$$

At point C, the amount of milk = 21. Increase production of milk to 24 means that the 3 more liters of milk increase

$$\text{Opportunity cost of producing the 24th liters of milk} = 3 * \frac{2}{6} = 1$$

7. If the economy producing 3 automobile and 20 liters of milk. Is the economy use of its all available resources to produce it? Explain

The point 3 automobile and 20 liters of milk lie inside the PPC. This point is attainable but it unemployment point (not use of its all available resources to produce it)

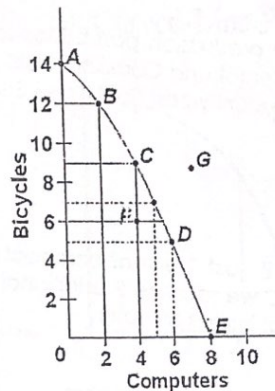
8. What would production at point outside the production possibilities curve indicate? What must occur before the economy can attain such a level of production?

Any point lie outside the production possibilities curve is unattainable point.

Before the economy can attain such a level of production it must increase the resources of the production or improvement in the level of technology used.

Example:

Refer to the diagram to answer questions that follow it



- a. If society is currently producing 9 units of bicycles and 4 units of computers and it now decides to increase computer output to 6, what is the opportunity cost of increase computer output to 6 units?

From the diagram as we move from point C to point D, the economy increase production of computers from 4 to 6, that leads to decline production of bicycles from 9 to 5

$$\text{Opportunity cost of increase computer output from 4 to 6 units} = |5 - 9| = 4$$

- b. If society is currently producing at point B, what is the opportunity cost of producing one more Computer?

If the economy at point B, and its wants to increase production of computers it will move from point B to point C.

$$\text{Opportunity cost} = \frac{\Delta \text{ Bicycles}}{\Delta \text{ Computer}} = \left| \frac{(9-12)}{(4-2)} \right| = \frac{3}{2} = 1.5 \text{ bicycles}$$

- c. If society is currently producing at point D, what is the opportunity cost of producing one more Bicycle?

If the economy at point D, and its wants to increase production of bicycles, it will move from point D to point C.

$$\text{Opportunity cost} = \frac{\Delta \text{ Computers}}{\Delta \text{ Bicycles}} = \left| \frac{(4-6)}{(9-5)} \right| = \frac{2}{4} = \frac{1}{2} \text{ computer}$$

Law of Increasing Opportunity Costs:

The law of increasing opportunity costs. As the production of particular good increases, the opportunity cost of producing an additional unit rises.

قانون التكلفة المتزايدة: إن إنتاج وحدات متتالية من سلعة ما يؤدي إلى التضحية بكميات متزايدة من السلعة الأخرى. والسبب في ذلك هو عدم قدرة عناصر الإنتاج المختلفة على إنتاج كافة السلع بنفس الكفاءة.

Example

The following table shows the production possibilities for an economy which produces bottles of water (B) and Compact Disks (CD) in millions. Does the law of increasing opportunity cost hold here? Show how?

Possibilities	B	CD
A	0	15
B	1	14
C	2	12
D	3	9
E	4	5
F	5	0

Answer:

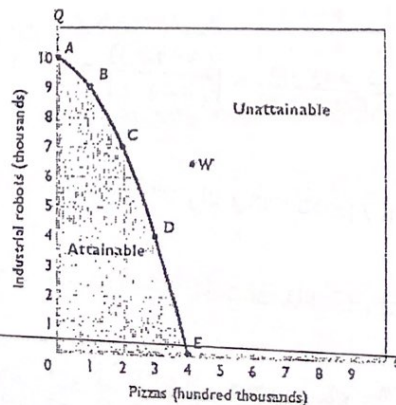
When we move from A to B, just 1 unit of compact disks is sacrificed for 1 more unit of bottles of water; but in going from B to C we sacrifice 2 additional units of CD for 1 more unit of bottles of water; then 3 more of CD for 1 more of bottles of water.

