

## HW 4

Sunday, September 5, 2021 2:18 AM



ECN 360  
Homework...

### ECN 360 Homework 4 Due: 10/21/2021

**Directions:** Answer each question on your own choice of paper. Please be neat! Submit your homework via email to me at: [cdougla@umich.edu](mailto:cdougla@umich.edu) A .pdf is preferred, though any file works in practice.

1. Consider the following data on the factor endowments of two countries, A and B:

#### Countries

| Factor Endowments                        | A  | B  |
|--|----|----|
| Labor force (millions of workers)        | 45 | 20 |
| Capital stock (in thousands of machines) | 15 | 10 |

- a. Which country is relatively capital abundant?
- b. Which country is relatively labor abundant?
- c. Supposing that good S is capital intensive relative to good T, which country will have comparative advantage in the production of S? Explain.

2. Suppose that instead of having labor and capital be the two productive factors, we know have labor and land. Australia is land abundant, and India is labor abundant. Wheat is land intensive relative to textiles. Graphically demonstrate the pre-trade and post-trade equilibrium between these two countries. Find and label the trade triangles for each. Which factors gain and which factors lose when trade arises between these two countries? Explain carefully.
3. Suppose that country A is labor abundant. It can produce two goods, S and T. Good S is capital intensive relative to good T. Write down Country A's PPF and determine the pre-trade relative price of S in terms of T. Now, suppose that there is a technological innovation that makes capital more productive in the S industry, but not in making T. In a separate diagram, illustrate what would happen to Country A's PPF and explain your result. Show what would happen to the pre-trade price of S in Country A. How might this affect Country A's trade patterns? Explain. (Hint: Use the Rybczynski Theorem to answer this question.)

1

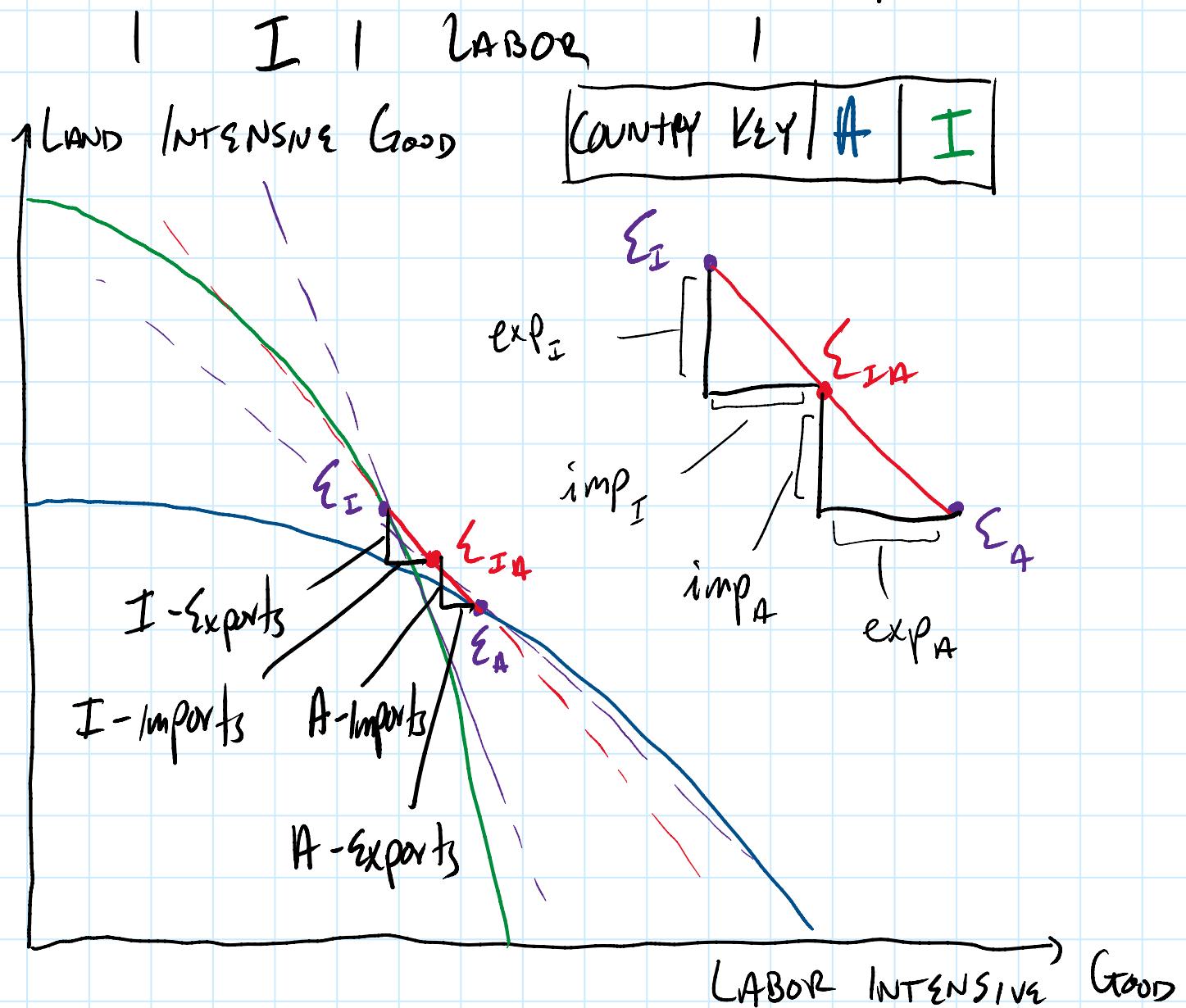
(1) Country A is Capital Abundant |  $\frac{45}{15} > \frac{20}{10}$   
| | | |  $\frac{10}{20} > \frac{15}{45}$   
B | | | | T.

