# International Economics

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Lecture 2

## A brief historical review of trade theory

- Mercantilism
- David Hume and the price-specie-flow mechanism
- Adam Smith - absolute advantage in production
- David Ricardo - comparative advantage and the gains from trade

# Mercantilism

- The wealth of a country depends on gold and silver that it accumulated.

- The most important way of accumulating wealth is export - **a nation should strive for a positive balance of trade** (or net export).

- Imports (mainly trade deficit) lead to loss of wealth. All imports of foreign goods should be discouraged as much as possible.

# Mercantilism

- Imports should be confined to raw materials that can be finished in the country. No importation should be allowed if goods are sufficiently and suitably supplied at home.

- Indispensable goods should be obtained in exchange for other domestic goods instead of gold and silver.

- The government has a role to promote exports and restrict imports.

# Mercantilism

- The global volume of international trade is unchangeable - sum of trade balances in the world is equal 0.

- Foreign trade creates losers and gainers. One country’s economic gain is at expense of another.

- Foreign trade can be regarded as a zero-sum game.

# The Price-specie-flow Mechanism

**A logical argument against the Mercantilism**

**David Hume (1711-1776)**

The argument considers the effects of international transactions in a gold standard.

# The price-specie-flow mechanism

- Trade surplus (a positive balance of trade) means an accumulation of foreign reserve (gold flows into the country in the amount that the value of exports exceeds the value of imports).

- Conversely, when a country has a negative balance of trade, gold flows out of the country in the amount that the value of imports exceeds the value of exports.

- The quantity of money in circulation rises in a country with a positive balance of trade and falls in a country with negative balance of trade.

- The prices of products tend to rise in first country and drop in the second one.

# The price-specie-flow mechanism

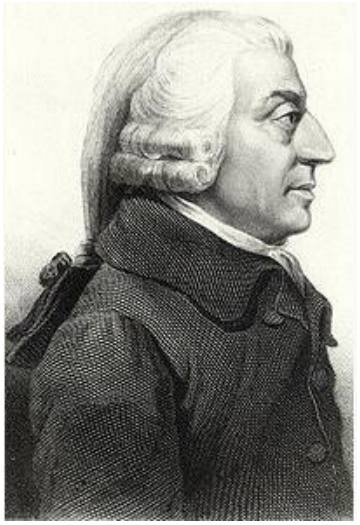
- The higher prices in the countries with positive balance of trade cause exports to decrease and imports to increase.
- The lower prices in countries with negative balance of trade cause exports to increase and imports to decrease.
- These adjustments of prices and the balances of trade will continue until the balance of trade is reduced or increased to zero in each nation.

# The simple classical framework - assumptions

**Theory of absolute advantage**

- A homogenous factor called labour
- Two sectors of homogenous commodities
- Two countries, each of which has a fixed endowment of labour
- Free trade and zero transport costs

**Adam Smith (1723-1790)**



# The simple classical framework - assumptions

- Constant labour coefficient of the commodities for each sector in each country – constant amount of labour required to produce each unit of a commodity (marginal product of labour is constant)

- Labour perfectly mobile between sectors within a country but perfectly immobile internationally (the wage rate is the same in both sectors)

- Sectors characterized by perfect competition (flexible prices, firms take the wage rate and output prices as given)

A closed economy (under autarky - self-sufficient economy)

Labour needed

| | Cloth | Wine |
|---|---|---|
| Country A | **10 hrs/metre** | 8 hrs/litre |
| Country B | 15 hrs/metre | **6 hrs/litre** |

- These numbers are called labour coefficients of the commodities.

- Since the labour coefficient of each commodity is constant, the cost of producing one unit of the commodity (in terms of the wage rate *w*) must be constant.