⇒ The law of increasing opportunity cost hold here

B	CD	Opportunity cost of one more bottles of water (B)
0	15	-
1	14	1
2	12	2
3	9	3
4	5	4
5	0	5

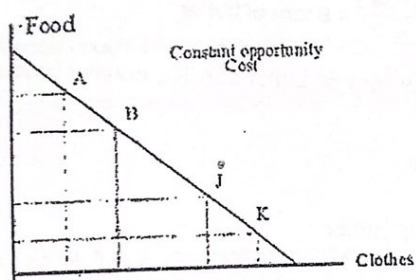
Shape of the Curve:

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 shows that when the economy moves from A to E, it must give up successively larger amounts of industrial robots (1, 2, 3, and 4) to acquire equal increments of pizzas (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.

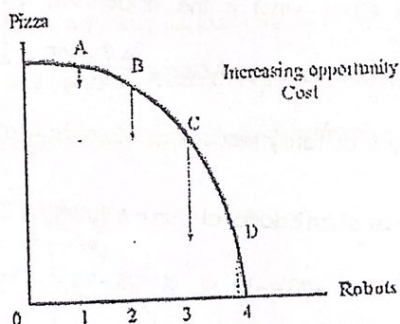


- > Production possibilities curve is bowed out from the origin because it reflects the law of increasing opportunity cost.
- > Production possibilities curve is straight line because it reflects the law of constant opportunity cost.

A Straight-Line PPC

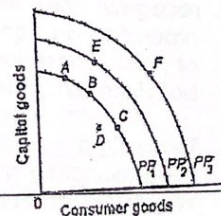


A Curved-Line PPC



Multiple Choices:

1. The typical production possibilities curve is:
 - A. an upsloping line that is bowed out from the origin.
 - B. a downsloping line that is bowed in toward the origin.
 - C. a downsloping line that is bowed out from the origin.
 - D. a straight upsloping line.
2. The slope of the typical production possibilities curve:
 - A. is positive.
 - B. increases as one moves southeast along the curve.
 - C. is constant as one moves down the curve.
 - D. decreases as one moves southeast along the curve.
3. The production possibilities curve has:
 - A. a positive slope that increases as we move along it from left to right.
 - B. a negative slope that increases as we move along it from left to right.
 - C. a negative slope that decreases as we move along it from left to right.
 - D. a negative slope that is constant as we move along it from left to right.
4. Based on the following production possibilities curve answer the following question: Refer to the above diagram. The concept of opportunity cost is best represented by the:
 - A. Move from B on PPI to E on PP2.
 - B. Move from B on PPI to C on PP1.
 - C. Move from D inside PPI to B on PPI.
 - D. Shift of the production possibilities curve from PPI to PP2.



Example

Based on the following production possibilities schedule answer the following questions:

Guns	Butter (tons)	Opportunity cost of Guns
1	36	2 tons of butter
2	28	?
3	?	12 tons of butter
4	0	?

- a. If the economy is currently producing one Gun, and wants to produce more Guns, what is the opportunity cost of an additional Gun?

$$\text{Opportunity cost of an additional Gun} = \frac{\Delta \text{Butter}}{\Delta \text{Gun}} = \frac{(28-36)}{(2-1)} = 8 \text{ tons of butter}$$

- b. If the economy is currently producing 3 Gun, how many tons of butter can this country produce efficiently?

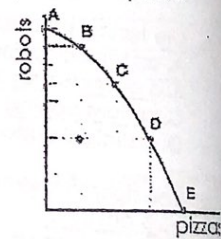
$$\text{Opportunity cost of an additional Gun} = \Delta \text{Butter} / \Delta \text{Gun}$$

$$-12 = \frac{(X-28)}{(3-2)} \Rightarrow X - 28 = -12 \Rightarrow X = 28 - 12 = 16 \text{ tons of butter}$$

Optimal Allocation

Of all the attainable combinations of pizzas and industrial robots on the curve in Figure, which is optimal (best)? That is, what specific quantities of resources should be allocated to pizzas and what specific quantities should be allocated to industrial robots in order to maximize satisfaction?

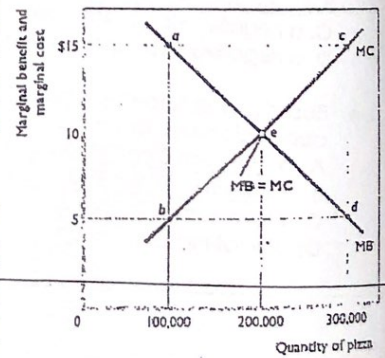
ذكرنا سابقاً أن منحنى إمكانيات الإنتاج يمثل أقصى ما يستطيع المجتمع إنتاجه. فالنقطة (A) والنقطة (B) والنقطة (C)، وكل نقطة على المنحنى تمثل أحد البدائل أو الخيارات التي يمكن للمجتمع أن ينتجها إذا استخدم جميع العناصر المتوفرة لديه. ونقول في هذه الحالة أن هذه البدائل التي تقع على المنحنى تمثل كفاءة إنتاجية (Productive Efficiency).



