

# Extensions of the H-O-S model

# Model assumptions

1. 2 countries, 2 factors of production, 2 goods (2x2x2)

2. Country A (B) is capital (labour) abundant:

$$\left(\frac{K}{L}\right)^A > \left(\frac{K}{L}\right)^B \quad \text{o} \quad \left(\frac{w}{r}\right)^A > \left(\frac{w}{r}\right)^B$$

3. A and B have the same production function (technology)

- ▶ constant returns to scale
- ▶ diminishing marginal returns to factors of production

# Model assumptions

4. Good X (Y) is *capital (labour) intensive*
5. Given all observable wage/rent ratios ( $w/r$ ) there is no factor intensity reversal
6. Consumers preferences in countries A e B are identical and *homothetic*
  - ▶ marginal rate of substitution in consumption is constant

# Model assumptions

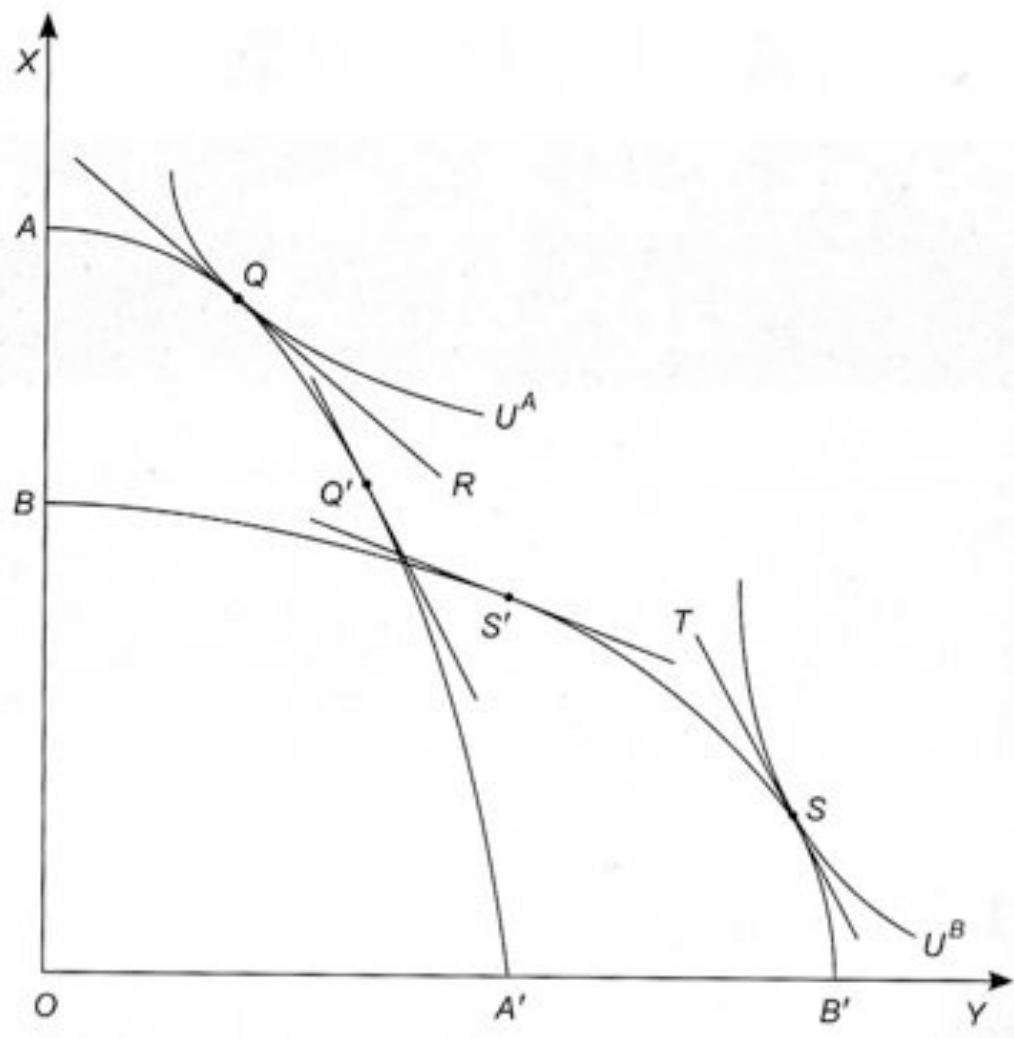
7. There is perfect competition in both goods and factor markets
8. Factors of production are mobile between sectors in each country but do not move between countries
9. There is international free trade without transportation costs or trade barriers.