- Country A

$$10 \cdot C + 8 \cdot W = total\ labour$$

- Country B

$$15 \cdot C + 6 \cdot W = total\ labour$$

- Country A

$$10 \cdot C + 8 \cdot W = 250$$

$$C = -0.8 \cdot W + 25$$

- Country B

$$15 \cdot C + 6 \cdot W = 300$$

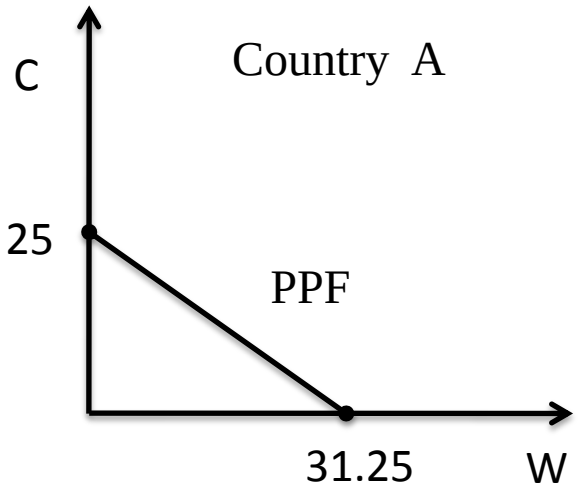
$$C = -\frac{6}{15} \cdot W + 20 = -0.4 \cdot W + 20$$

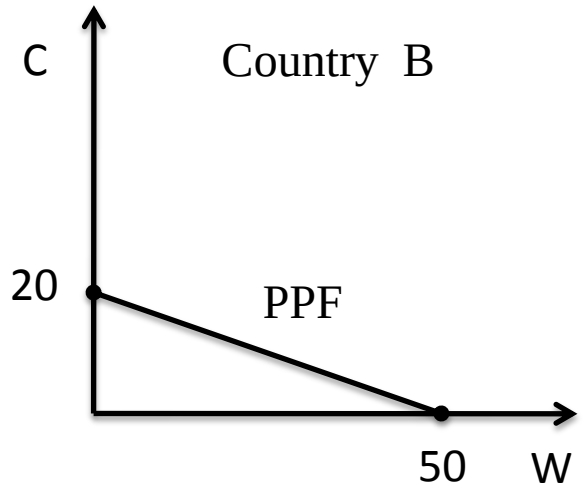
- The production possibilities can be illustrated by the **production possibility frontier (PPF)**

- **Definition of PPF:** All combination of the two goods which an economy can produce at a point in time, given its resources, production technology

- PPF (in example) can be defined as the locus of the maximum output of cloth when given any output of wine (the later not greater than is maximum output).

The equation of PPF in country A is the following: C=-0.8W+25
The equation of PPF in country B is the following: C=-0.4W+20




Price under autarky: 0.8

Price under autarky: 0.4

The slope is numerically equal to the marginal rate of transformation
= the autarkic price ratio

The autarkic **consumption possibility frontier (CPF)** of economy is the same as its PPF because it cannot consume more than it has produced

## Output produced (assumed) - autarky equilibrium

| | Cloth (metres) | Wine (litres) |
|---|---|---|
| Country A | 13 | 15 |
| Country B | 10 | 25 |

World's output of cloth: 23

World's output of wine: 40

$$10 \cdot 13 + 8 \cdot 15 = 250$$

$$15 \cdot 10 + 6 \cdot 25 = 300$$

- A nation (country) has **absolute advantage** in the production of a good if, compared to another country, it uses less resources to produce it.

- Based on the labour coefficients in two countries, *A* has an absolute advantage in production of cloth (or an absolute disadvantage in wine) and *B* has an absolute advantage in the production of wine (or an absolute disadvantage in cloth).

- **Theory of absolute advantage**: Under free trade, each country completely specializes in the production of the good in which it has an absolute advantage, and exports the good.
- Both countries gain.

# After specialization and trade

| | Cloth (metres) | Wine (litres) |
|---|---|---|
| Country A | 25 | 0 |
| Country B | 0 | 50 |

Total world's output of cloth: 25  Total world's output of wine: 50

Gains from trade: 25-23= 2 units of cloth,

50-40= 10 units of wine

The world price ratio is called the world's terms of trade.

