Part I
International Trade Theory

Chapter 2
Law of Comparative Advantage

Vu Thanh Huong

Lecture overview

- Mercantilism
- The theory of Absolute Advantage
- The theory of Comparative Advantage
- Opportunity Cost Theory

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MERCANTILISM
(Mercantilist)

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Overview of Mercantilism

- Historical context
  - Mercantilism the oldest perspective
  - XV-XVI: England
  - XVII: France, Germany, Portugal, Netherlands…
  - XVIII
  - Capitalism: newly born

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Mercantilism's views on trade

- Nature of the wealth of a nation
  - Stock of precious metals (Gold, silver…)
  - Precious metal => unique assets => accumulate gold and silver
  - Why???
- Trade
  - The way to create wealth => Important role of trade
  - Should maintain trade surplus
    - Export more than import => richer
    - Vietnam's trade

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Mercantilism's views on trade (cont.)

- Government intervention of trade activity
  - Advocate government intervention
  - Maintain the trade surplus
  - How to intervene?
    - Maximize exports:
    - Minimize imports:
- Trade is a zero-sum game
  - E.g
  - One nation gains at the expense of other nations

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Evaluating Mercantilism's views on trade

- Contribution of Mercantilism
  - The oldest, pioneer theory on IE
  - Recognize the role of trade
  - To emphasize the government role in regulating trade

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Evaluating Mercantilism's views on trade (cont.)

- Limitations
  - Nature of wealth of a nation
  - Zero-sum game
  - Government control
- Is Mercantilism's view on government control alive?
  - Case study 2-2
  - A late 20th century form of mercantilism – Neo-mercantilism

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Theory of Absolute Advantage

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Adam Smith

- Adam Smith (1723 – 1790)
  - The Wealth of Nations (1776) – Magnum opus
  - Father of modern economics
- Attacks the mercantilism' s views on trade
  - Nature of wealth of a nation
  - Zero – sum game
  - Government intervention

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Assumptions

- 2 countries
- 2 goods
- Labor: only production factor
- No barriers to trade
- No transportation cost

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Basis for trade

- Absolute advantage
- A country has absolute advantage in producing a particular good if it is **more efficient** than the other country in producing that good.
- More efficient: higher productivity of labor, lower labor cost.
  - E.g
    - Scotland needs 30h/ shirt and 120h/automobile
    - England needs 100h/shirt and 20h/ automobile
    - Identify absolute advantage of each country?
- Sources of absolute advantage:
  - Natural conditions: Vietnam, Australia
  - Expertise: Japan

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Pattern of trade

- Countries should specialize in the production of goods for which they have an absolute advantage
- Countries should export goods which they have an absolute advantage
- Countries should imports goods for which they have an absolute disadvantage
- E.g: Scotland and England

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Gains from trade

- Both nations will benefit
  - Resources are utilized efficiently
  - Output of both commodities increase

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Illustration of the Absolute Advantage

- **Table 2.1: Productivity**

	The US	Vietnam
Steel ((ton/hour)	**10**	1
Rice (ton/hour)	1	**20**

- Identify
  - Absolute advantage of each country
  - The pattern of trade.
  - Gains from trade.

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Illustration of the Absolute Advantage (cont.)

- Absolute advantage of each country
  - The US has an absolute advantage over Vietnam in steel production
  - Vietnam has an absolute advantage over the US in rice production

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Illustration of the Absolute Advantage (cont.)

- Pattern of trade
  - US specialize in steel production; export steel; and import rice
  - Vietnam specialize in rice production; export rice; and import steel

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Illustration of the Absolute Advantage (cont.)

- Gains from trade:
  - Assume 1 ton of steel can be exchanged for 1 ton of rice
  - Rate of exchange is 1S : 1R
  - How are large gains of each nation and the world when exchanging 10S:10R?
- Both nations gain from trade
  - The US: better off by 9R or equivalent to 9 hours
  - Vietnam: better off by 190 R or equivalent to 9.5 hours
  - Both gain. Vietnam gains more than the US. Why?

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Illustration of the Absolute Advantage(cont.)

- The world gain from trade
  - Assume to reallocate 1 hour of labor time => how the world's output will change.
  - Thanks to specialization according to absolute advantage, the world would be better of by 9S and 19R.
  - ⇒ Attack zero-sum game.
  - ⇒ Advocate the policy of laisser-faire and free trade.

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Limitations

- Questions:
  - When each country has an absolute advantage in one product, it is clear that trade is beneficial. But what if one country has an absolute advantage in both products?

	The US	Vietnam
Steel ((ton/hour)	**10**	**1**
Rice (ton/hour)	**30**	**20**

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Limitations (cont.)

- Can not explain: If one country has absolute advantages in both products
- Just explain a very small part of the world trade today (30%).

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Theory of comparative advantage

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David Ricardo

- David Ricardo (1772 – 1823)
- One of the most influential classical economists.
- Parliament member, businessman, financer and speculator => personal fortune.
- 1799: First contact with economics: The Wealth of Nations
- Principles of Political Economy and Taxation (1817)
  - The labor theory of value
  - Most important contribution: theory of comparative advantage.

