



Some Tools of Economic Analysis

Choice and opportunity cost

Comparative advantage, specialization, and exchange

The economy's production possibilities

Economic system



Opportunity Cost

- Scarcity forces us to make choices → make a choice, → pass up another opportunity → incur an opportunity cost
- *Opportunity cost* of the chosen item or activity is the value of the best alternative that is forgone

暑期工讀	薪水
家教	20,000
加油站	15,000 <i>Opportunity cost</i>
麥當勞	13,000
咖啡廳	12,000



Opportunity Cost

- ⊕ Usually, money is only part of the opportunity cost of making a choice

- ⊕ Opportunity cost is subjective
 - ▣ Only the individual making the choice can select the most attractive alternative
 - ▣ Chooser seldom knows the actual value of the “road not taken”

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Time and Information

- Rational choice does not mean that individuals exhaustively calculate the value of all possible alternatives

- *Acquiring information about alternatives is costly and time consuming → people usually make choices based on limited or even incorrect information → some choices may turn out to be poor ones*

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Opportunity Cost

- ***Time is the ultimate constraint***
 - ❖ By pursuing one activity, we cannot at the same time do something else

- ***May vary with circumstances***
 - ❖ Depends on the value of the alternatives
 - ❖ Ex: Watch TV at Tue. Or Sat. night.

- ***Monetary cost***
 - ❖ May be a reasonable approximation but can omit the time involved which may be substantial for some activities

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Sunk Cost and Choice

- ***Sunk cost***
 - ❖ A cost that has already been incurred
 - ❖ Cannot be recovered regardless of further actions
 - ❖ 超級市場排隊結帳
 - 選擇一個結帳機排隊
 - 排了十分鐘 (Sunk cost),但隊伍都沒移動
 - 新的結帳機加入作業,你會作何決定?

- ***Economic decision makers should consider only those costs that are affected by the choice → already incurred sunk costs become irrelevant in making choices***

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Law of Comparative Advantage

- *The individual with the lower opportunity cost of producing a particular output should specialize in that.*
- **Absolute advantage** means being able to produce a product using fewer resources

	工人甲	工人乙
產品A	12/hour	4/hour
產品B	6/hour	4/hour

- 工人甲有 **Absolute advantage**
- 工人乙生產B的機會成本低
 ■ 甲: 2A 乙: 1A

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Law of Comparative Advantage

- 甲乙不合作, **AB**各生產一小時
 - ▣ **A: $12+4=16$**
 - ▣ **B: $6+4=10$**
- **Comparative advantage focuses on producing where opportunity costs are lower:**
 - ▣ 乙生產兩小時**B** → 8
 - ▣ 甲生產1/3小時**B** → 2 ... $8+2=10$ **B**
 - ▣ 甲生產5/3小時**A** → 20 > 16

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Law of Comparative Advantage

- **Applies not only to individuals but also to firms, regions of a country, and entire nations**
- **Comparative advantage between nations exists because of**
 - ▣ Climate
 - ▣ Workforce skills
 - ▣ Natural resources
- ***Resources will be allocated more efficiently when production and trade conform to the law of comparative advantage***

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Specialization and Exchange

- **Barter**(以物易物)
 - System of exchange in which products are traded directly for other products
 - Works best in simply economies with little specialization and few goods

- For more advanced economies with specialization, money plays an important role in facilitating exchange
 - *Money serves as a medium of exchange because it is the one thing that everyone is willing to accept in return for all goods and services*

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Specialization and Exchange

- Specialization and comparative advantage imply
 - Most people consume little of what they produce
 - Produce little of what they consume

- Thus, they exchange what they produce for money which is in turn exchanged for other goods and services

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歷史實例:政府可以濫發鈔票嗎?