Terms of trade (TT): 0.4 - 0.8 Let TT=0.5

The equation of CPF in country A is the following C=-0.5W+25

| | Country A | Country B |
|---|---|---|
| Production | (0W, 25C) | (50W, 0C) |
| Consumption | (20W, 15C) | (30W, 10C) |
| Export | 10C | 20W |
| Import | 20W | 10C |
| Consumption in autarky | (15W,13C) | (25W,10C) |

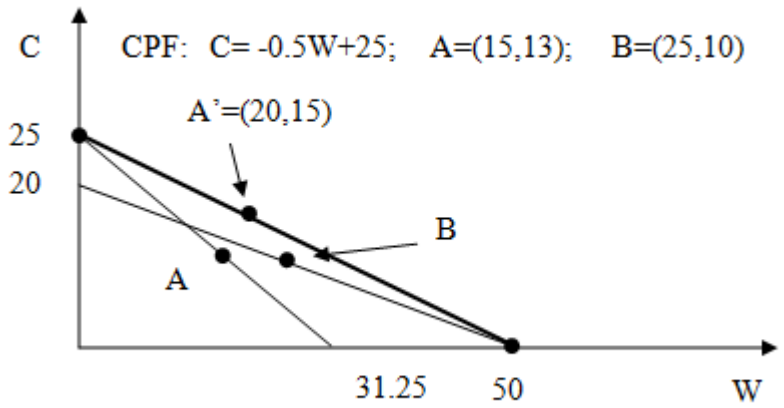
- Before trade, the labour value of country A's consumption (= the labour value of its production) = 250 units

- After trade, the labour value of consumption is 20*8+15*10=310 labour hours.

- The labour value of country B's consumption before trade is 300 labour hours.

- After trade it is 30*6+10*15=330 labour hours.

# A graphical analysis




Trade expands each country's consumption possibilities.

After trade the consumption possibility frontier (CPF) of each country is represented by a price line passing through its production point with a slope equal to the negative of the world price ratio (TT).

# Conclusions

- Both countries gain from trade.
- Trade is regarded as a positive sum game. Trade can make at least one country (possibly both) better off without hurting the other country.

- Questions: Is trade possible between two countries when one of countries has absolute advantage in both goods? Do both countries gain from trade?

- Smith's theory does not predict whether trade between the countries will exist and if it exists, whether it will benefit both countries.

There is a story that makes the rounds among international economists. As a Young Fellow at Harvard, Paul Samuelson was challenged by one of his colleagues — who later became a renowned physicist — to state "one idea in economics that is true and not trivial".

Fisher, E.O'N., Kakkar V., (2004), *On the evolution of comparative advantage in matching models*, Journal of International Economics, 64, p. 170.

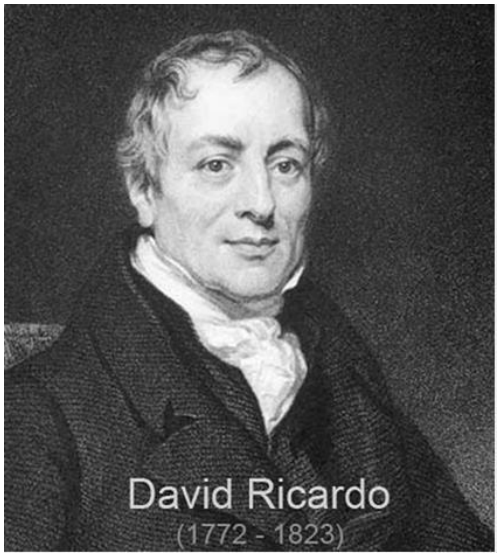
Samuelson immediately replied

“**The concept of comparative advantage**”