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Assumptions

- Two countries (the US and UK)
- Two goods (Steel and rice)
- Labor is the only factor of production and not mobile across the two countries.
- Labor productivity varies across countries, usually due to differences in technology, but labor productivity in each country is constant across time.
- Constant supply of labor
- Perfect competition
- No barrier to trade

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Basis of trade

- Comparative advantage
- A nation has a comparative advantage where its absolute advantage is greater, or where its absolute disadvantage is smaller
  - Lower **relative** cost or higher **relative** productivity
  - Compare with absolute advantage?

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Basis of trade (cont.)

- Relative cost and Relative productivity

	The United Kingdom	Japan
Automobiles (h/auto)	**5**	2
Coffee (h/ton)	10	**6**

- Calculate relative costs or relative productivity of producing automobiles of each country?
  - Japan has a comparative advantage in producing automobile

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Pattern of trade and gains from trade

- Countries should specialize in the production of goods for which they have a comparative advantage
- Countries should export goods which they have a comparative advantage (smaller absolute disadvantage)
- Countries should imports goods for which they have a comparative advantage (greater absolute disadvantage)
- Gains from trade
  - Both nations benefit
  - The world would be better off

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Illustration of comparative advantage

- Illustration of theory of comparative advantage

	The US	The United Kingdom
Steel ((ton/hour)	**6**	1
Rice (ton/hour)	4	2

- What is the pattern of trade based on concept of absolute advantage?
  - Can not identify
- What is the pattern of trade based on concept of comparative advantage?

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Illustration of comparative advantage (cont.)

- Calculate and identify comparative advantage

	US	The United Kingdom
Steel ((ton/hour)	**6**	1
Rice (ton/hour)	4	2

- The US has an comparative advantage in steel production
- The United Kingdom has an comparative advantage in rice production

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Illustration of comparative advantage (cont.)

- Pattern of trade:
  - US specialize in the production of steel; export steel; import rice
  - The United Kingdom specialize in the production of rice; export rice; import steel

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Illustration of comparative advantage (cont.)

- Gains from trade:
  - assume 1 ton of steel: 1 ton of rice (1S:1R)
  - Calculate gains of each country when exchanging 6S:6R
- Both nations gain from trade
  - The US: better off by 2R or equivalent to 1/2 hour
  - The United Kingdom: better off by 6R or equivalent 3 hours
  - => Both nations gain and even The United Kingdom gain more even it has absolute disadvantage in producing both goods.
- The world gain from trade
  - Reallocate one hour of labor time (Do it)
  - ⇒ Attack zero-sum game.
  - ⇒ Advocate the policy of laisser-faire and free trade.

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- ***Even if a nation has an absolute advantage in the production of both goods, two nations can engage in mutually beneficial trade if each nation specializes in and exports the good in which it has the comparative advantage.***

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Exercise

- Assume that each country has 1000 hours of labor time
- Before trade: Each country allocate hours of labor equally into 2 sectors of rice and steel production.
- With trade: Each country conduct a complete specialization (The US only produce steel and The United Kingdom only produces rice) and trade with each other.
- Fill in the table bellowed

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Exercise

	The US		The UK		World	
	Steel	Rice	Steel	Rice	Steel	Rice
Productivity (Ton/hour)	6	4	1	2	-	-
Before trade						
Hours of labor time						
Output (tons)						
After trade						
Hours of labor time						
Output (tons)						

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Rate of exchange

- Rate at which goods can be exchanged
  - 1S : 1 R or 6S: 6R => Mutual benefit
  - If 6S : 4R => what happen?
  - If 6S : 12 R => what happen?
  - The range for mutual benefit

    4R < 6S < 12 R

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Rate of exchange (cont.)

Any comments?

The gains from trade by the rate of exchange

The rate of exchange between S & R	Gains from trade			Note
	US	UK	World	
6S:3R				No trade
6S:4R	0R	8R	8R	No trade
6S:5R	1R	7R	8R	
6S:6R	2R	6R	8R	
6S:7R	3R	5R	8R	
6S:8R	4R	4R	8R	Equal gain
6S:9R	5R	3R	8R	
6S:10R	6R	2R	8R	
6S:11R	7R	1R	8R	
6S:12R	8R	0	8R	No trade
6S:13R				No trade

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Exception to the theory of Comparative Advantage

	The US	Vietnam
Steel (ton/hour)	6	1
Rice (ton/hour)	12	2

- What is pattern of trade?

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The Opportunity Cost Theory

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Historical context

- Limitations of Comparative Advantage Theory
  - Labor theory of value:
    - Labor is the only factor of production
    - Labor is used in the same fixed proportion in production of all commodities
    - Labor is homogeneous
  - ⇒ Destiny of comparative advantage theory?
- In 1936, Haberler: opportunity cost (OC) to explain comparative advantage

  => the Law of CA is referred as the Law of OC

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Opportunity cost

- The opportunity cost of a commodity is the amount of a second commodity that must be given up to release just enough resources to produce one additional unit of the first commodity.
- E.g:
  - go to work or go to university?
- Formular

$$OC_A = \frac{Productivity_B}{Productivity_A} = \frac{Cost_A}{Cost_B}$$

  - E.g:
- A country has to decide what to produce based on opportunity cost.

