

CH3. THE PRODUCTION POSSIBILITIES FRONTIER AND SOCIAL CHOICES



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2.5 PRODUCTIVE EFFICIENCY AND ALLOCATIVE EFFICIENCY

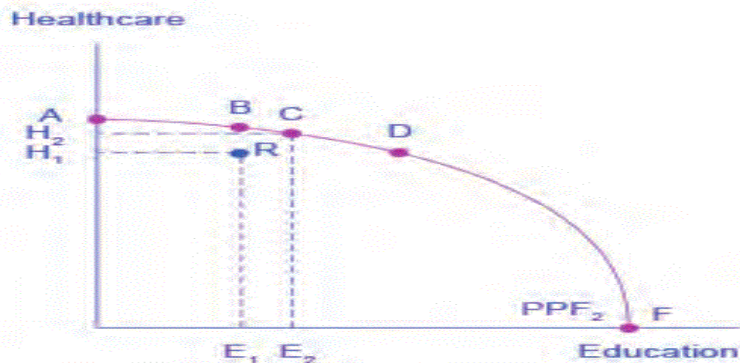
- Productive efficiency refers to the maximum amount of output that an economy can produce at a certain point in time. When it is impossible to produce more of one good (or service) without decreasing the quantity produced of another good (or service).
- In everyday usage, **efficiency refers to lack of waste**. An inefficient machine operates at high cost, while an efficient machine operates at lower cost, because it is not wasting energy or materials.
- An inefficient organization operates with **long delays** and **high costs**, while an efficient organization meets schedules, is focused, and performs within budget.

PRODUCTION EFFICIENCY

- The production possibilities frontier can illustrate two kinds of efficiency: 1- **Productive efficiency** and 2- **Allocative efficiency**.
- **Productive efficiency** means it is impossible to produce more of one good without decreasing the quantity that is produced of another good.
- **Productive efficiency** is an **economic** level at which the economy can no longer produce additional amounts of a good without lowering the **production** level of another product.
- This happens when an economy is operating along its **production** possibility frontier.

PRODUCTION EFFICIENCY

- Thus, all choices along a given PPF like B, C, and D display **productive efficiency**, but R does not. However, any choice inside the production possibilities frontier is **productively inefficient** and wasteful because it is possible to produce more of one good, the other good, or some combination of both goods.
- All choices on the PPF in Figure 2.5, including A, B, C, D, and F, display productive efficiency. As a firm moves from any one of these choices to any other, either healthcare increases and education decreases or vice versa.
- **Figure 2.5 production possibilities frontier**

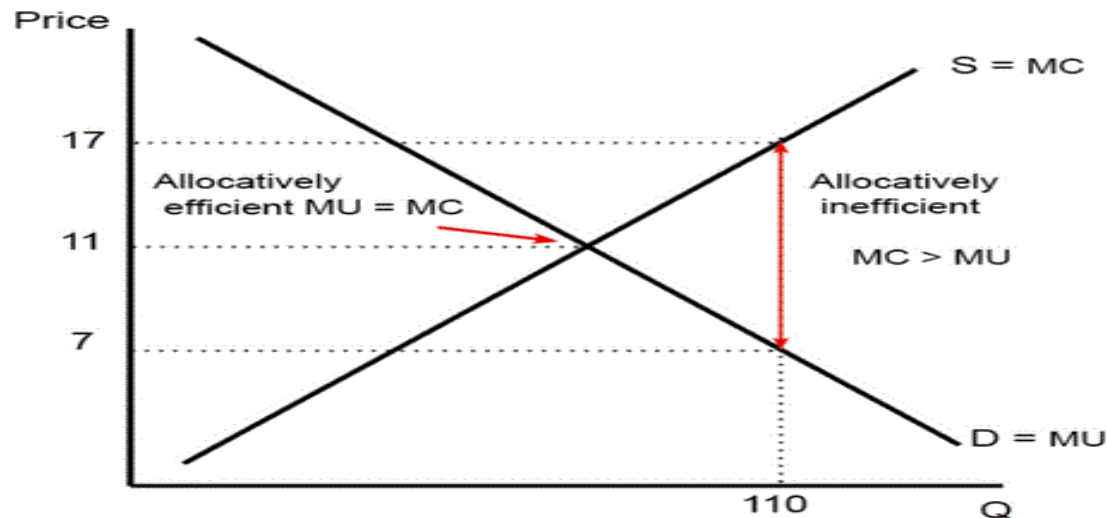


ALLOCATIVE EFFICIENCY

- **Allocative efficiency** means that the particular mix of goods being produced, the specific choice along the production possibilities frontier, represents the allocation that society most desires.
- How to determine what a society desires ? This question can be a controversial (debatable), and is usually discussed in political science, sociology, and philosophy classes as well as in economics.
- At its most basic, allocative efficiency means producers supply the quantity of each product that consumers demand.
- Only one of the productively efficient choices will be the allocative efficient choice for society as a whole.
- Productive efficiency means that, given the **available inputs and technology**, it is impossible to produce more of one good without decreasing the quantity that is produced of another good.

