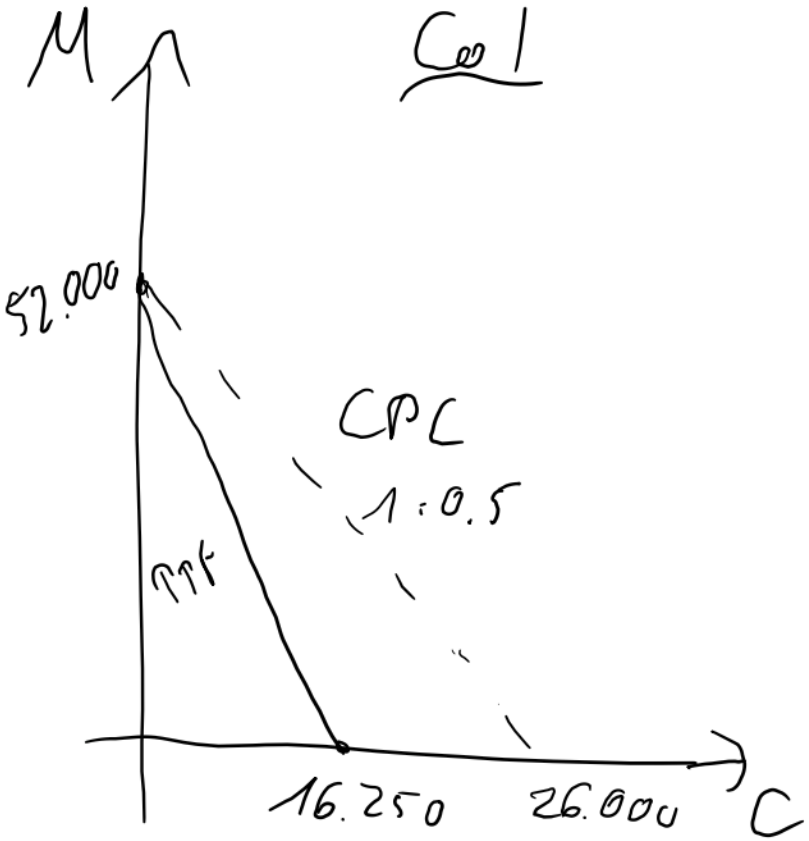
International Economics

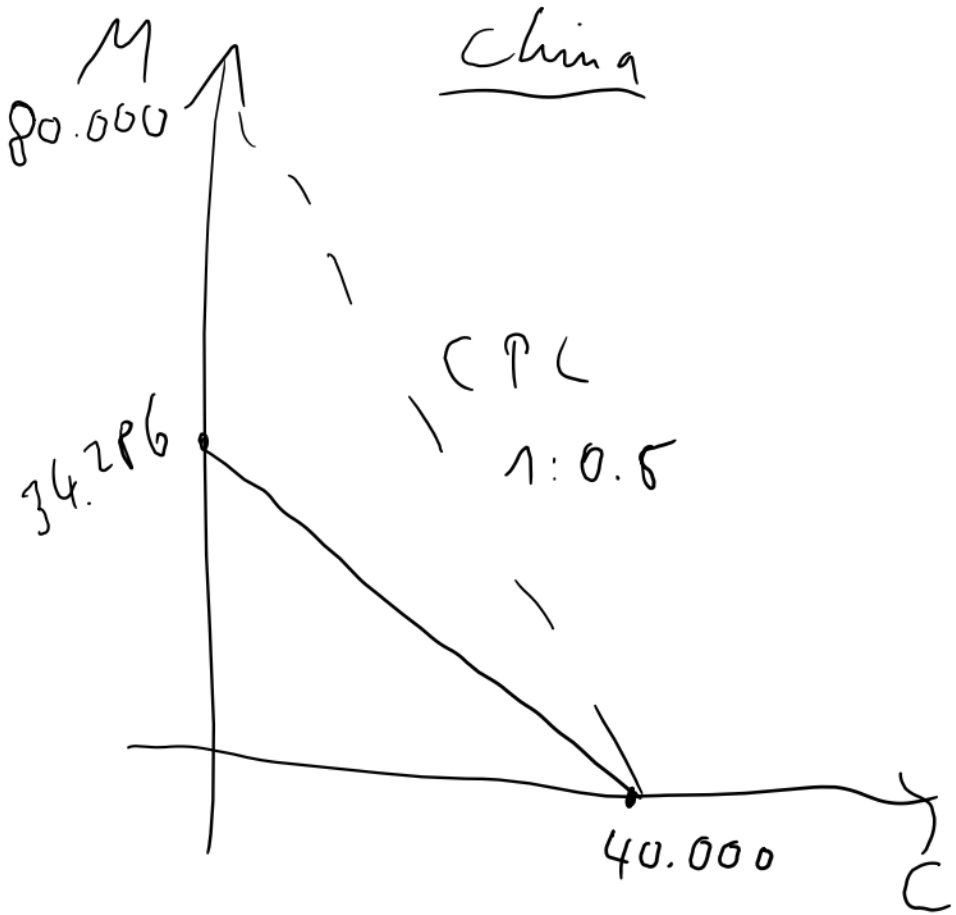
Revealed Comparative Advantage / Factor Endowments Theory