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Comparative advantage and opportunity costs

- A nation with the lower opportunity cost in the production of a commodity has a comparative advantage in that commodity.
- E.g:

	US	UK
Wheat (t/h)	6	1
Cloth (t/h)	4	2

  - ⇒ US has CA or cost advantage in production of wheat
  - ⇒ UK has CA or cost advantage in production of cloth

Opportunity Cost of W & C in US and UK		
	US	UK
OC of Wheat	2/3 C	2 C
OC of Cloth	3/2 (w)	½ (w)

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Pattern of trade

- The US should specialize in producing wheat and export wheat to the UK.
- The UK should specialize in producing cloth and export cloth to the US.

=> The same as the law of comparative advantage.

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Production Possibility Frontier (PPF) under constant cost

- PPF is a curve that shows the alternative combinations of the two commodities that a nation can produce by fully utilizing all of its resources with the best technology available to it.
  - How to construct this curve?

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Production Possibility Frontier (PPF) under constant cost (cont.)

Production Possibility Schedules for Wheat and Cloth in the US and UK

US		UK	
Wheat (million ton/year)	Cloth (million meter/year)	Wheat (million ton/year)	Cloth (million meter/year)
180	0	60	0
150	20	50	20
120	40	40	40
90	60	30	60
60	80	20	80
30	100	10	100
0	120	0	120

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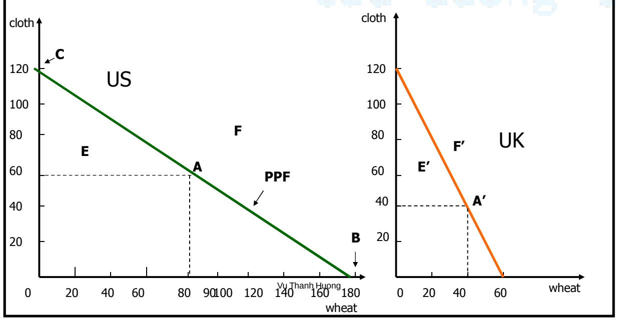
Production Possibility Frontier (PPF) under constant cost (cont.)



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OC and relative commodity prices

- OC_{wheat} in the US = absolute value of slope of PPF = 120/180 = 2/3 (constant) (marginal rate of transformation)
- OC_{wheat} in the UK = absolute value of slope of PPF = 120/60 = 2 (constant)
- Assumptions
  - Price = cost of production

$$OC_{wheat} = \frac{Cost_{wheat}}{Cost_{cloth}} \qquad OC_{wheat} = \frac{Cost_{wheat}}{Cost_{cloth}} = \frac{Price_{wheat}}{Price_{cloth}} = \frac{P_{wheat}}{P_{cloth}}$$

$$\frac{P_{wheat}}{P_{cloth}} = \frac{2}{3} \qquad \frac{P_{wheat}}{P_{cloth}} = 2$$

US UK

US has CA in wheat
UK has CA in Cloth

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OC and relative commodity prices (cont.)

- Under constant costs, **Pw/Pc is determined exclusively by production**.
- **Demand doesn't enter** in the determination of relative commodity prices
- **The difference in the relative commodity prices between the two nations is the reflection of their CA and provides the basis for mutually beneficial trade**

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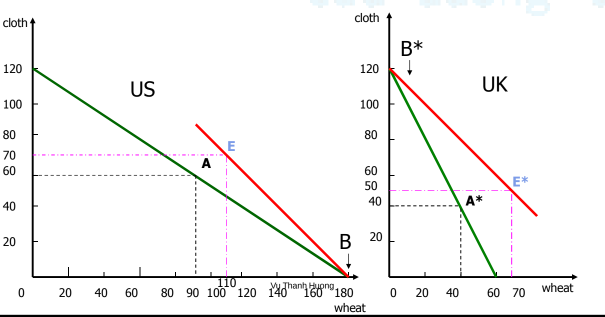
The gains from trade



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The gains from trade(cont.)

- The gains from trade
  - In the absence of trade: US at point A (90w and 60c); UK at point A' (40w and 40c).
  - With trade:
    - US has CA in w => specializes on production of w and produces at B (180w and 0c);
    - UK specializes on production of c and produces at B' (0w and 120c)
    - US exchanges 70w for 70c and consumes at E (110w;70c) gains 20w and 10c
    - UK consumes at E' (70w and 50c) gains 30w and 10c

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Lecture review

- Absolute advantage/Theory of absolute advantage
- Laissez-faire
- Comparative advantage/Theory of comparative advantage
- Labor theory of value
- OC/Formula
- PPF
- Constant OC
- Relative commodity prices
- Complete specialization
- Consumption and production points before and after trade

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End of chapter 2
Thank you

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