# Ricardian Model of Trade

**David Ricardo (1772-1823)**

Theory of comparative advantage

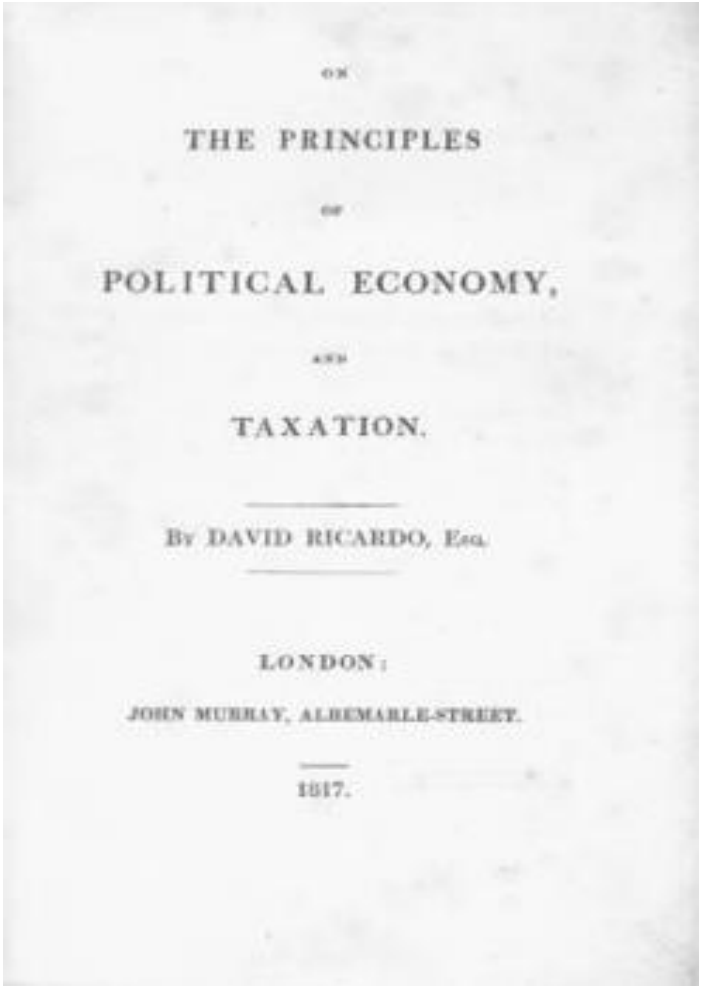


# The Ricardian Model of Trade

„Dostoevsky apparently once remarked that all of Russian literature emerged from under Gogol's overcoat.

It is at least as true that **all of the pure theory of International Trade has emerged from chapter 7 of Ricardo's *Principles***."

Ronald Findlay



ON

THE PRINCIPLES

OF

POLITICAL ECONOMY,

AND

TAXATION.

By DAVID RICARDO, Esq.

LONDON:

JOHN MURRAY, ALBEMARLE-STREET.

1817.

Cordella, T., Gabszewicz, J.J., (1997), *Comparative advantage under oligopoly*, Journal of International Economics, 43, p. 333.

A closed economy.
Country A has absolute advantage in both goods,
country B has absolute disadvantage in both goods

| | Cloth | Wine |
|---|---|---|
| Country A | **10 hrs/metre** | **8 hrs/litre** |
| Country B | 40 hrs/metre | 10 hrs/litre |