Thomas Goda

Solution – Comparative Advantage

	Output	Input	costos de producción	costos de oportunidad	especialización	after trade	gain						
Mangos												W per h	
Colombia	20.000	500	0,025	0,31	52.000	21.000	1.000		Mangos	150	**Col M**	6.000	Mangos
China	30.000	700	0,023	1,17	34.286	31.000	1.000		Cars	400	CHN M	6.429	
Cars									relat price M	0,38	Col C	5.000	Cars
Colombia	10.000	800	0,080	3,20	16.250	15.500	5.500		relat price C	2,67	**CHN C**	20.000	
China	5.000	100	0,020	0,86	40.000	24.500	19.500						
	65.000				92.000								
					27.000								
					CPL	Mangos China	80.000						
						Cars Col	26.000						

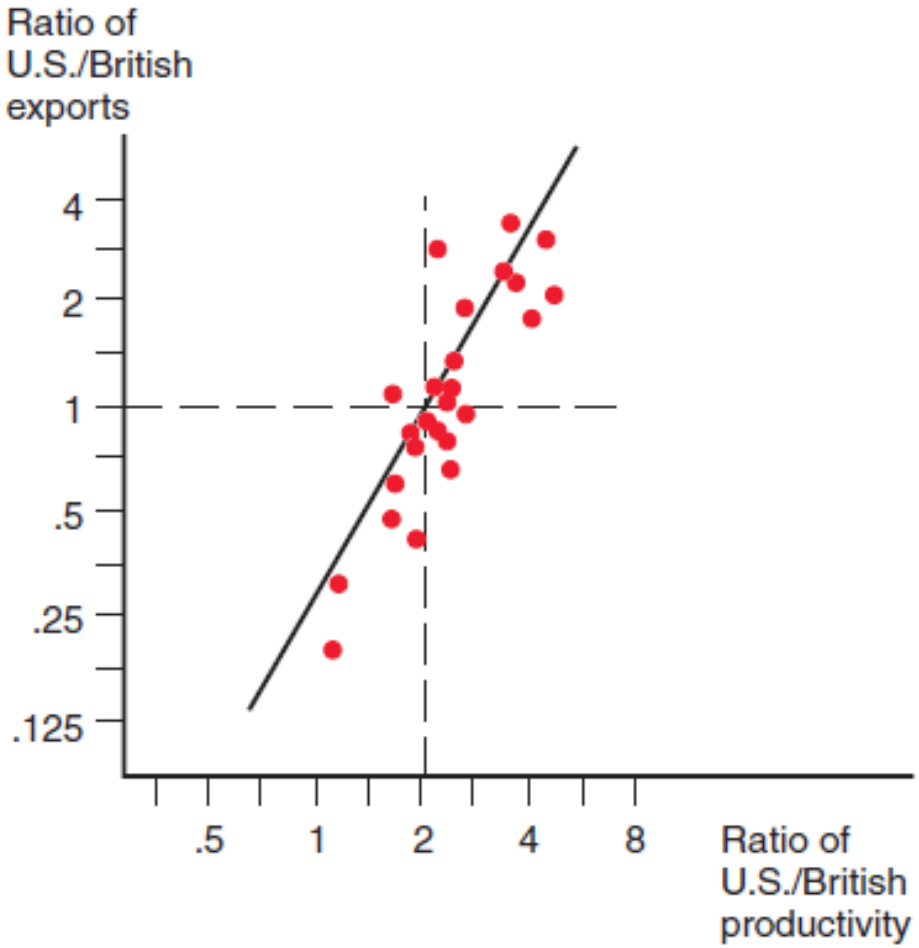

M
Col
52.000
CPC
1:0.5
TMF
16.250
26.000
C


M
China
80.000
34.286
CPC
1:0.5
40.000
C

Agenda

- Revealed Comparative Advantage
- Heckscher-Ohlin (Factor Endowments Theory)

Countries tend to export the goods of their most productive sectors and import goods in which their productivity is low



Source: Krugman (2018)

Revealed Comparative Advantage

- It is difficult to establish the productivity of countries, especially for single products (products are not homogenous etc.)

  - Comparative Advantage is typically measured by ex-post figures (i.e. after specialization and trade)

    - This measure is called **revealed comparative advantage**
    - It **assumes** that countries specialize according to their comparative advantage, and hence trade flows reveal the comparative advantage of countries

Revealed Comparative Advantage

$$RCA_{Ai} = \frac{\frac{X_{Ai}}{\sum_{j \in P} X_{Aj}}}{\frac{X_{wi}}{\sum_{j \in P} X_{wj}}} \geq 1$$

Where

P is the set of all products (with $i \in P$),

X_{Ai} is the country A's exports of product i,

X_{wi} is the worlds's exports of product i,

$\Sigma_{j \in P} X_{Aj}$ is the country A's total exports (of all products j in P), and

$\Sigma_{j \in P} X_{wj}$ is the world's total exports (of all products j in P).