Economic decisions center on comparisons of marginal benefit (MB) and marginal cost (MC). Any economic activity should be expanded as long as marginal benefit exceeds marginal cost and should be reduced if marginal cost exceeds marginal benefit. *The optimal amount of the activity occurs where MB = MC.* Society needs to make a similar assessment about its production decision.

Consider pizzas. We already know from the law of increasing opportunity costs that the marginal costs of additional units of pizza will raise as more units are produced. At the same time, we need to recognize that the extra or marginal benefits that come from producing and consuming pizza decline with each successive unit of pizza. Consequently, each successive unit of pizza brings with it both increasing marginal costs and decreasing marginal benefits.

The optimal quantity of pizza production is indicated by point e at the intersection of the MB and MC curves: 200,000 units in Figure. Why is this amount the optimal quantity? If only 100,000 units of pizzas were produced, the marginal benefit of an extra unit of pizza (point a) would exceed its marginal cost (point b). When society gains something worth \$15 at a marginal cost of only \$5, it is better



off. In Figure above, net gains can continue to be realized until pizza product production has been increased to 200,000.

If $MB > MC \rightarrow$ production should be increased

If $MB < MC \rightarrow$ production should be decreased

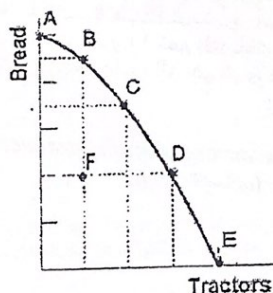
If $MB = MC \rightarrow$ the optimal amount of the production occurs (optimal allocation)

Productive Efficiency (كفاءة إنتاجية)

The production of any particular good in the least costly way (إنتاج السلعة بأقل التكاليف).

- Each point occurs on the production possibilities curve represents productive efficiency.
- Each point occurs inside the production possibilities curve represents productive inefficiency.

The points A, B, C, D, E represents productive efficiency
Point F represents productive inefficiency point



Allocative efficiency

The particular mix of goods and services most highly valued by society (إنتاج ما يرغبه أفراد المجتمع).

Economic Efficiency = Productive Efficiency + Allocative efficiency

Multiple Choices:

- The optimal point on a production possibilities curve is achieved where:
 - the smallest physical amounts of inputs are used to produce each good.
 - each good is produced at a level where marginal benefits equal marginal costs.
 - large amounts of capital goods are produced relative to consumer goods.
 - large amounts of consumer goods are produced relative to capital goods.
- The marginal cost curve is:
 - upsloping because of increasing marginal opportunity costs.
 - upsloping because successive units of a specific product yield less and less extra utility.
 - downsloping because of increasing marginal opportunity costs.
 - downsloping because successive units of a specific product yield less and less extra utility.

النمو الاقتصادي Growing Economy

When we drop the assumptions that the quantity and quality of resources and technology are fixed, the production possibilities curve shifts positions and the potential maximum output of the economy changes.

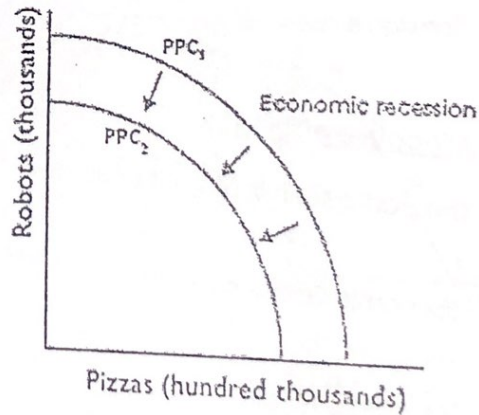
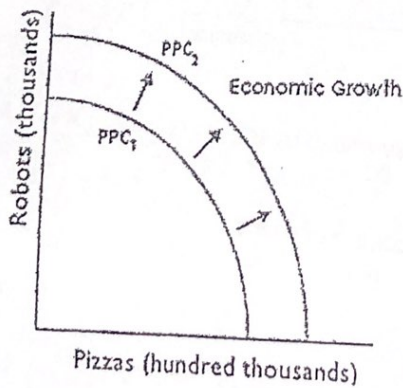
العوامل التي تؤدي إلى انتقال منحنى إمكانات الإنتاج: Production possibilities curve shifters: زيادة كمية و نوعية المصادر الإنتاجية