- 民國二十六年七月抗戰前夕，法幣發行總額只有十四億，民國三十年以後法幣發行每年以倍數成長，但民國三十二年發行額為前一年的四十七倍，三十三年卻一躍成了一百八十倍，到了民國三十四年八月，日本投降，法幣的發行額增至五千多億，增加為抗戰前夕的三百五十七倍。愈到抗戰後期，法幣的發行額愈多，這表示什麼？政府的支出仍然多於收入。對，抗戰勝利這年，國民政府的收入僅是支出的三分之一。

政府國庫空虛，而市面上卻充斥愈來愈多的法幣，這會造成什麼問題？通貨膨脹，即法幣的購買力下降。加上戰時物資欠缺，物價上漲，愈到抗戰後期，民眾的生活更為艱苦。舉例來說，一般大學教授抗戰前的月薪約是三百元，但到了民國三十二年，這樣的薪資卻只值戰前約八元三角，根本無法維持一個月的開銷，

- 法幣持有意願下降,以物易物的交易方式盛行

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Division of Labor

- **Division of labor means that each worker specializes in separate tasks**
- ***How could this increase productivity?***
 - ❖ **Tasks are selected according to individual preferences and abilities**
 - ❖ **Workers who perform the same task again and again gets better at it**
 - ❖ **There is no time lost in moving from task to task**
 - ❖ **Allows for the introduction of specialized machines → each worker becomes more productive**

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Down Side of Specialization

- Doing same thing all day can become tedious
- Repetitive motion can also lead to injury (Ex:職業病)
- Trade off between
 - gains from specialization
 - problems caused by assigning workers to repetitive and tedious jobs
- Ex: 工作輪調

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Production Possibilities Frontier

- **Model how much an economy *can* produce with the given resources**

- **Simplifying assumptions**
 - ❏ Two broad classes of products – consumer goods and capital goods
 - ❏ Production during a given time period – one year
 - ❏ Resources available are fixed in both quantity and quality during the time period
 - ❏ *Technology* does not change

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Production Possibilities Frontier

- ***Identifies all possible combinations of the two types of goods that can be produced when all available resources are employed fully and efficiently***

- ***Resources are fully and efficiently employed if***
 - ❏ *no chance to increase the production of one good without decreasing the production of the other good*
 - ❏ Involves getting the maximum possible output from available resources

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Exhibit 1: The Economy's PPF

Points along the curve between A and F identify other possible combinations of the two goods than can be produced when all the economy's resources are used efficiently

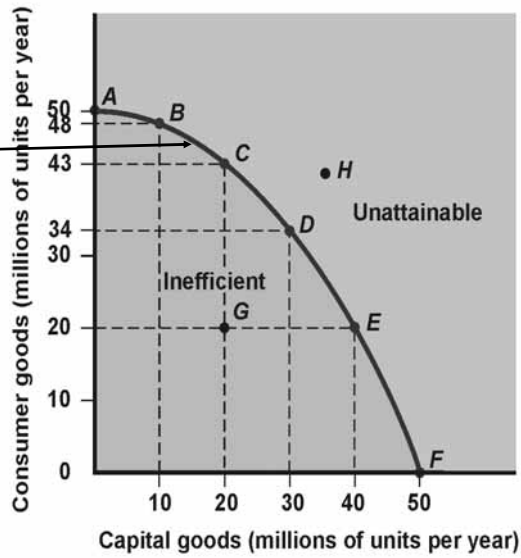


Exhibit 1: The Economy's PPF

G, represent a combination that do not employ resources fully, or inefficiently

All points between C and E yield more of both consumer and (or) capital goods than G

H, represent a unattainable combination → PPF serves as the frontier between unattainable and attainable combinations