Colombia	Coffee	$	100	0,050	63
	All products	$	2.000		
World	Coffee	$	2.000	0,001	
	All products	$	2.500.000		

Some caveats need to be taken into account with the comparative advantage theory

- The model **does not explain what determines productivity**
- Predicted **extreme degrees of specialization** are not observed in the real world
- The model **cannot explain intra-industrial trade** (cars between France & Germany)
- Ricardian **gains from trade are static**; but economic growth depends on the kind of goods countries specialise in and comparative advantages can change (will be discussed when we speak about commercial policies)
- Comparative advantage **does not guarantee balanced trade**; if specialization leads to a persistent current account deficit the economy might be affected negatively (will be discussed when we speak about the BoP)
- Comparative advantage **assumes full employment**; but gains from specialization might be offset by losses from unemployment (see interview with David Author in Interactiva)
- The model **neglects all distributional issues**; an increase in trade can have negative impacts on inequality (will be discussed in the last week of the module)

Agenda

Revealed Comparative Advantage

Heckscher-Ohlin (Factor Endowments Theory)

Motivation of Heckscher-Ohlin

- According to the theory of comparative advantage trade takes places as a result of different technologies (i.e. labour productivity)

- But, it only considers **one factor of production** (i.e. labour), and the theory also **fails to explain why productivity differences exist** between countries

- The **factor endowments** theory tries to explain what determines a country's comparative advantage by considering **two production factors** and their relative abundance

- This theory was developed by two Swedish economists Eli Heckscher and Bertil Ohlin (1933)

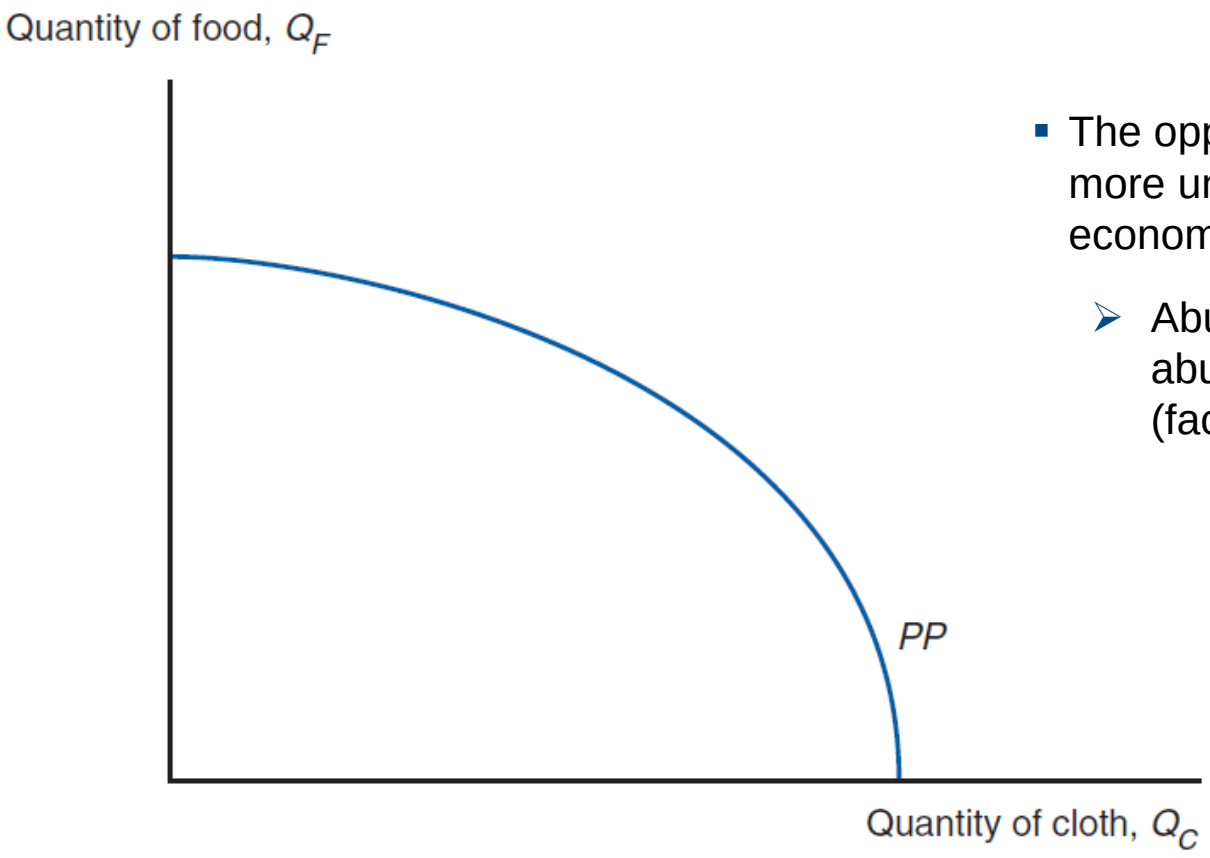
Heckscher-Ohlin is a neo-classical trade model that amends Ricardo's model