# Consumers' preferences are different

Case 1: K(L) abundant country prefers the  
K(L) intensive good

Case 2: K(L) abundant country prefers the  
L(K) intensive good

## Case I



The T line is steeper than R so that

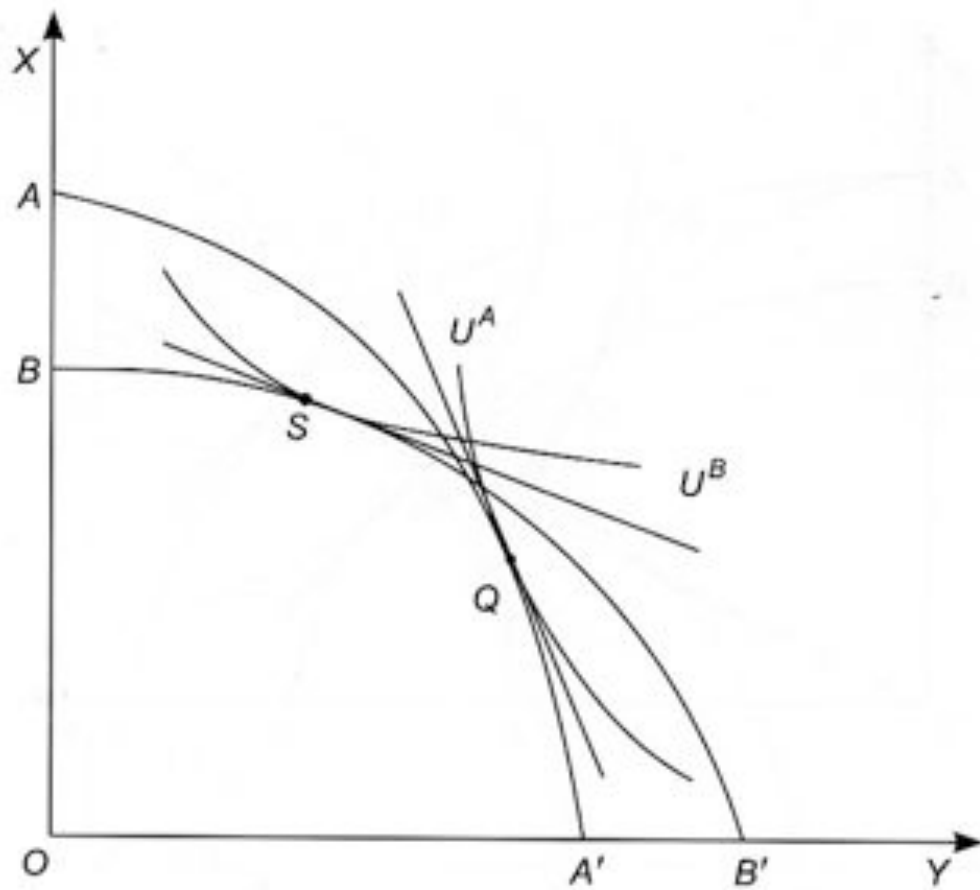
$$P_B > P_A$$

Good Y is more expensive in country B!

A exports Y and B imports X  
the opposite of H-O prediction

This is not the case when  
consumers' preferences are  
not so different ( $Q'$  e  $S'$ )

## Case 2



The line tangent to point S is flatter than the tangent to Q so that  $P_B < P_A$   
Good Y is more expensive in country A

