HECKSCHER-OHLIN THEORY

- What determines comparative advantage?
- What are the effects of international trade on the earnings of factors of production?

HECKSCHER-OHLIN THEORY

- *Assumptions:*

  1. There are 2 nations (Nation 1 and Nation 2), 2 commodities (Commodity X and Y), and 2 factors of production (Capital and Labor).

  2. Both nations use the same technology in production.

  3. Commodity X is labor intensive and commodity Y is capital intensive in both nations

    - Commodity X requires relatively more labor to produce than commodity Y.
    - $(K/L)_X < (K/L)_Y$

HECKSCHER-OHLIN THEORY

- *Assumptions:*

  4. Both commodities are produced under constant returns to scale in both nations.

  5. There is incomplete specialization in production in both nations.

  6. Tastes are equal in both nations.

HECKSCHER-OHLIN THEORY

- *Assumptions:*

7. There is perfect competition in both commodities and factor markets in both nations.
    - Producers and consumers are too small to affect the price level.
    - Normal profit
    - Homogeneous products and inputs.
    - Perfect knowledge.

8. There is perfect factor mobility within each nation but no international factor mobility.

HECKSCHER-OHLIN THEORY

- *Assumptions:*

  9. There are no transportation costs, tariffs or other obstructions to the free flow of international trade.

  10. All resources are fully employed in both nations.

  11. International trade between two nations is balanced.

HECKSCHER-OHLIN THEORY

- Factor Intensity:
  - Commodity Y is *capital intensive* if the (K/L) ratio used in the production Y is greater than (K/L) used in the production of X.
  - Commodity X is *labor intensive* if the (K/L) ratio used in the production X is smaller than (K/L) used in the production of Y.

HECKSCHER-OHLIN THEORY

- Factor Abundance:
  - Physical units: In terms of overall amount of capital and labor available to each nation.
    - Nation 2 is capital abundant if: $(TK/TL)_2 > (TK/TL)_1$
    - Considers only supply
  - Relative factor prices: In terms of rental price of capital and the price of labor time in each nation.
    - Nation 2 is capital abundant if: $(P_K/P_L)_2 < (P_K/P_L)_1$
    - Considers both supply and demand

HECKSCHER-OHLIN THEORY

- Factor Abundance:

  With (TK/TL) larger in Nation 2 than in Nation 1 in the face of equal demand conditions (and technology), (P_K/P_L) will be smaller in Nation 2.

  Thus Nation 2 is the K-abundant nation in terms of both definitions.