	Ricardo	*Heckscher-Ohlin*
Number of Goods	2	2
Number of Countries	2	2
Number of Factors of Production	1 (L)	2 (L & K)
Different Technologies	Yes	No
Unit Costs	Constant	Increasing

Further key assumptions

- Homogenous products; consumer preferences are broadly identical between countries
- Full employment and workers can switch frictionless between sectors
- Perfectly competitive market (firms are price takers)
- Countries are either labour or capital abundant (according to their K/L ratios)
- Labour and capital are immobile between countries (i.e. their quantity is fixed)
- Products are either capital-intensive or labour-intensive
- No barriers to trade (transportation costs are zero)
- Trade is balanced (X = M)

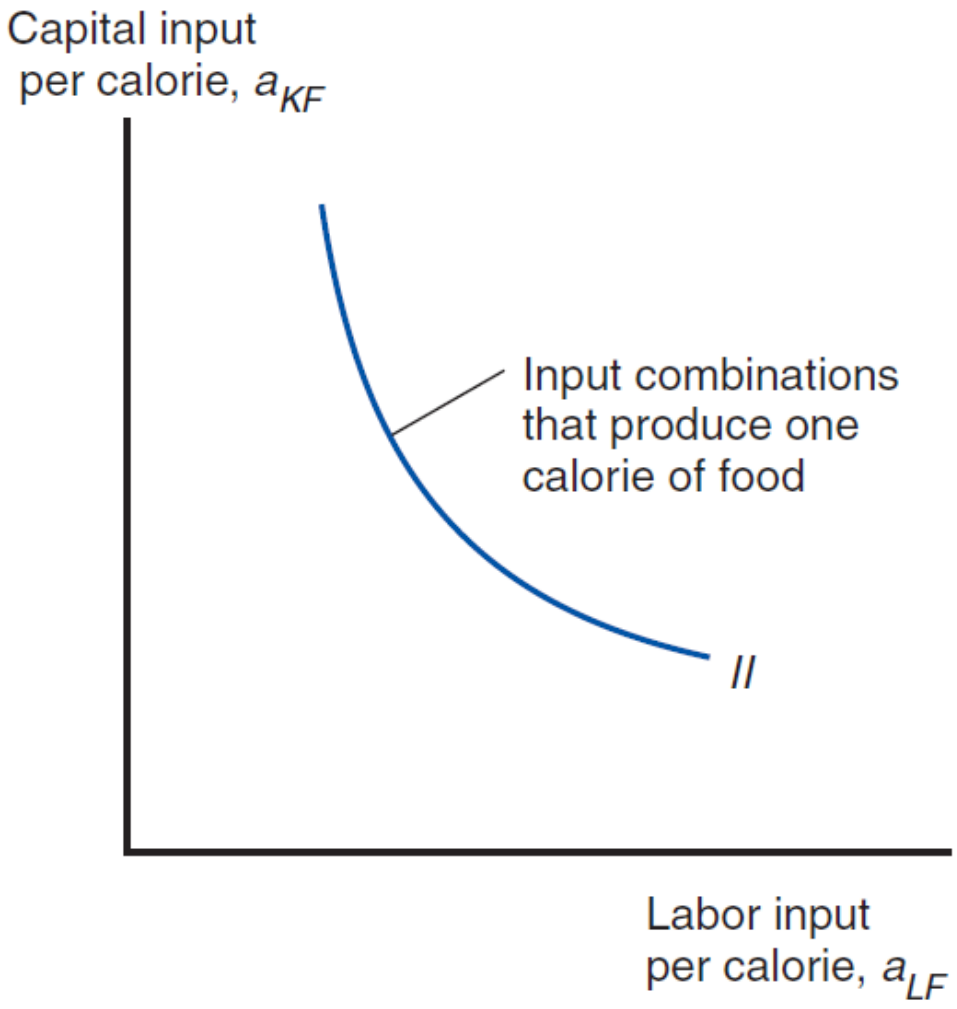
Diminishing marginal productivity (rising marginal opportunity costs)



- The opportunity cost of producing one more unit of cloth (food) rises when the economy produces more cloth (food)
  - Abundant factor becomes less abundant
    (factor demand ↑ => factor cost ↑)