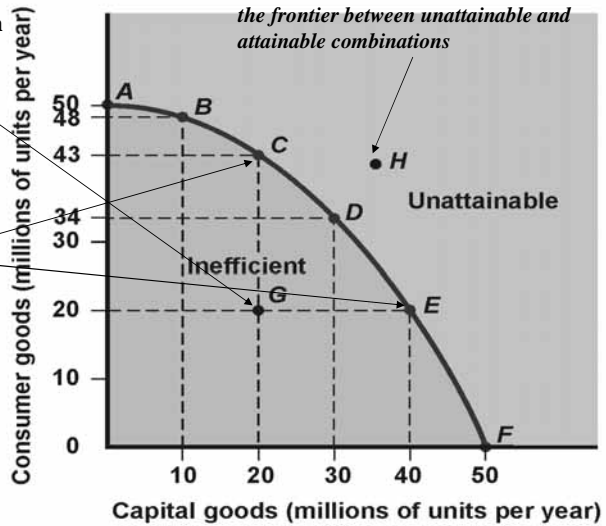
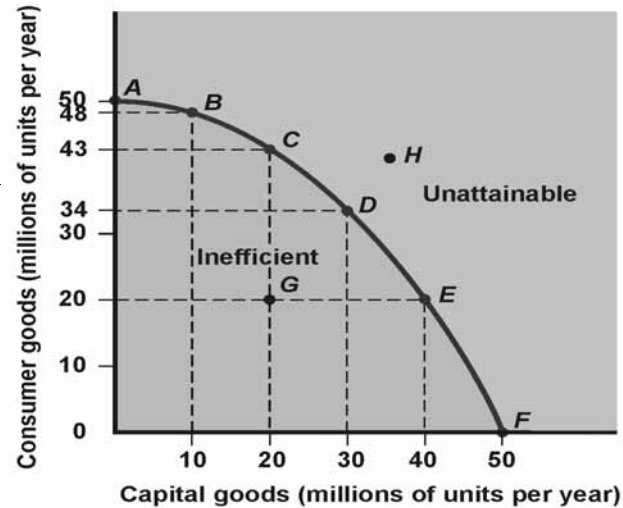




Exhibit 1: The Economy's PPF

Any movement along the PPF involves giving up some of one good to get more of the other

E.g., moving from point A to point B increases the amount of capital goods produced from 0 to 10 million units, reducing production of consumer goods from 50 to 48 million (opportunity cost)



As shown by the dashed lines, each additional 10 million units of capital goods reduces consumer goods by successively larger amounts
Law of increasing cost

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Law of Increasing Costs

- ❏ Dictates the bowed-out shape of the PPF
- ❏ *When the economy uses all resources efficiently, each additional increment of one good requires the economy to sacrifice successively larger and larger increments of the other good*
- ❏ Because resources drawn away from consumer goods are those that are increasingly better suited to producing consumer goods →
 - first 10 million units of capital goods have an opportunity cost of only 2 million units of consumer goods while
 - the final 10 million (points E to F) have an opportunity cost of 20 million units of consumer goods

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Factors that can Shift the PPF

- **Changes in Resource Availability**
 - ❖ health of the labor force,
 - ❖ skills of the labor force,
 - ❖ availability of other resources
 - Discover of new oil
 - Iraq invaded Kuwait
- **Increases in the Capital Stock**
 - ❖ Human capital, physical capital
 - ❖ More capital goods this period, greater economy's production possibilities next period.
- **Technological Change**
 - ❖ Internet: information exchange
 - ❖ Altered seeds → increase crops production

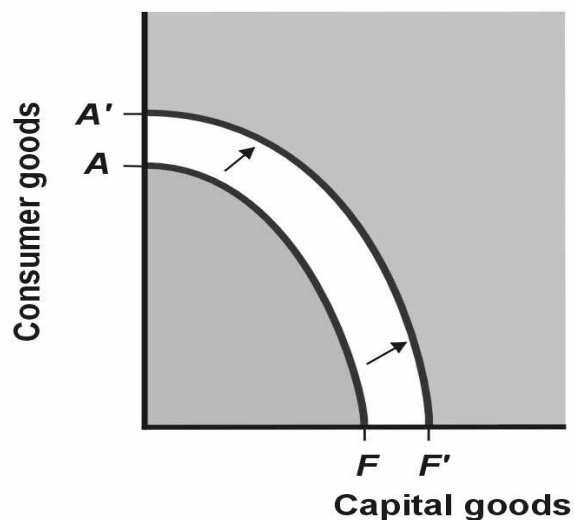
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Exhibit 2a: Shifts in the Economy's PPF

Increase in available resources

Ex: Increase of labor force
labor skill
oil discoveries
gain of human/physical capital
internet



The parallel shift implies that the change that occurred could produce either good