HECKSCHER-OHLIN THEORY

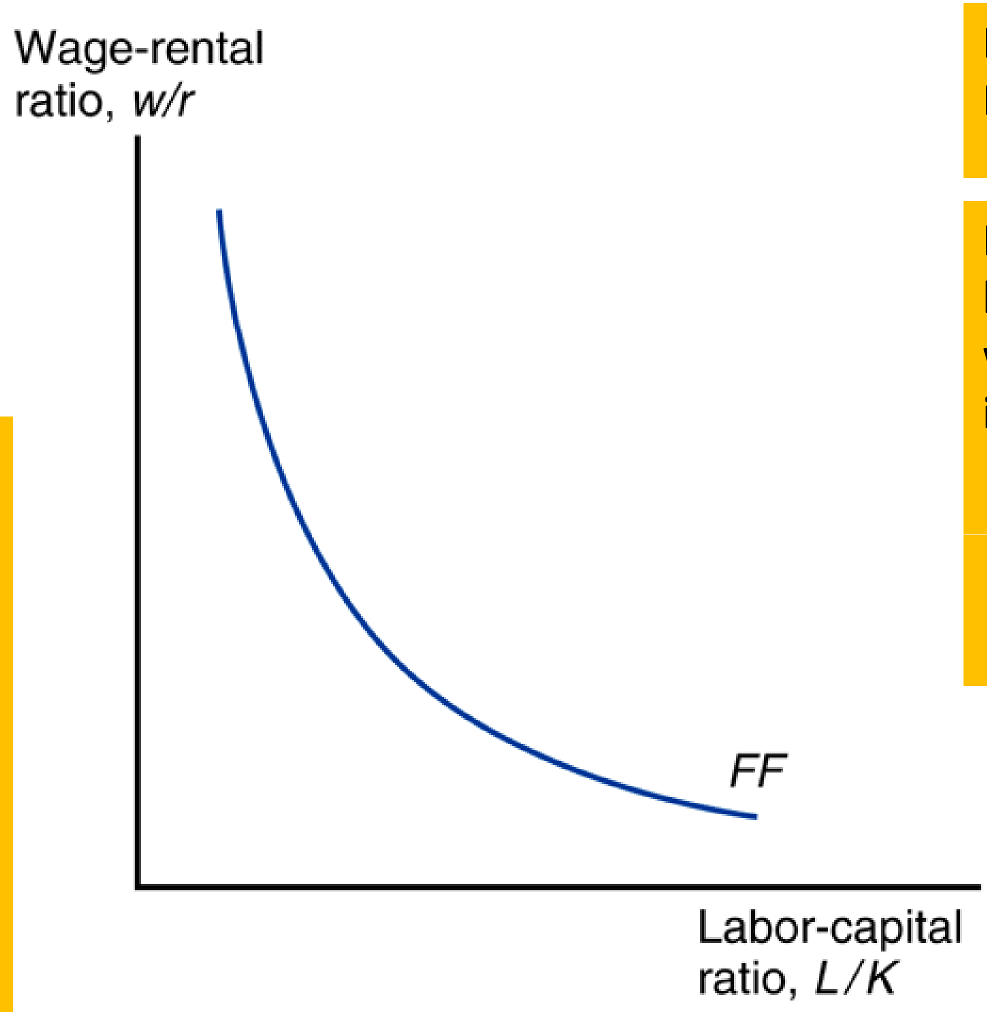
- Heckscher-Ohlin Theorem:

  A nation will export the commodity whose production requires the intensive use of the nation’s relatively abundant and cheap factor and import the commodity whose production requires the intensive use of the nation’s relatively scarce and expensive factor.

HECKSCHER-OHLIN THEORY

- According to this theory:
  - Nation 2 exports commodity Y because commodity Y is the K-intensive commodity and K is the relatively abundant and cheap factor in Nation 2.
  - Nation 1 exports commodity X because commodity X is the L-intensive commodity and L is the relatively abundant and cheap factor in Nation 1.