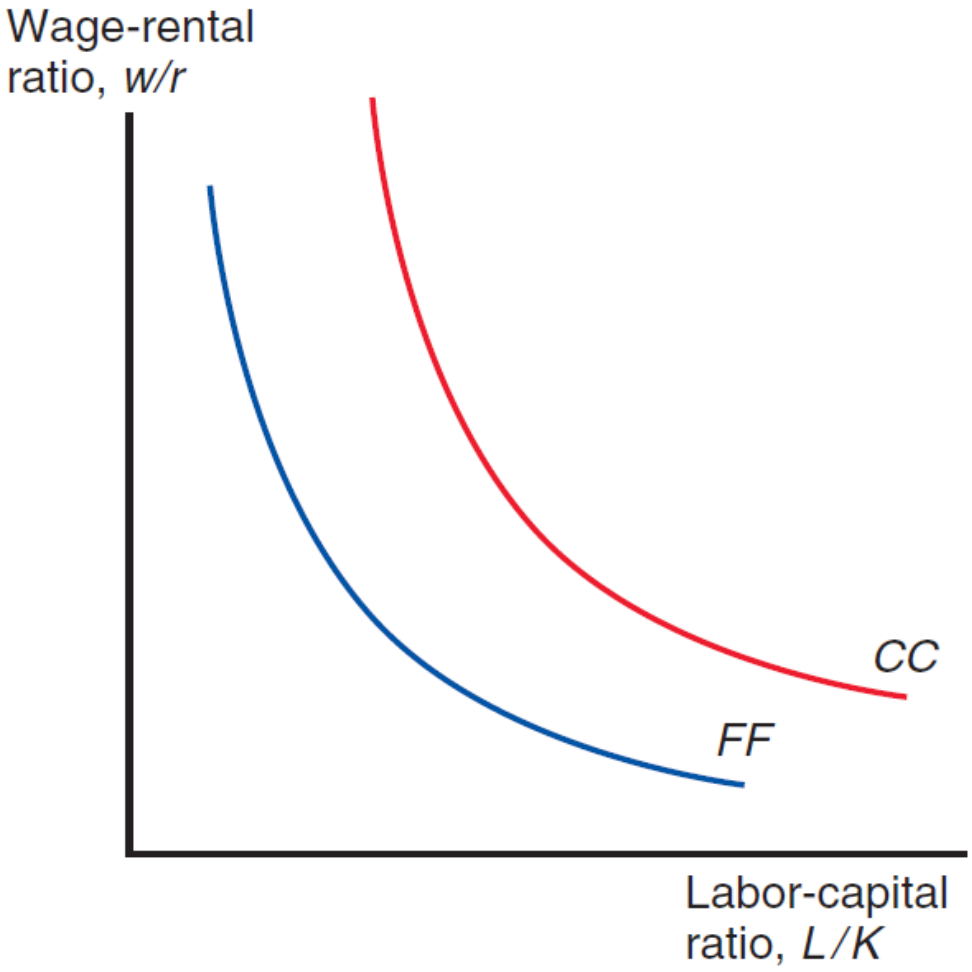
Source: Krugman (2018)

Producers can choose to a certain extent if they use more L or K in the production process (L and K are imperfect substitutes)



Source: Krugman (2018)

The combination of L and K that is used in the production process depends on the costs of L (wage) and K (rental cost)

