

# Ricardo e i vantaggi comparati delle nazioni

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**Cooperazione internazionale**

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## David Ricardo (1772-1823)

“When a country can either import a commodity or produce it at home, it compares the cost of producing at home with the cost of procuring from abroad; if the latter is less than the first, it imports.”



# Commercio internazionale e vantaggi comparati

Minutes of work required to produce <i>one unit</i> of output		
	Drill	Led TV
U.S.A.	30	60
China	20	10

No international trade →

- Usa need 90 minutes to produce a tv and a drill to hang it on a U.S. wall
- China 30 minutes

With international trade →

- Usa produces two drills working for 60 minutes
- China produces two tv working for 20 minutes

# Commercio internazionale e vantaggi comparati

Il contributo di Ricardo sui vantaggi comparati

- Le differenze **tecnologiche** tra paesi (in realtà tra regioni!) sono le “driving force” alla base dei flussi di commercio internazionale (e inter-regionale)
- Le differenze **relative** (or **comparative**) sono determinanti, non le differenze assolute!
- Le differenze **assolute** sono important per determinare il livello di benessere di un paese
- Gli scambi commerciali aumentano il benessere (technology **gains from trade**) ma producono anche problemi che vanno regolati...

Motivazioni alla base del ritardo dell’Economia Regionale

# Commercio internazionale e vantaggi comparati

## Assumptions of the Ricardian technology model

- General (example)
  - Two countries (EU and Kenya)
  - Two final goods (Food and Chemicals)
  - One factor of production (Labour)
  - Constant returns to scale production functions
  - Perfect competition
  - Labour is mobile between sectors, but not between countries
  - Costless trade in final goods (no impediments to trade)
  - Technology differs between countries

# Vantaggi Comparati e Assoluti

## Technology differences between countries

Production technology is summarized in a [productivity table](#):

Labour units required to produce <i>one unit</i> of output		
	Food	Chemicals
EU	2	8
Kenya	4	24

The EU technology is more productive for [both](#) goods

The [EU](#) has an [absolute advantage](#) in [Food](#) production: it requires less labour (2 units instead of 4)

The [EU](#) also has an [absolute advantage](#) in [Chemicals](#) production: it requires less labour (8 units instead of 24)

# Comparative advantage: productivity method

Labour units required to produce <i>one unit</i> of output		
	Food	Chemicals
EU	2	8
Kenya	4	24

- The EU is **twice** as productive in the Food sector ( $4/2 = 2$ )
- The EU is **three times** as productive in the Chemicals sector ( $24/8 = 3$ ), so

⇒ The **EU** has a comparative advantage in **Chemicals**, and **Kenya** has a comparative advantage in **Food**

# Comparative advantage: opportunity cost method

Labour units required to produce <i>one unit</i> of output		
	Food	Chemicals
EU	2	8
Kenya	4	24

- An extra unit of Chemicals needs 8 labour in the EU
- This labour could have made  $8/2 = 4$  units of Food; the opportunity cost of Chemicals production in the EU is 4 Food
- An extra unit of Chemicals in Kenya needs 24 labour
- This labour could have made  $24/4 = 6$  units of Food; the opportunity cost of Chemicals production in Kenya is 6 Food

⇒ The EU has a comparative advantage in Chemicals, Kenya in Food



# Kenya specialization in food

Labour units required to produce <i>one unit</i> of output		
	Food	Chemicals
EU	2	8
Kenya	4	24

- Suppose Kenya produces one unit of Chemicals less
- This frees up 24 units of labour
- ...
- ...

⇒ The total world production of chemicals remains, therefore, unchanged while food production rises of 4 units

# Production possibility frontier (ppf)

If we want to determine the terms of trade of two Ricardian-type countries which are trading goods with each other → equilibrium relationships → **production possibility frontier**

**Definition:** all possible combinations of efficient production points of final goods, given the available factors of production and the state of technology; note that:

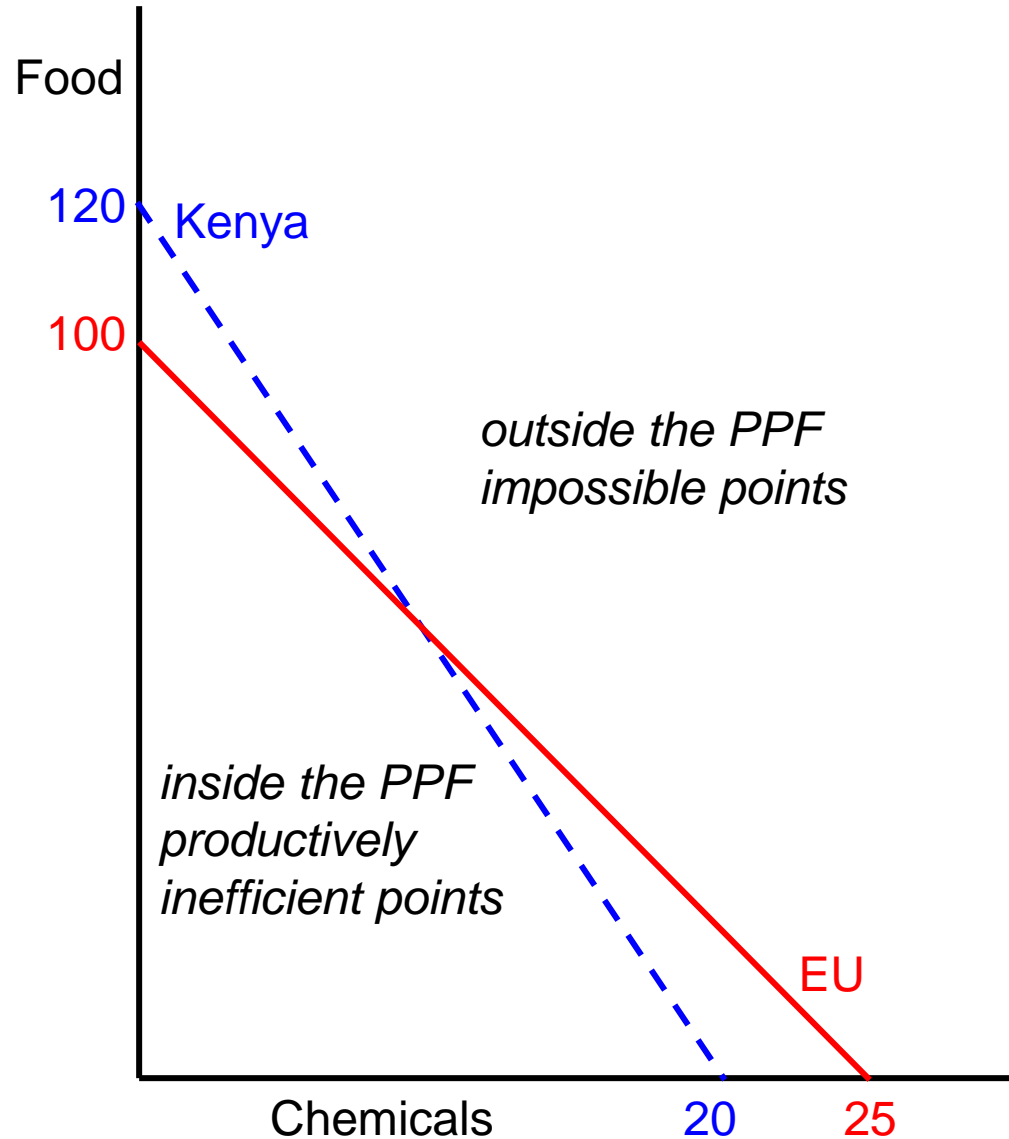
- It is a technical specification: the ppf does **not** depend on the type of **market competition**
- The ppf depends on the **available factors** of production: if, e.g., more labour becomes available more goods can be produced
- The ppf depends on the **state of technology**: if new techniques become available, output increases with the same use of inputs

The ppf is a straight line in the Ricardian model

Labour units required to produce <i>one unit</i> of output		
	Food	Chemicals
EU	2	8
Kenya	4	24

- Suppose the EU has 200 units of labour available and Kenya has 480 units available (remember: it is just an example)
- If all workers in the EU produce only Food, the EU can make  $200/2 = 100$  Food (and 0 Chemicals)
- If all workers in the EU produce only Chemicals, the EU can make  $200/8 = 25$  Chemicals (and 0 Food)
- Similarly, if all workers in Kenya produce Food total output is  $480/4 = 120$  Food (and 0 Chemicals); if they all produce Chemicals total output is  $480/24 = 20$  Chemicals (and 0 Food)