Total labour: country A - 240 units, country B - 240 units

- Country A

$$10 \cdot C + 8 \cdot W = 240$$

$$C = -0.8 \cdot W + 24$$

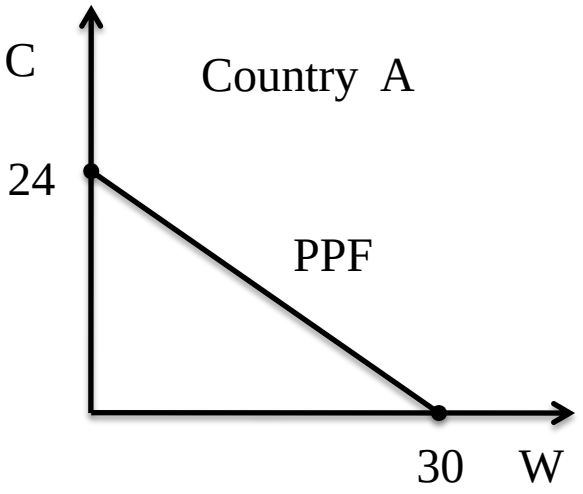
- Country B

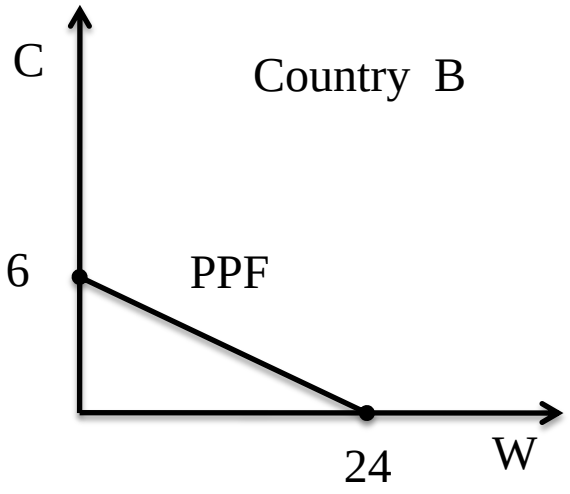
$$40 \cdot C + 10 \cdot W = 240$$

$$C = -\frac{10}{40} \cdot W + 6 = -0.25 \cdot W + 6$$

To show the production possibilities of the economy let assume:
Total labour: country A - 240 units, country B - 240 units

The equation of PPF in country A is the following: C=-0.8W+24
The equation of PPF in country B is the following: C=-0.25W+6



Key concept: **the opportunity cost** of one good production is how many units of second good the economy would have to give up in order to produce an additional unit of first good

- Opportunity cost of wine production (how many units of cloth the economy would have to give up in order to produce an additional unit of wine):

- Country A : 1 unit of wine → 8 labour hours → 0.8 unit of cloth (opportunity cost of wine)
- Country B : 1unit of wine → 10 labour hours → 0.25 unit of cloth

- Country A is more efficient at producing both goods (has absolute advantage in producing both goods). However, opportunity cost of producing wine is higher in country A than in B.

- Country B has **a comparative advantage** in **wine** production (i.e. lower opportunity cost).
- Country A has **a comparative advantage** in **cloth** production.

- Ricardo argued that each country can gain by exporting the good at which it has a comparative advantage.

- Country A gains from specialising in cloth production and importing wine from country B.

- Country B gains from specialising in wine production and importing cloth from country A.

# Output produced (assumed) - autarky equilibrium

The equation of PPF in country A: C=-0.8W+24
The equation of PPF in country B: C=-0.25W+6

| | Cloth (metres) | Wine (litres) |
|---|---|---|
| Country A | 12 | 15 |
| Country B | 4.2 | 7.2 |

- (-0.8*15+24=12; -0.25*7.2=4.2)
- Ricardo assumed that world's price ratio is between the autarkic price ratios in the countries. For example TT=0.5

- The equation of CPF in country A is the following:

  C=-0.5W+24 (0,24)

- The equation of CPF in country B has the form:

  C=-0.5W+12 (24,0)

# After specialization and trade

| | Country A | Country B |
|---|---|---|
| Production | (0W, 24C ) | (24W, 0C) |
| Consumption | (16W, 16C) | (8W, 8C) |
| Export | 8C | 16W |
| Import | 16W | 8C |
| Consumption in autarky | (15W, 12C) | (7.2W, 4.2C) |