A exports good X e B exports good Y according to H-O prediction

# Technology is different

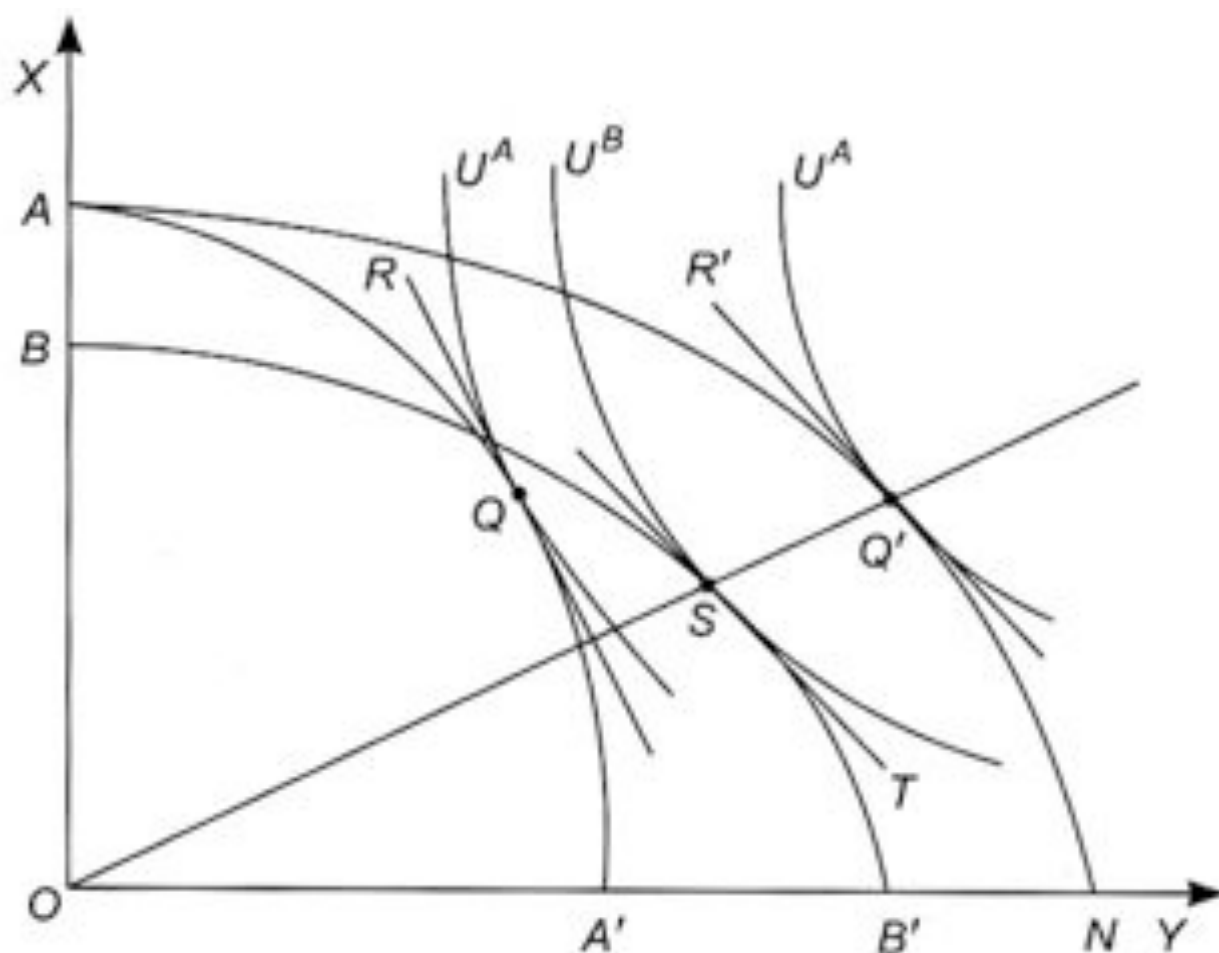
Case 1: country A, K abundant, is technologically advanced in producing Y, the L intensive good

Case 2: country B, L abundant, is technologically advanced in producing X, the K intensive good

Cases 3 and 4: the country K (L) abundant is technologically advanced in producing the K (L) intensive good