Q/ WHAT DOES THE TERM ALLOCATIVE EFFICIENCY MEAN?

- **Allocative efficiency** is a state of the economy in which production represents consumer preferences; in particular, every good or service is produced up to the point where the last unit provides a marginal benefit to consumers equal to the marginal cost of producing.



ALLOCATIVE EFFICIENCY

○ Why Society Must Choose?

- 1- A society may discover that it has been using its resources inefficiently
- 2- as resources grow over a period of years (e.g., more labor and more capital), the economy grows.
- In these two cases the production possibilities frontier for a society will tend to shift outward and society will be able to afford more of all goods.
- But improvements in **productive efficiency** take time to discover and implement, and economic growth happens only gradually.
- So, a society must choose between tradeoffs in the present.
- For government, this process often involves trying to identify where additional spending could do the most good and where reductions in spending would do the least harm.
- At the individual and firm level, the market economy coordinates a process in which firms seek to produce goods and services in the quantity, quality, and price that people want.
- But for both the government and the market economy in the short term, increases in production of one good typically mean offsetting decreases somewhere else in the economy.



TRADE BASED ON ABSOLUTE ADVANTAGE

- Adam Smith, *The Wealth of Nations*, 1776.
- Absolute Advantage When one nation is more efficient than (or has an absolute advantage over) another in the production of one commodity but is less efficient than (or has an absolute disadvantage with respect to) the other nation in producing a second commodity,

In economics, the principle of absolute advantage refers to the ability of a party to produce a greater quantity of a good, product, or service than competitors, using the same amount of resources.

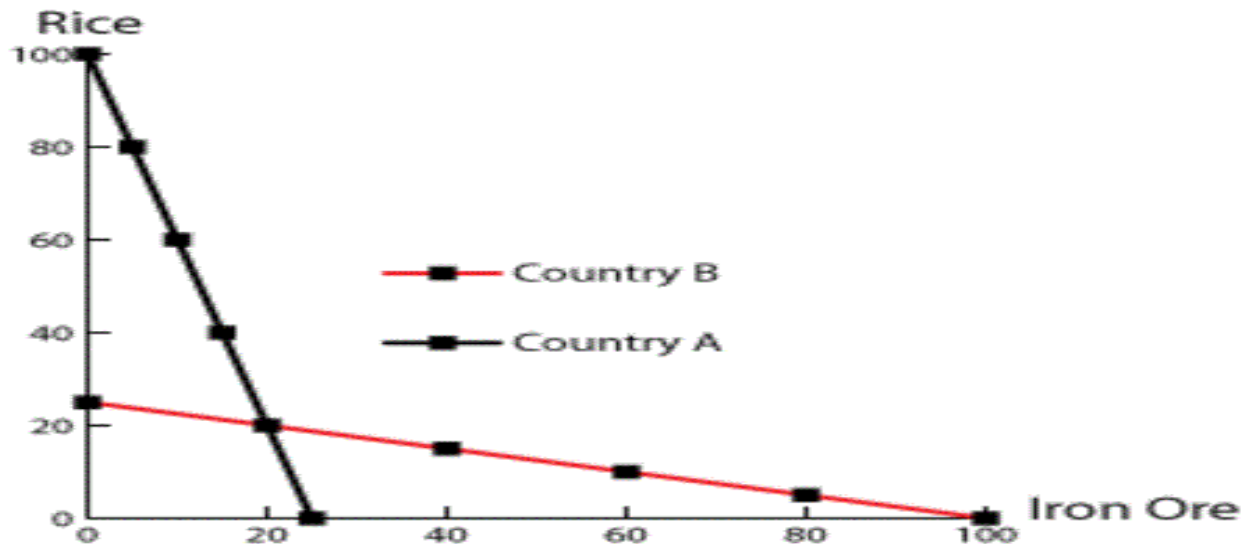


Table 1 The number of units produced by each hour of labor time

	U.S.	U.K.
Wheat (bushels/hour)	6	1
Cloth (yards/hour)	4	5

The U.S. is more efficient than (or has an absolute advantage over) the U.K. in the production of Wheat but is less efficient than (or has an absolute disadvantage with respect to) the U.K. in producing Cloth.

With trade, the U.S. would specialize in the production of wheat and exchange part of it for British cloth. The opposite is true for the U.K.

Note: Absolute advantage can explain only a very small part of world trade.

A country is said to have an *absolute advantage* if the country can produce a good at a lower cost than another. ... As opposed to the *Absolute Advantage Theory*, the *Comparative Advantage theory* was developed by David Ricardo, argues that a country doesn't have to have an *absolute advantage* for beneficial trade to occur.