Fig. 1.Factor Prices and Input Choices

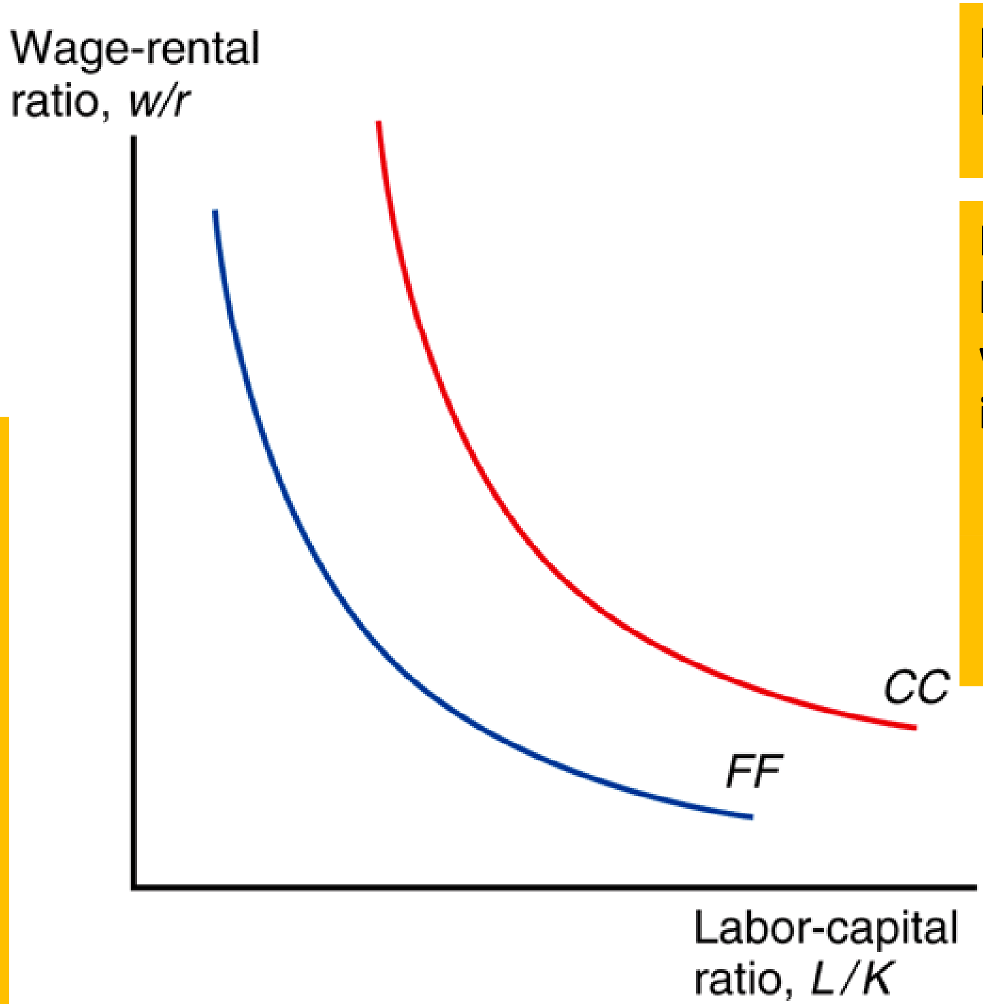


Relative Factor Demand Curve

Remember: Cloth is labor intensive, while food is capital intensive

As both countries use the same technology, the same relative factor demand curve is true in both countries.