1. Increases in Resource Supplies: (land, labor, capital, and entrepreneurial ability). The increase in supplies of resources (land, labor, capital, and entrepreneurial ability), improvements in resource quality, move the production possibilities curve outward and to the right, allowing the economy to have larger quantities of both types of goods (Economic Growth).

The increase in supplies of resources, improvements in resource quality, shifts the production possibilities curve outward and to the right (Economic Growth).

إذا افترضنا أن كمية الموارد الإنتاجية قد زادت نتيجة لتزايد السكان والقوى العاملة في المجتمع، ونتيجة للاكتشافات الجديدة للثروة المعدنية، وزيادة التراكم الرأسمالي، إن ذلك يعني ببساطة أن مقدرة هذا المجتمع، أي طاقة الإنتاجية، سوف تزيد، وبالتالي يستطيع هذا المجتمع أن ينتج كميات أكبر من البضائع والخدمات سنويا (نمو اقتصادي). ويمكن الحصول على نفس النتيجة إذا تحسنت نوعية الموارد المتاحة للمجتمع، مثل استصلاح الأراضي الزراعية، وتدريب العاملين، وصيانة الآلات، وغيرها.

A decrease in supplies of resources, shift the production possibilities curve inward and to the left from PPC_1 to PPC_2 . (Economic recession (اقتصادي ركود)).



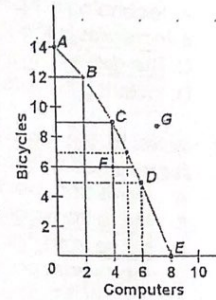
2. Advances in Technology تطور التكنولوجيا التي يستخدمها المجتمع

An advancing technology brings both new and better goods and improved ways of producing them. Increase in output leads to economic growth.

An advancing technology shifts PPC to the right, this leads to increase output.

3. The output of MP3 players should be:
- A. reduced if marginal benefits exceed marginal costs.
 - B. reduced if marginal costs exceed marginal benefits.
 - C. increased if marginal costs exceed marginal benefits.
 - D. reduced to zero if their unit costs exceed the unit costs of alternative products.

4. Refer to the above diagram. Points A, B, C, D, and E show:
- A. That the opportunity cost of bicycles increases, while that of computers is constant.
 - B. Combinations of bicycles and computers that society can produce by using its resources efficiently.
 - C. That the opportunity cost of computers increases, while that of bicycles is constant.
 - D. That society's demand for computers is greater than its demand for bicycles.



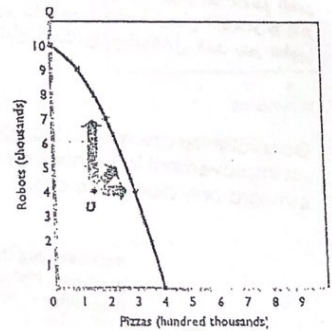
Unemployment, Growth, and the Future

Unemployment of Resources

عدم التوظيف الكامل لعناصر الإنتاج يحدث عندما تكون بعض عناصر الإنتاج غير مستغلة، أو غير مستغلة بصورة كاملة. وهذا يعني أن أي نقطة داخل منحنى إمكانيات الإنتاج تمثل عدم التوظيف الكامل لعناصر الإنتاج.

Any point inside the production possibilities curve, such as U, represents unemployment or a failure to achieve full employment.

The arrows indicate that by realizing full employment, the economy could operate on the curve. This means it could produce more of one or both products than it is producing at point U.



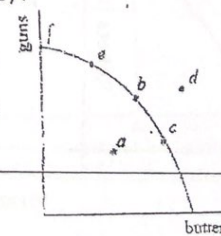
Example

Refer to the production possibilities curve. Which point represents unemployment and producing inefficiently? And which points represent productive efficiency?