# Production possibility frontiers



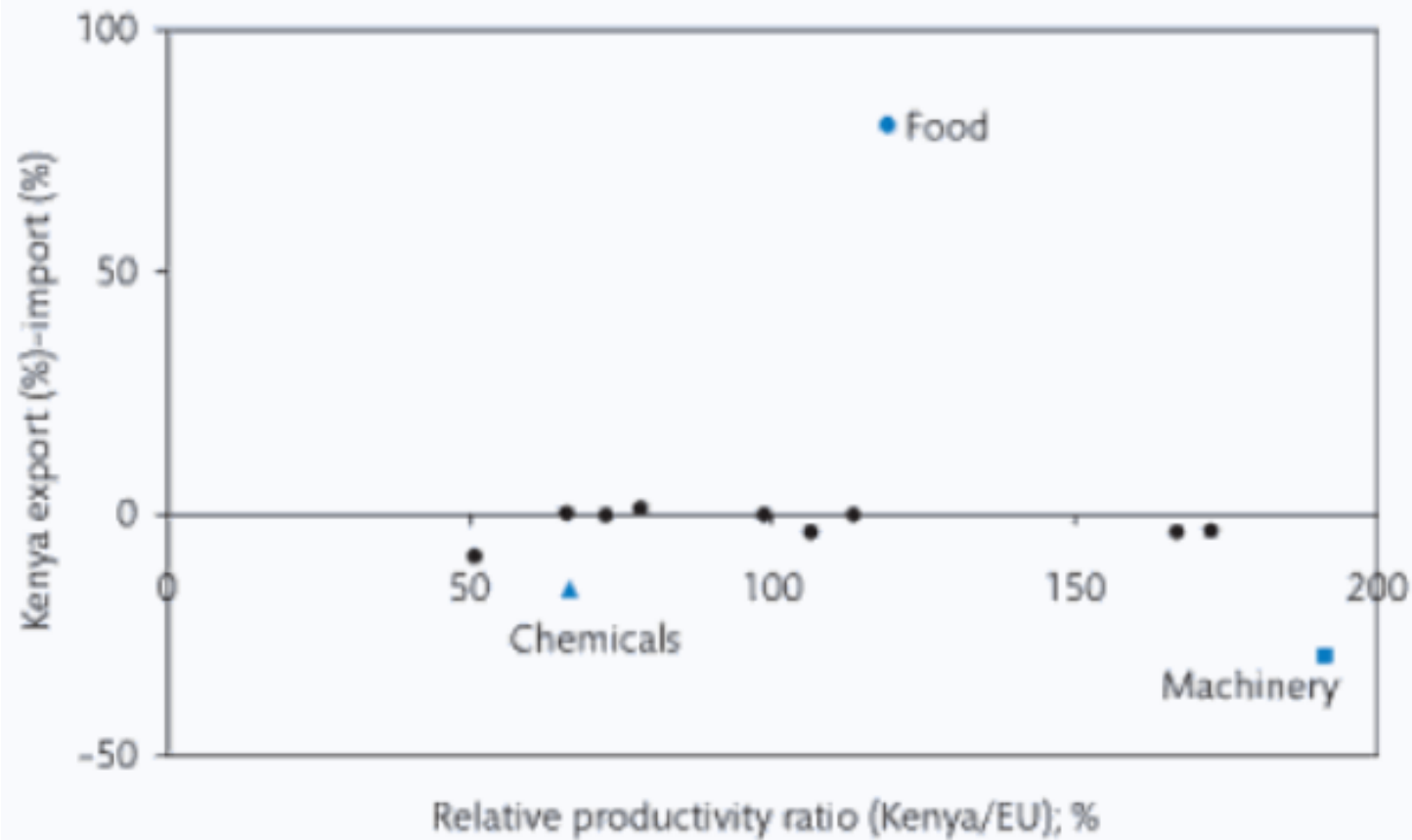
- The EU can produce (0 Chemicals, 100 Food) or (25 Chemicals, 0 Food), or any combination in between
- Kenya can produce (0 Chemicals, 120 Food) or (20 Chemicals, 0 Food), or any combination in between

# Application

**Table 3.3** Kenya and EU; value added, imports and exports, various sectors

ISIC	Industry	Trade (1,000 US\$)		Value added/person	
		Export to EU	Import from EU	Kenya	EU4
322/3	Wearing apparel and leather products	15,027	5,350	663	193,017
311/2	Food products	783,658	120,997	233	45,341
385	Professional and scientific equipment	1,361	42,577	5,306	33,092
321	Textiles	11,805	64,422	83	17,347
382/3	Machinery	8,977	310,198	981	116,668
313	Beverages	118	5,278	559	107,718
324	Footwear	273	2,363	262	19,477
355	Rubber products	378	8,368	717	46,370
356	Plastic products	30	29,027	229	30,673
341/2	Paper and printing products	34	29,301	343	47,402
361/2/9	Non-metallic mineral products	11,088	14,096	423	97,593
384	Transport equipment	4,067	94,096	124	55,413
381	Fabricated metal products	2,105	22,851	227	18,368
332	Furniture	268	3,336	49	15,344
351/2	Chemicals	11,024	173,129	452	154,537
331	Wood products	2,146	908	91	31,472
Average value added per person				231	52,534

# Application: Kenya and the EU



- Theory of absolute advantage explains about 47.8% of net trade flows
- Theory of comparative advantage explain about 68.4%

# Concluding remarks Ricardian (classical) model

- Technological differences between countries are the classical driving force for international trade flows.
- Only comparative costs, not absolute costs, are important for determining the direction of trade flows.
- Absolute costs are important for determining a country's welfare level.