Fig. 2. Factor Prices and Input Choices



Relative Factor Demand Curve

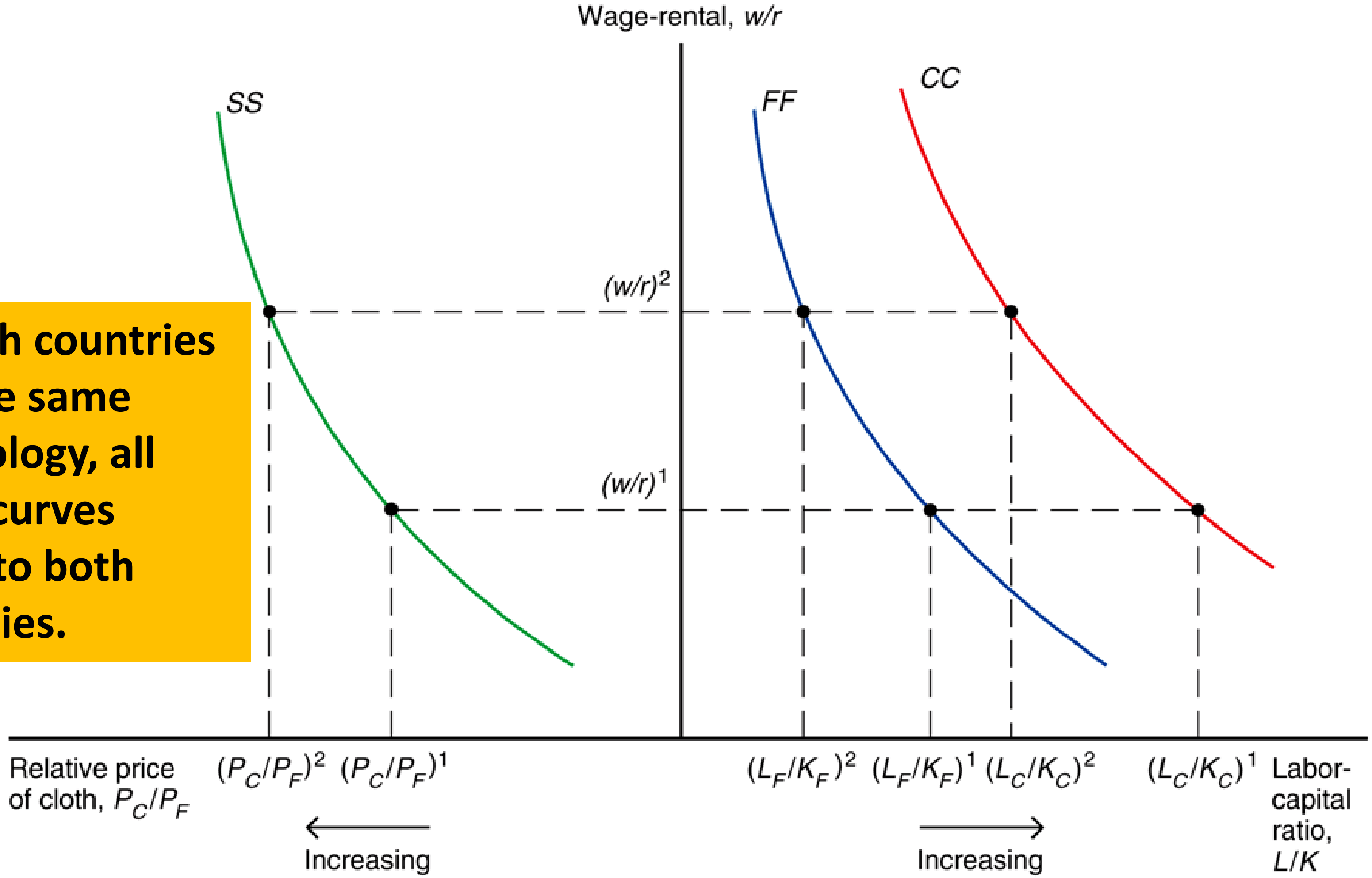
Remember: Cloth is labor intensive, while food is capital intensive

As both countries use the same technology, the same relative factor demand curve is true in both countries.

Fig. 3.: Factor Prices and Goods Prices

As both countries use the same technology, the same *SS* curve is true in both countries.