Point a: unemployment point and producing inefficiently.

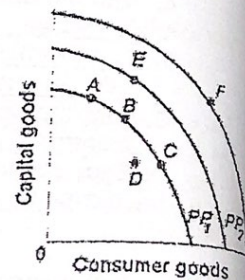
لا يوجد هناك استغلال كامل لعناصر الإنتاج (جزء من عناصر الإنتاج معطل)

Point's b, c, e, and f represent productive efficiency (لأنها تقع على (المنحنى)



Multiple Choices:

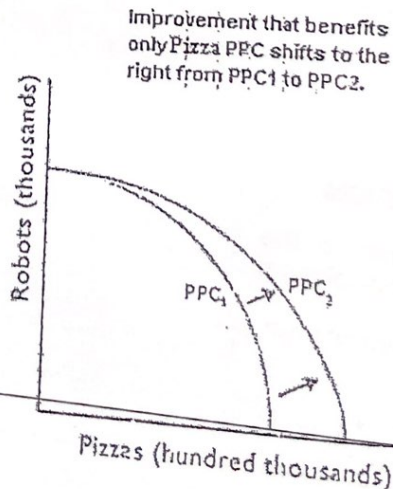
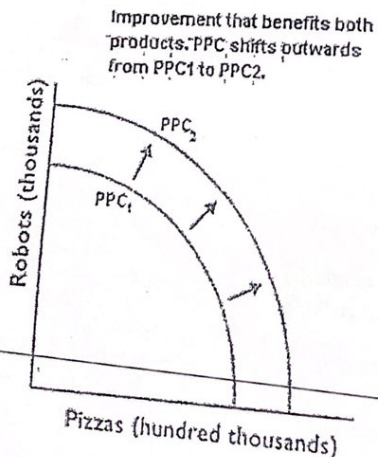
- Unemployment:
 - A. causes the production possibilities curve to shift outward.
 - B. can exist at any point on a production possibilities curve.
 - C. is illustrated by a point outside the production possibilities curve.
 - D. is illustrated by a point inside the production possibilities curve.
- A nation's production possibilities curve might shift to the left (inward) as a result of:
 - A. technological advance.
 - B. increases in the size of the labor force.
 - C. the depletion of its soil fertility (استنزاف خصوبة التربة) due to overplanting and overgrazing (الرعي الجائر)
 - D. investing in more capital goods.
- Refer to the above diagram. The concept of economic growth is best represented by the:
 - A. Move from point B to point C.
 - B. Move from point C to point D.
 - C. Move from point B to point E.
 - D. Move from point F to point E



Biased Growth and Unbiased Growth: النمو المتوازن وغير المتوازن

حدث النمو المتوازن عندما يزيد إنتاج جميع السلع (Pizza and Robots) في مثالنا السابق بنفس النسبة. أما النمو الغير متوازن يحدث نتيجة لزيادة إنتاج سلعة ما دون غيرها. فعلى سبيل المثال، قد يتم تطوير تكنولوجيا خاصة بإنتاج الطعام أو يتم زيادة الأراضي الزراعية، وهذا ما سيؤدي إلى زيادة إنتاج الطعام دون أن يؤثر على إنتاج المكائن. وبالمقابل فقد يتم تطوير تكنولوجيا خاصة بإنتاج المكائن دون أن يؤثر ذلك على إنتاج لطعام.

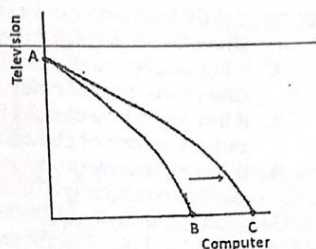
Generally we assume an increase in available resources raises the production capacity of both goods. An improvement in technology, however, may be specific to one product. In this situation the PPC shift outward only along one axis.