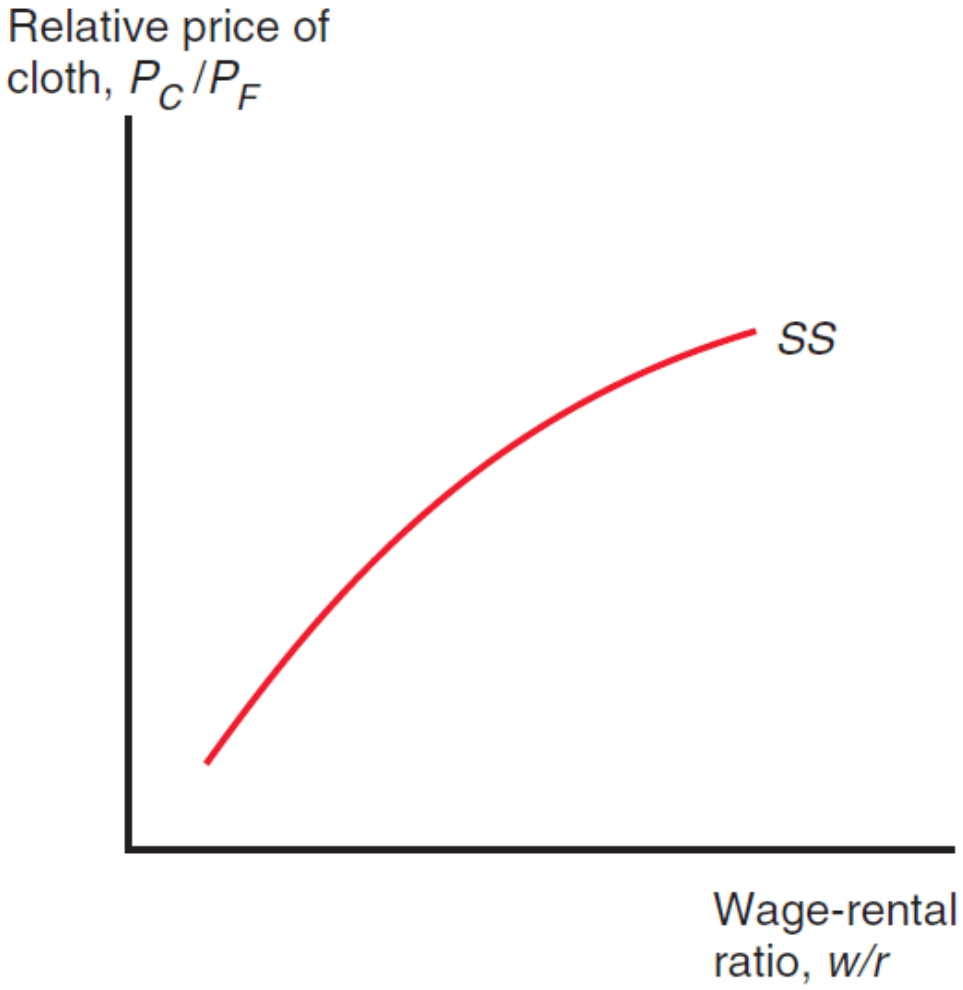


Cloth production uses a **higher L/K ratio** than food production

- cloth producers will always use more labor at a given w/r (cloth production is **labor-intensive**)

Source: Krugman (2018)

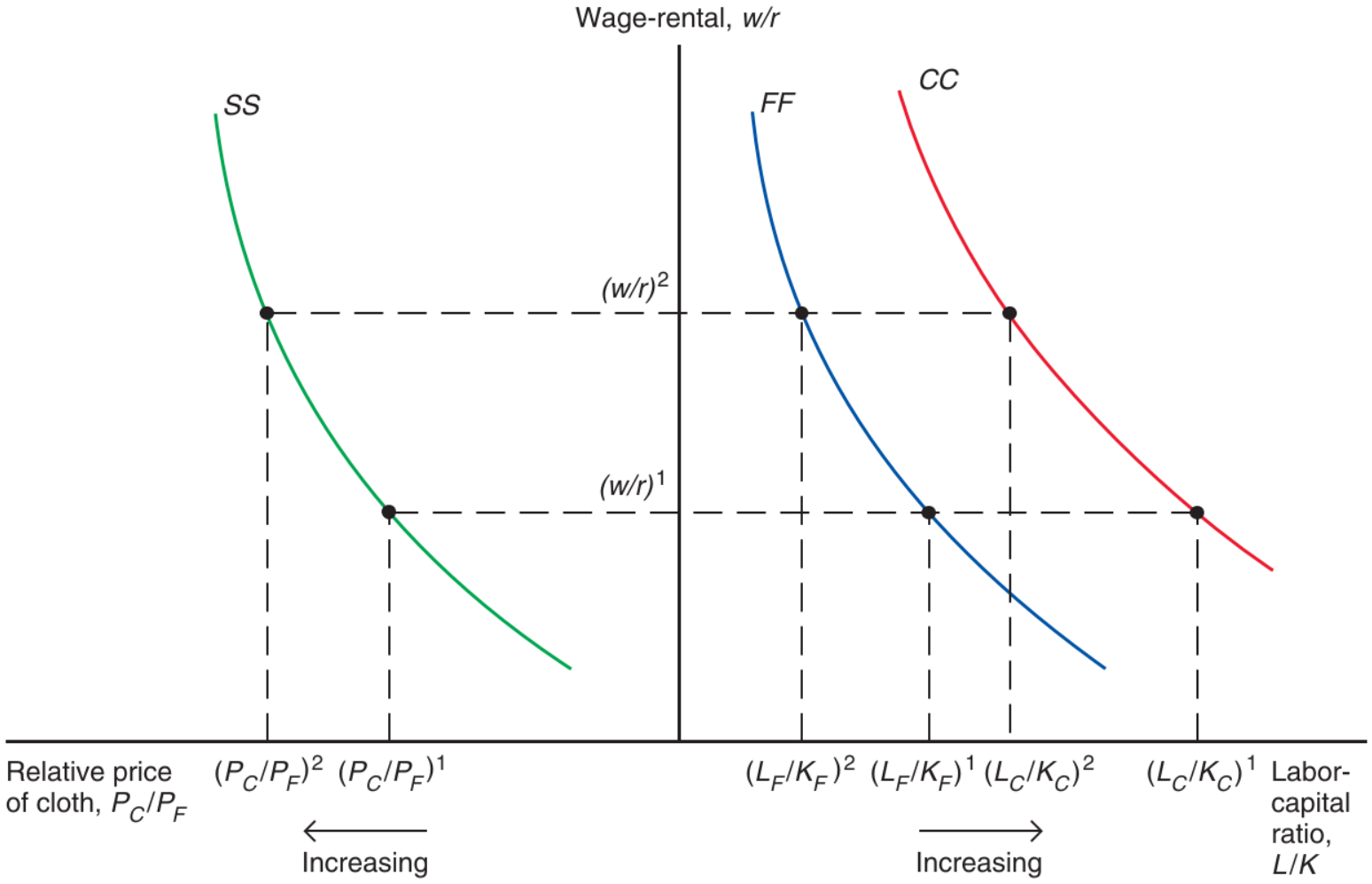
The prices of the goods equals the costs of the factors used