Fig. 4.: From Goods Prices to Input Choices



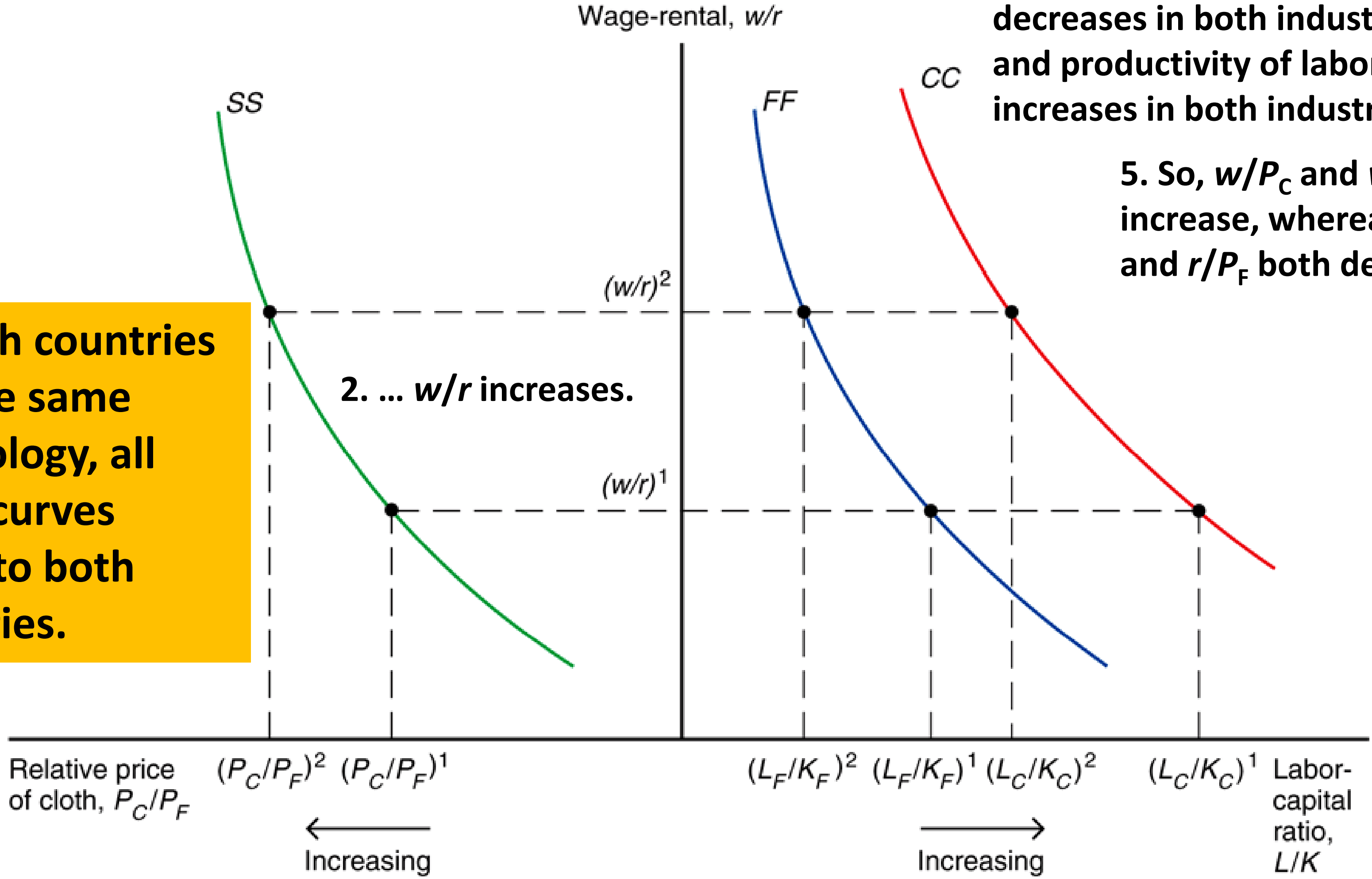
As both countries use the same technology, all three curves apply to both countries.

Fig. 5: From Goods Prices to Input Choices

4. So, productivity of capital decreases in both industries, and productivity of labor increases in both industries

5. So, w/P_C and w/P_F both increase, whereas r/P_C and r/P_F both decrease

As both countries use the same technology, all three curves apply to both countries.