Multiple Choices:

1. Which of the following could explain the shift in the production possibilities frontier from AB to AC

- A. technological improvement in both television production and computer production
- B. technological improvement in television production that has no effect on computer production
- C. technological improvement in computer production that has no effect on television production
- D. an increase in the labor that can produce either television products or computer

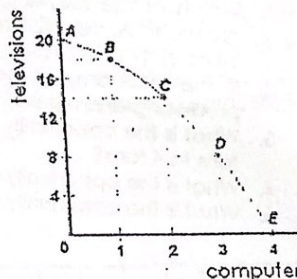


2. Which of the following will shift the production possibilities curve to the right?

- A. an increase in the unemployment rate from 6 to 8 percent
- B. a decline in the efficiency with which the present labor force is allocated
- C. a decrease in the unemployment rate from 8 to 6 percent
- D. a technological advance that allows farmers to produce more output from given inputs

3. In the figure above, moving from point D to point E requires

- A. Technological change.
- B. An increase in unemployment.
- C. Give up (يتخلى عن) some of televisions in order to obtain more computer
- D. Give up some of computers in order to obtain more televisions.

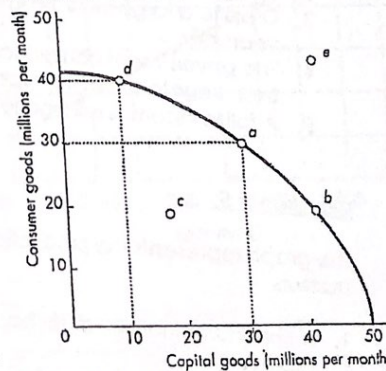


Questions

Question #1

Refer to the production possibilities frontier in the figure above answer the following questions

1. Which point is unattainable? _____
2. Which point indicates that resources are NOT fully utilized or are inefficient? _____
3. Which point represents an attainable but inefficient production point? _____
4. Which point represents the choice to allocate the greatest amount of resources to producing consumer goods? _____
5. If the country moves from point a to point d, the opportunity cost of one more unit of consumer goods is _____
6. If currently no capital goods are being produced, what is the total opportunity cost of producing another 10 capital goods? _____
7. What must the economy do to attain point e? _____



Question # 2:

The table below lists five points on the production possibilities frontier for chocolate bars and cans of cola.

Point	Production chocolate bars	Production cans of cola
A	0	100
B	10	90
C	20	70
D	30	40
E	40	0

1. Show these data graphically
2. If the economy at point B, what is the opportunity cost of the one more cans of cola?
3. If the economy at point D, what is the opportunity cost of the one more bar of chocolate?
4. If the economy producing at point E, what is the opportunity cost of producing 40 cans of cola?
5. Can the economy producing 20 chocolate bars and 75 cans of cola? If not why?
6. Does the law of increasing opportunity cost hold here? Show how?

Question # 3

The table above represents the production possibilities frontier for grain and cars. Given this information answer the following questions.

Point	Production of grain (tons)	Production of cars (cars)
A	0	30
B	2	28
C	4	24
D	6	18
E	8	10
F	10	0

1. Which of the following combinations is unattainable? (4 tons of grain and 26 car), (2 tons of grain and 27 cars), (6 tons of grain and 18 cars), (7 tons of grain and 10 cars)
2. If the economy at point D, what is the opportunity cost of producing one more unit of car?
3. What is the opportunity cost of increasing grain production from 2 tons to 4 tons?
4. What is the opportunity cost of producing the 5th ton of grain?
5. What is the opportunity cost of producing the 26th car?

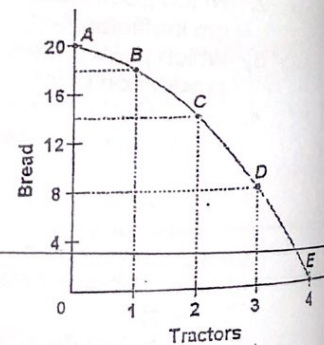
Question # 4:

Decide whether the following statements are positive or normative:

1. A rise in the price of petrol will lead to an increase in the demand for rail transport
2. The government is right to introduce a ban on smoking in public places
3. Despite a large increase in income per head, people are no happier today than they were 50 years ago
4. The government can reduce obesity by offering a subsidy to low income families when they buy fresh vegetables in the supermarket
5. A fall in incomes will lead to a rise in demand for own-label supermarket foods

Question # 5:

The graph represents the production possibilities frontier for Bread and Tractors



1. Is the combination of (3 Tractors and 12 Bread) unattainable? Explain
2. If the economy at point C, what is the opportunity cost of producing one more unit of Bread?
3. What is the opportunity cost of producing the 5th ton of grain?
4. What is the opportunity cost of producing the 4th Tractors?