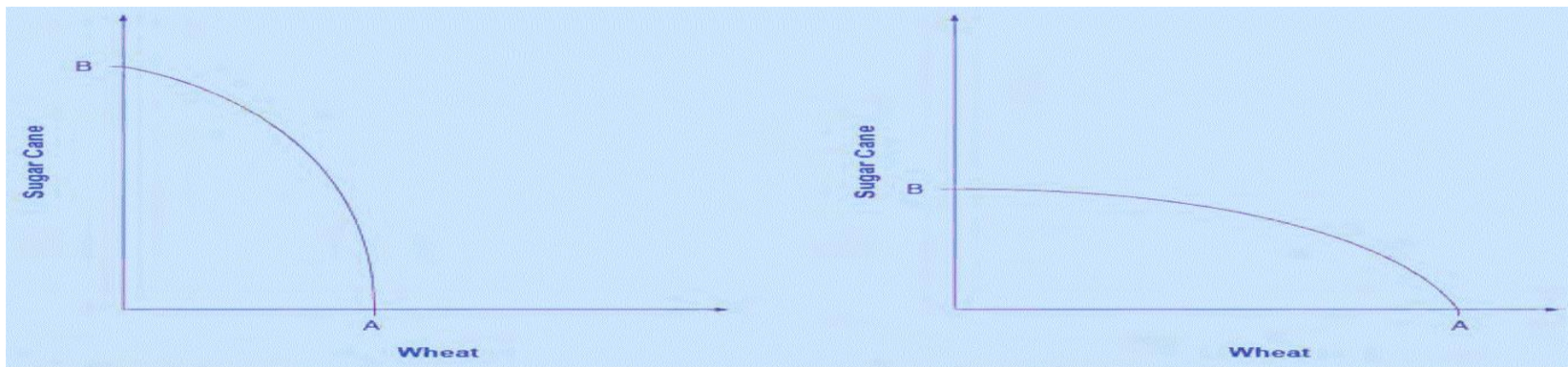
RICARDO'S THEORY OF COMPARATIVE ADVANTAGE (INTERNATIONAL TRADE)

- David Ricardo
- A famous economist named David Ricardo (1772-1823) came up with law of comparative advantage in (principle of Political Economy and taxation, 1817) .
- According to this Law, specialize and free trade benefits all trading partners.
- Countries should specialize in those goods they have a comparative in.



COMPARATIVE ADVANTAGE

- Suppose two countries, the US and Brazil, need to decide how much they will produce of two crops: sugar cane and wheat.
- Due to its climatic conditions, Brazil can produce a lot of sugar cane per acre but not much wheat. Conversely, the U.S. can produce a lot of wheat per acre, but not much sugar cane.
- Clearly, **Brazil has a lower opportunity cost of producing sugar cane** (in terms of wheat) than the U.S.
- The reverse is also true; the **U.S. has a lower opportunity cost of producing wheat** than Brazil. This can be illustrated by the PPFs of the two countries in **Figure 2.6**



(a) Brazil production per acre (tons)

(b) US production per acre (tons)

2.6 THE PPF AND COMPARATIVE ADVANTAGE

- While every society must choose how much of each good it should produce, it does not need to produce every single good it consumes.
- Often how much of a good a country decides to produce depends on how expensive it is to produce it versus buying it from a different country.
- Countries tend to have different opportunity costs of producing a specific good, either because of different climates, geography, technology or skills.
- Choices outside the PPF are unattainable and choices inside the PPF are wasteful. Over time, a growing economy will tend to shift the PPF outwards.

THE PPF AND COMPARATIVE ADVANTAGE

- **Figure 2.6 Production Possibility Frontier for the U.S. and Brazil** The U.S. PPF is flatter than the Brazil PPF implying that the opportunity cost of wheat in term of sugar cane is lower in the U.S. than in Brazil.
- Conversely, the opportunity cost of sugar cane is lower in Brazil. The U.S. has comparative advantage in wheat and brazil has comparative advantage in sugar cane.
- When a country can produce a good at a lower opportunity cost than another country, we say that this country has a
- **comparative advantage in that good. In our example, Brazil has a comparative advantage in sugar cane and the U.S. has a comparative advantage in wheat.**

- The slope of the PPF gives the opportunity cost of producing an additional unit of wheat.
- While the slope is not constant throughout the PPFs, it is quite apparent that the PPF in Brazil is much steeper than in the U.S., and therefore the opportunity cost of wheat generally higher in Brazil.
- In the chapter on **International Trade you will learn that countries' differences** in comparative advantage determine which goods they will choose to produce and trade. When countries engage in trade, they specialize in the production of the goods that they have comparative advantage in, and trade part of that production for goods they do not have comparative advantage in.
- With trade, goods are produced where the opportunity cost is lowest, so total production increases, benefiting both trading parties.

Comparative Advantage and Opportunity Costs

Assumptions of the Ricardian Model

- 1) Only two nations and two goods
- 2) Free trade
- 3) Perfect mobility of labor within each nation but immobility between the two nations
- 4) Constant costs of production
- 5) No transportation costs
- 6) No technical change

Both countries benefit, and now consume at points outside their production possibility frontiers.