- The higher the relative cost of labour (w/r), the higher the price of cloth in terms of food
- An increase (decrease) in *w* effects the price of cloth more than that of food
- An increase (decrease) in *r* effects the price of food more than that of cloth

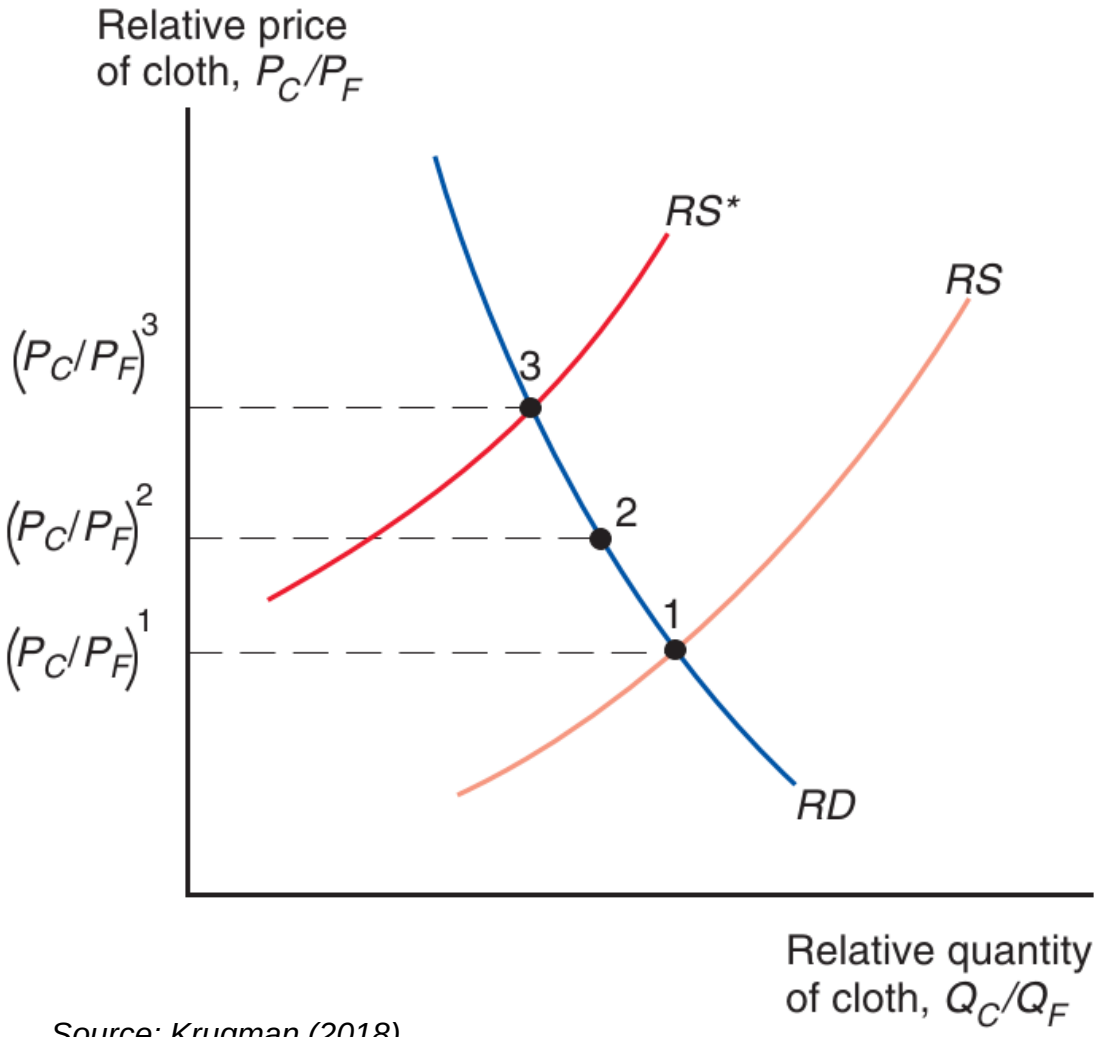
Source: Krugman (2018)