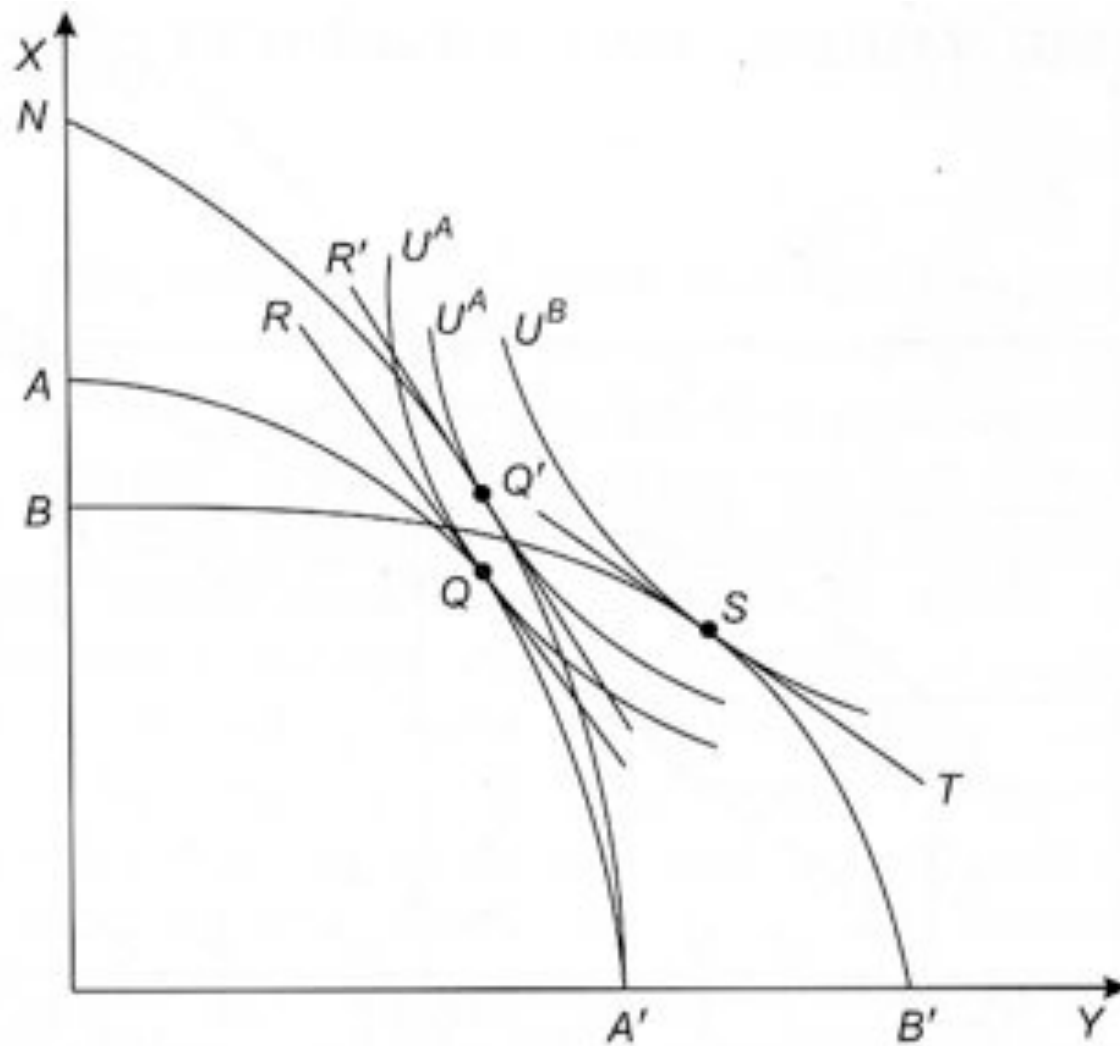


## Cases 1 and 2: the H-O theory may be not valid



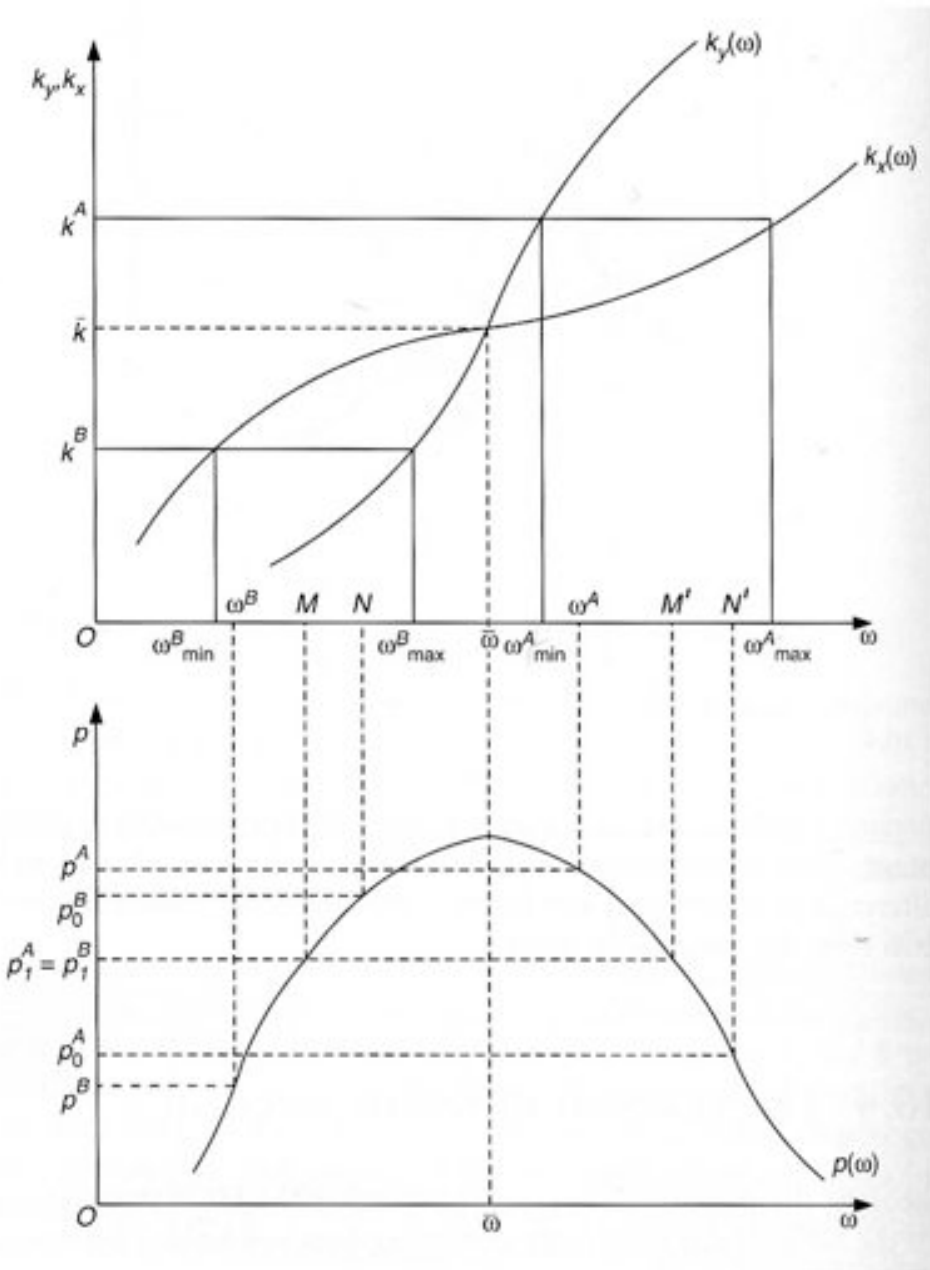
If, because of technical progress, country A's PPF moves from  $AA'$  to  $AN$ , then no trade will occur because in  $Q'$  and  $S$  equilibrium points  $P_A = P_B$

## Cases 3 and 4: the H-O theorem is reinforced!



If, because of technical progress, the PPF of country A moves from  $AA'$  to  $A'N$  then  $P_A > P_B$  since line  $T$  is flatter than  $R'$   
A exports X and B exports Y as in the H-O theory

# Factor intensity reversal



If  $K_A$  e  $K_B$  are not too far we do not observe factor intensity reversal (all of relevant values are above or below the critical  $K$ )

when factor intensity reversal occurs,  $Y$  is cheaper in  $A$ , the  $K$  abundant country:  $A$  exports the  $Y$  good and  $B$  exports the  $X$  good  
This is the opposite of the H-O prediction!