S is Capital Intensive ∵ Country A  
has Comparative Advantage in S; | B  
| | | | T.

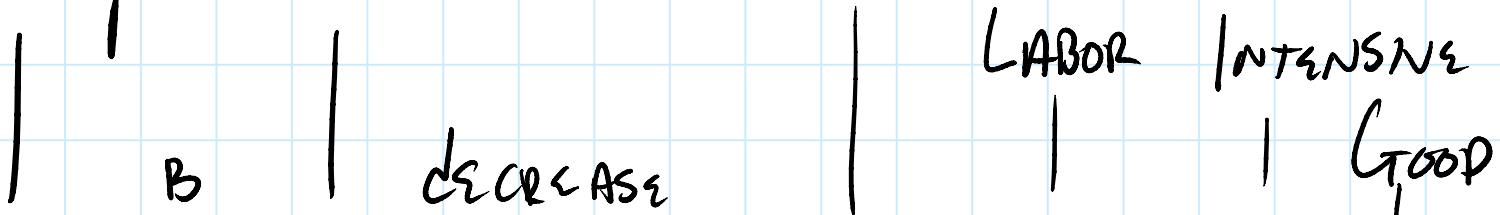
AS THE COUNTRIES HAVE RELATIVELY LOWER COSTS  
TO PRODUCE THE COMMODITY WITH

AS THE COUNTRIES HAVE RELATIVELY LOWER COSTS TO PRODUCE THE GOODS THAT USE THE RESOURCES THEY ARE ABUNDANT IN.