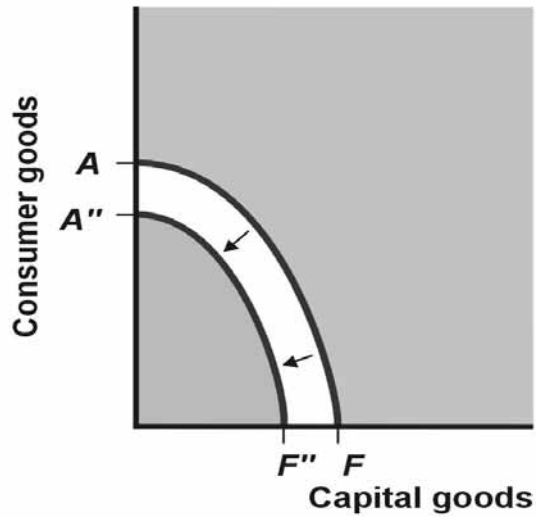
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Exhibit 2b: Shifts in the Economy's PPF

Decrease in available resources

Ex: Iraq invaded Kuwait

Parallel shift again implies that the change was equally applicable to both consumer and capital goods

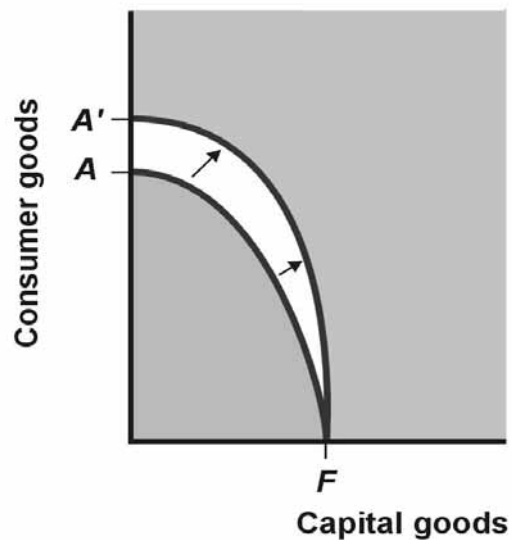


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Exhibit 2c: Shifts in the Economy's PPF

Increase in resources or technological change that benefits consumer goods

Ex: Increases in farm land
Alter seeds increases crops production



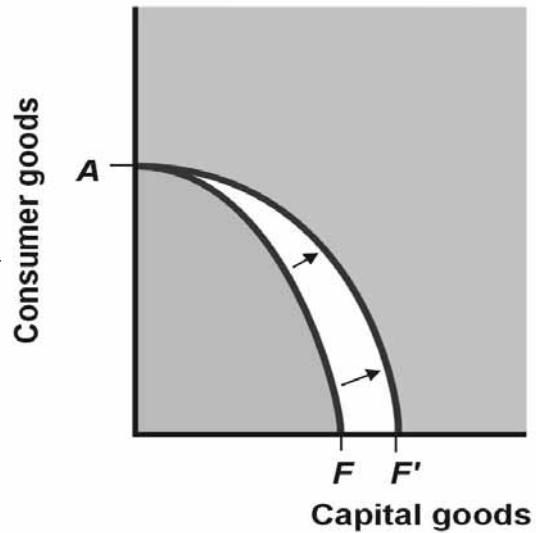
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Exhibit 2d: Shifts in the Economy's PPF

*Increase in resources
or technological
advance that benefits
capital goods*

*Ex: Software for machinery
design.*



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Lessons of PPF

- **Efficiency**
 - ❖ PPF represents the combinations of output that are possible, given the economy's resources and technology

- **Scarcity(稀少性)**
 - ❖ Given the stock of resources and technology, the economy can produce only so much
 - ❖ The downward slope represents tradeoffs and increasing opportunity cost

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Lessons of PPF

- ⊕ **Economic Growth**
 - ▣ Outward shift of the PPF

- ⊕ **Choice**
 - ▣ Each society must somehow choose a specific combination of output –
 - a single point – along the PPF

 - ▣ PPF does not tell us which combination to choose
 - provides information about the costs of choices
 - doesn't measure the benefits
 - How society chooses depends on the nature of the economic system. (See next session)

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Three Questions

- ⊕ **Economy produces efficiently**
 - ▣ on the PPF

- ⊕ **Selects the most preferred combination**
 - ▣ depends on the decision-making rules employed
 - Economy system