If a country specialises in a labour intensive product, the wages of workers rise, the relative price of cloth rises, and the L/K ratio that is used in the production decreases



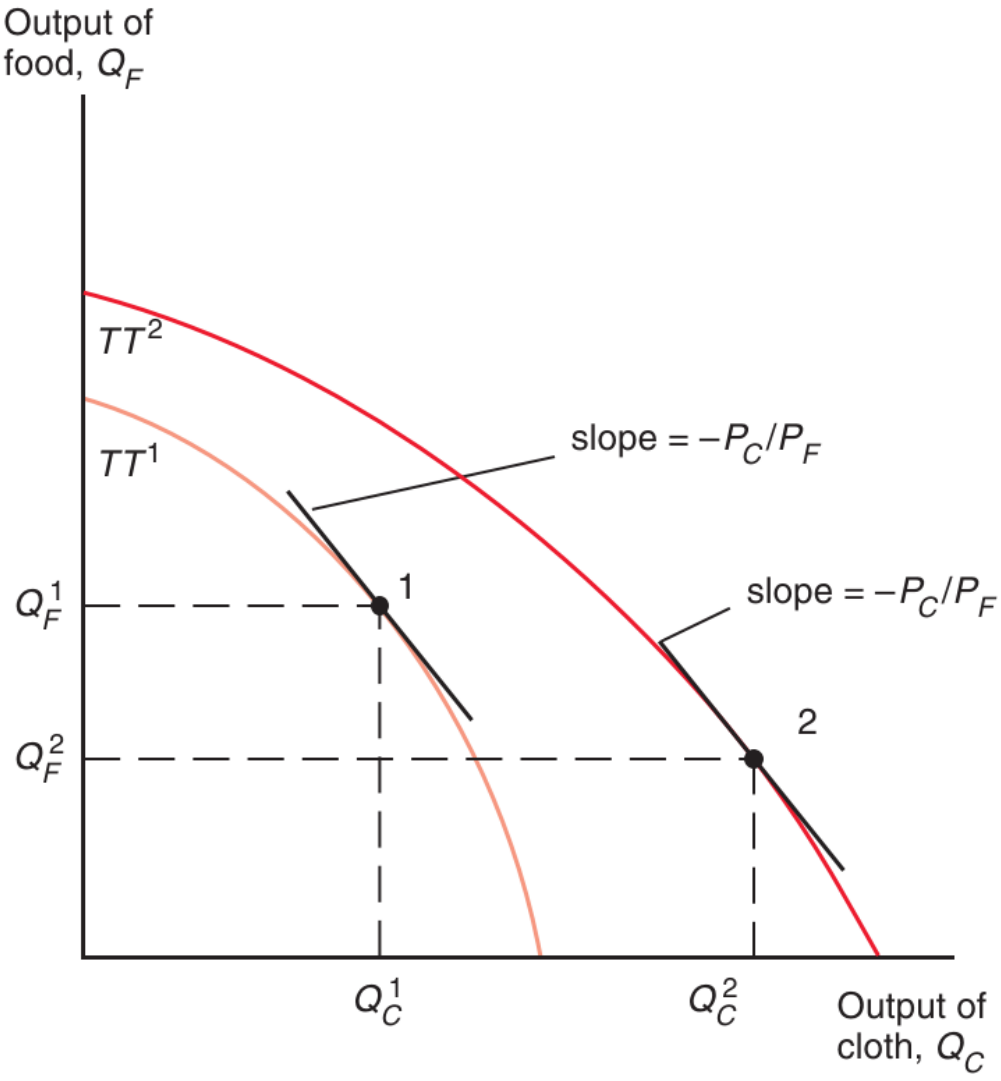
Source: Krugman (2018)

Countries specialize in the products that are intensive in the factor that it has in abundance; the price in the specialising country increase, whereas it decreases in the importing country



Source: Krugman (2018)

Countries that are very abundant in one factor specialize to a larger degree



Source: Krugman (2018)

According to H-O free trade is a substitute for the movement of factors between countries (i.e. there is no economic need for migration or capital flows)

- As the factor costs tend to equalize over time there is no need for migration or capital flows between countries

- Instead, countries are exporting (importing) their abundant (scarce) factor of production
  - Instead of workers countries are importing labour intensive products if the wages in the country are relatively high
  - Instead of capital countries are importing capital intensive products if the rental costs for capital are relatively high the country

The Stolper-Samuelson theorem shows who gains and loses from trade (according to H-O theory)

- Increase (decrease) in the price of a product increases (decreases) the income earned by the resources that are used intensively in its production
- Change in relative factor incomes will be larger than change in relative good prices

	ΔIncome	
	Developed Countries (K-abundant)	***Developing Countries (L-abundant)***
Workers		
Low-skilled	-	+
High-skilled	+	-
Capitalists	+	-

Group exercise

Please describe first what each graph/figure shows, and then analyze for each graph/table if its data supports the predictions of the H-O model