(2) COUNTRY A IS LAND ABUNDANT



COUNTRY A WILL INCREASE PRODUCTION IN THE



COUNTRY A WILL DECREASE PRODUCTION IN THE LAND INTENSIVE GOOD

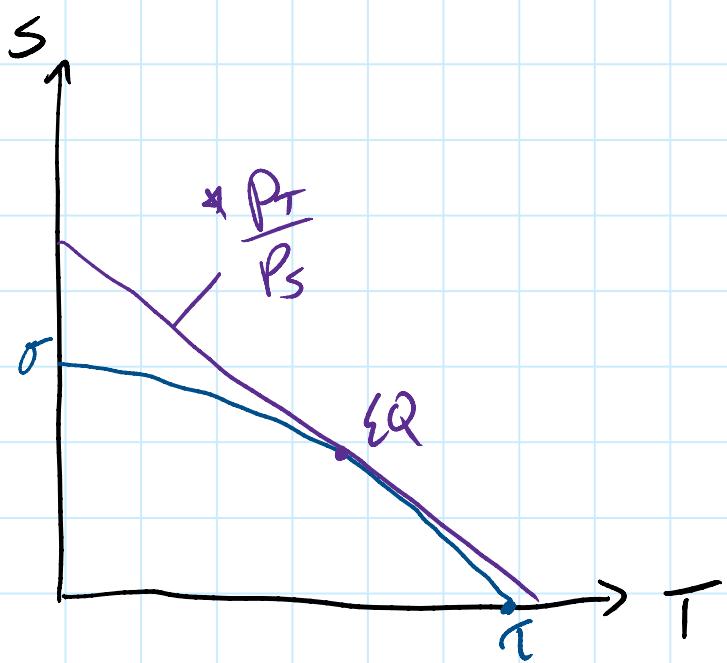
|  |   |          |  |  |
|--|---|----------|--|--|
|  |   |          |  |  |
|  | B | increase |  |  |

This is because they maximize production in their comparative advantage good such to meet the consumption demand for their own country & the import demand of the

OWN COUNTRY & THE IMPORT DEMAND OF THE PARTNER COUNTRY... They Import THE LOST PRODUCTION OF THE DISADVANTAGEA GOOD & REACH A higher Community Indifference Curve

③ Country A is LABOR ABUNDANT

GOOD S is CAPITAL INTENSIVE

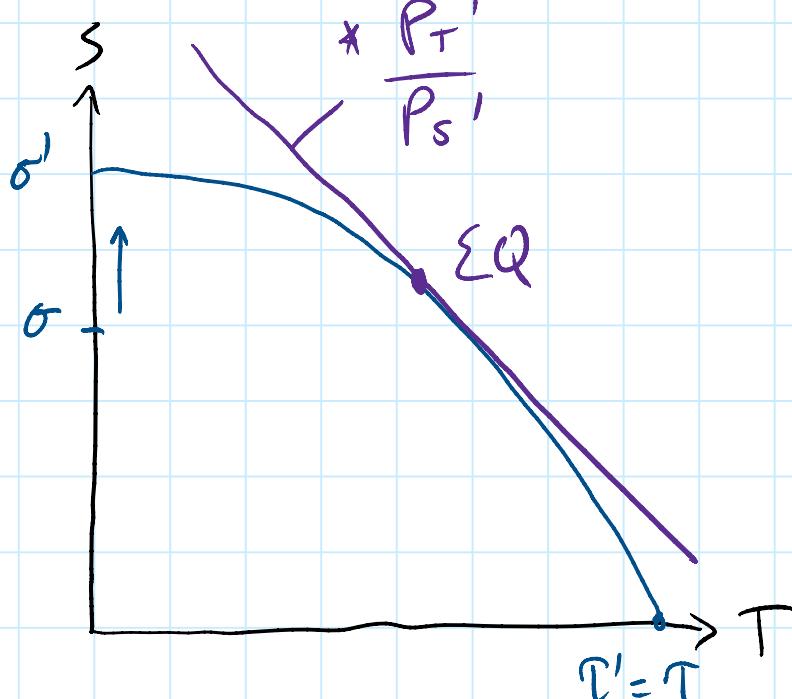


\* Now, More S  
CAN BE PRODUCED PER  
UNIT CAPITAL \*

$$\frac{P_T}{P_{S1}} \rightarrow \frac{P_T}{P_S}$$

$$* \frac{P_S}{P_{T1}} > \frac{P_S}{P_T} *$$

AS A RESULT; THE  
RELATIVE PRICE OF S  
IN TERMS OF T WILL  
INCREASE.