1. When P_C/P_F increases …

3. So, L/K decreases in both industries

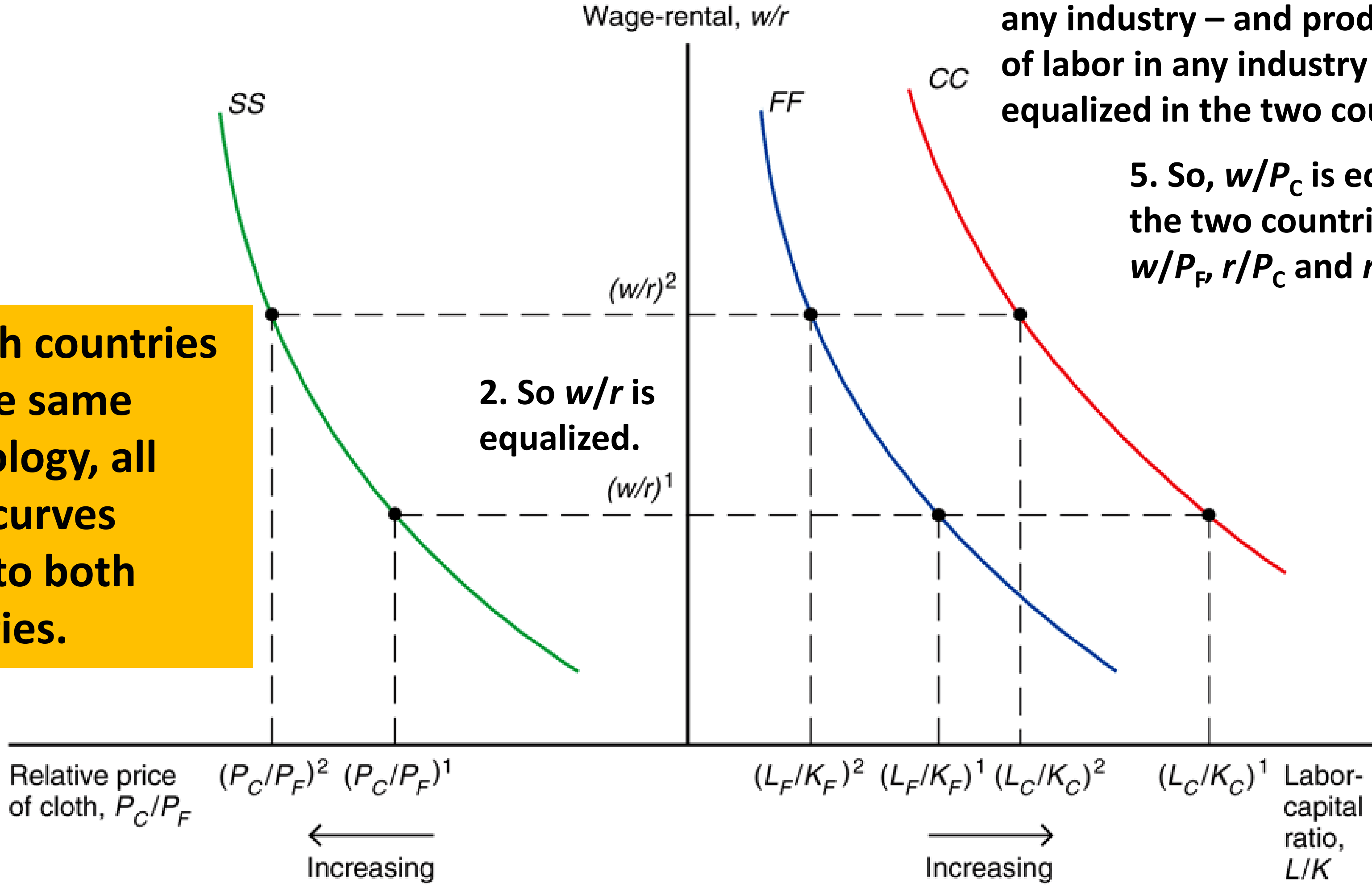
The Factor Price Equalization Theorem

4. So, productivity of capital in any industry – and productivity of labor in any industry – is equalized in the two countries

5. So, w/P_C is equalized in the two countries, as are w/P_F, r/P_C and r/P_F

As both countries use the same technology, all three curves apply to both countries.

2. So w/r is equalized.



1. Under free trade, P_C/P_F is equalized in the two countries.

3. So, L/K in any industry is equalized in the two countries.

Trade in the Heckscher-Ohlin Model

- The countries are assumed to have the same technology and the same tastes.
  - With the same technology, each economy has a comparative advantage in producing the good that relatively intensively uses the factors of production in which the country is relatively well endowed.
  - With the same tastes, the two countries will consume cloth to food in the same ratio when faced with the same relative price of cloth under free trade.