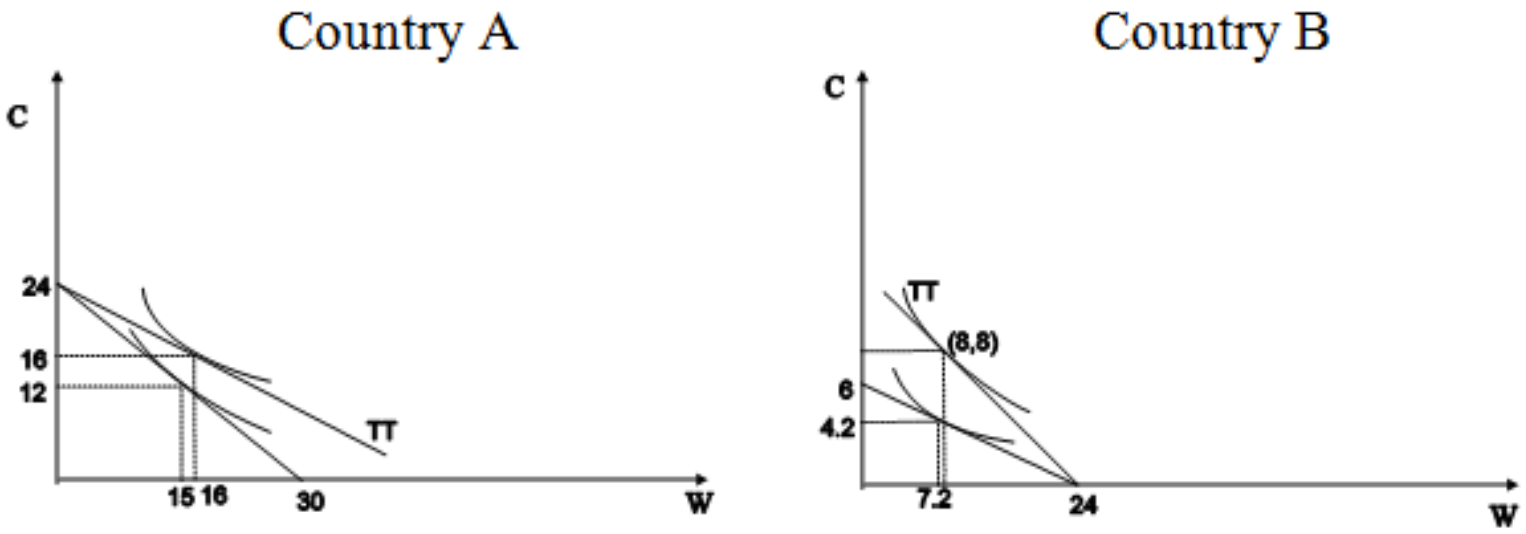
C=-0.5W+24 -0.5*16+24=16

C=-0.5W+12 -0.5*8+12=8

# Conclusions

- Before trade, the labour value of country **A's** consumption (= the labour value of its production) = 240 labour hours.
- After trade the labour value of consumption is 16*10+16*8=288 labour hours.
- The labour value of country **B's** consumption before trade is 240 labour hours.
- After trade it is 8*40+8*10=400 labour hours.

# A graphical analysis



# Conclusions

- Basis for international trade and source of gains from trade – differences in labour productivity (differences in technology).

- Each country specializes in the production of the good in which it has a comparative advantage.

- Each country exports the good in which it has a comparative advantage. A country exports the good which it can produce relatively efficiently.
- Trade based on comparative advantage **can** make everyone better off after trade.

# Conclusions

- Even if one country is technologically superior to the other in both industries, one of these industries would go out of business when opening to free trade.

- Technologically superiority in not enough to guarantee continued production of a good in free trade. A country must have a comparative advantage in production of a good rather than an absolute advantage to guarantee continued production in free trade.

- **The developed country's superior technology need not imply that less-developed country industries cannot compete in international market.**

# Conclusions

- The technologically superior country's comparative advantage industry survives while the same industry disappears in the other country, even though the workers in the other country's industry have lower wages.

- Low wages in another country in a particular industry is not sufficient information to determine which country's industry would perish under free trade.

- **Trade may not result in a domestic industry's decline just because the foreign firms pay their workers lower wages.**

# Conclusions

- The movement to free trade generates an improvement in welfare in both countries individually and nationally.

- Specialisation and trade will increase the set of consumption possibilities, compared with autarky, and will make possible an increase in consumption of both goods nationally.

# Conclusions

- Free trade raises aggregate world production efficiency because more goods are likely to be produced with the same number of workers.

- Free trade also improves aggregate consumption efficiency, which implies that consumers have a more pleasing set of choices and prices available to them.

## Weaknesses of Ricardian Theory

Highly stylized model of technological differences:

- single factor of production (labour),
- constant productivities in generating commodity outputs,
- constant opportunity costs,
- likelihood of complete specialization in trade,
- the existence of positive income gains from trade for all workers in both countries (unless one country is much larger than the other and does not specialize completely).

In practice it is not true that all workers are made better off by engaging in international trade.