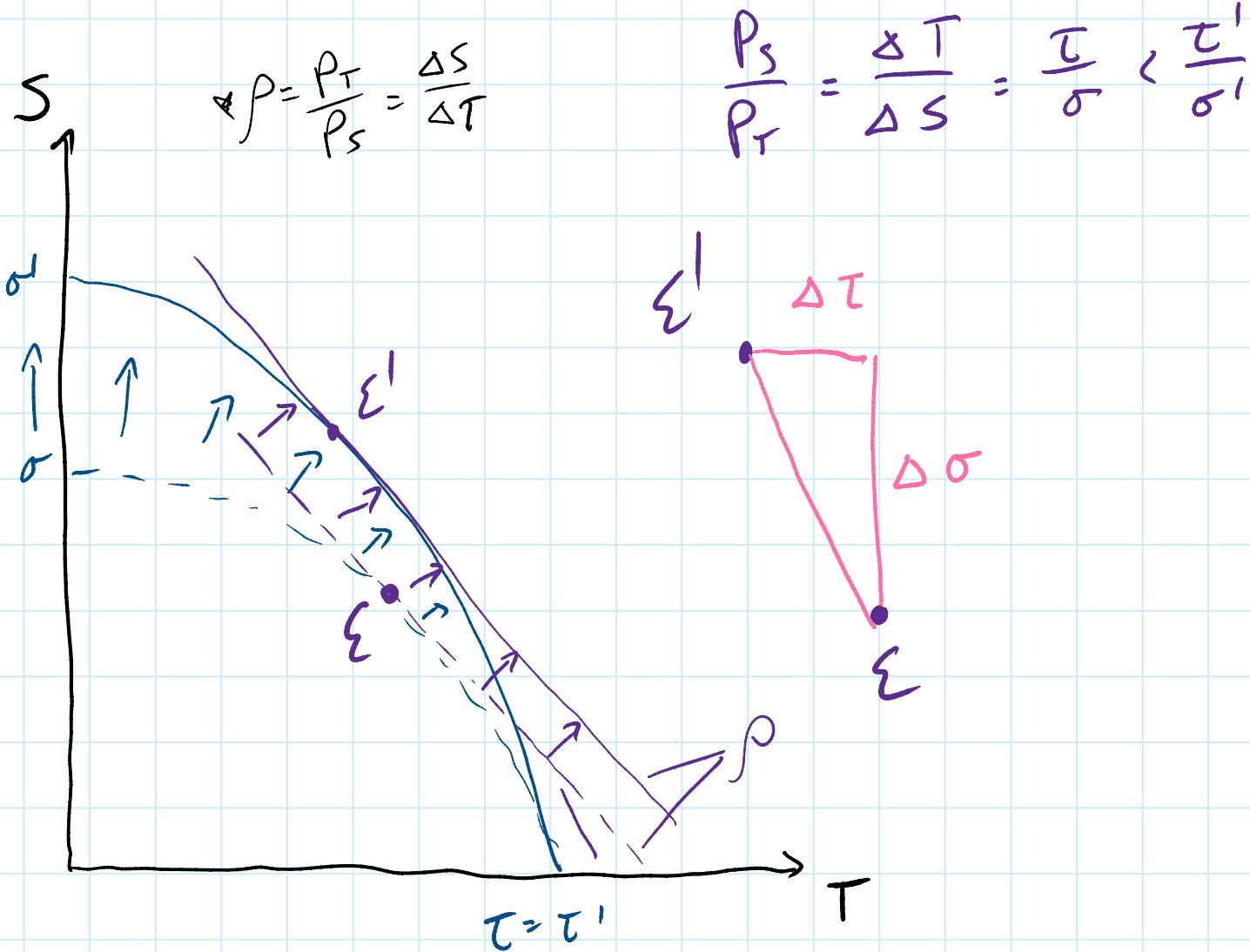


WHY? → COUNTRY A NOW GIVES UP MORE S per unit T, AS EACH T produced IS UTILIZING CAPITAL THAT COULD BE USED TO PRODUCE S.

↙ THE MAXIMUM AMOUNT OF S THAT CAN

BE OBTAINED FROM ONE UNIT OF T

BE PRODUCED,  $\sigma$ , HAS INCREASED



• AS A RESULT OF THIS TECHNICAL ADVANTAGE COUNTRY A WILL PRODUCE MORE OF GOOD S & LESS OF GOOD T.

SHOWN AS  $\Delta\sigma > 0$  &  $\Delta T < 0$

\* ABOVE DRAWINGS MAY NOT BE AT CORRECT SCALE \*