- ⊕ **Each economy must answer three fundamental questions**
 - ▣ *What goods and services will be produced?*
 - ▣ *How will they will be produced?*
 - ▣ *For whom will they be produced?*

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Economic System

- ***Economic System* is a set of mechanisms and institutions that resolve the *what, how, and for whom* questions**
- **Criteria used to distinguish among economic systems**
 - ▣ Who owns the resources
 - ▣ What decision-making process is used to allocate resources and products
 - ▣ What type of incentives guide the economic decision makers

Freest
Capitalism

Most regimented
Command



Pure Capitalism

● Rules of the Game

- ❖ Private ownership of all resources
- ❖ Coordination of economic activity based on price signals generated in free, unrestricted markets
- ❖ Owners have property rights to use their resources and are free to supply those resources to the highest bidder
- ❖ Voluntary buying and selling
- ❖ Market prices guide resources to their most productive uses and channel goods and services to consumers who value them most
- ❖ Laissez-faire (French: to let do) → let people do as they choose without government intervention

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Pure Capitalism

● Markets

- ❖ Answer the what, how, and for whom questions
- ❖ Transmit information about relative scarcity of goods and services
- ❖ Provide individual incentives
- ❖ Distribute income among resource supplies

- ❖ Adam Smith's invisible hand: *although each individual pursues his or her self-interest, the "invisible hand" of markets promotes the general welfare*

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Flaws in Capitalism

- ⊕ **No central authority to protect property rights, enforce contracts, and otherwise ensure that the rules of the game are followed**
- ⊕ **People with no resources to sell could starve**
- ⊕ **Some producers may try to monopolize by eliminating the competition**
- ⊕ **Externalities (外部性)**
 - **Production/consumption of goods generates pollution – not involved in the market transaction**
 - ***Public goods*, such as national defense, will not be produced by private firms**
 - **Cannot prevent non-payers from enjoying the benefits of public goods**

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Pure Command System

- **Resources are directed and production is coordinated not by markets but by the “command,” or central plan, of government**
- **Public or communal ownership of property**
- **Central plans spell out answers to three questions**

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Flaws of Command System

- ⊕ Running an economy is so complicated that some resources are used inefficiently
- ⊕ Since nobody owns resources, people have less incentive to employ them in their highest valued use
- ⊕ Central plans may reflect more the preferences of central planners than those of society
- ⊕ Since government is responsible for all production, the variety of products tends to be more limited than in a market economy
- ⊕ Each individual has less personal freedom in making economic choices

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Mixed / Transitional Economies

- ⊕ Economic systems have grown more alike over time
- ⊕ Role of government increasing in market economies and role of markets increasing in command economies
- ⊕ United States represents a mixed system: government directly accounts for about one-third of all economic activity
- ⊕ Government also regulates the private sector in a variety of ways
 - ▣ Workplace safety, competitive fairness

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Capitalism get more Converts

- ⊖ Taiwan vs. China
- ⊖ West Germany vs. East Germany
- ⊖ South Korea vs. North Korea
- ⊖ Central planners accept free market activities
 - ⊠ Soviet Union
 - ⊠ East Europe
- ⊖ Some economies based on custom or religion
 - ⊠ India, Iran, Iraq
 - ⊠ Occupation → Taiwan Nurse = Woman

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課堂報告

- ⊕ 舉例說明何謂 opportunity cost
- ⊕ 說明課本P27, "The opportunity cost of college". 的大意
- ⊕ 舉例說明何謂 Law of Comparative advantage
- ⊕ 舉例說明specialization所造成的問題
- ⊕ 請說明何謂 Production Possibilities frontier
- ⊕ 請舉例說明何謂 externalities
- ⊕ 請說明command system的缺點
- ⊕ 在mixed economics 中,政府會介入私部門的管理,請舉例說明

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Homework:

- 2: 是非題,請解釋理由
 - Ex: The opportunity cost is the total value of all the alternatives passed up.
 - Answer: False →the value of only the single best alternative
- 12: 使用sunk cost解釋為什麼在餐廳付完費後,為什麼不overeating?
- 14: 使用Comparative and Absolute Advantage說明英國和美國之間的國際分工