HW 3

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ECN 360
Homework #3
Due 9/28/2021

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

1. Below are four separate cases for the number of hours required to produce 1 unit of S and 1 unit of T for two different countries (Country A and Country B):

Hours of Labor Required to Produce S or T

Case 1 ($6W_A > 15EW_B$, $2W_A < 12EW_B$)

	A	B
S	6	15
T	2	12

Case 2 ($10W_A > 5W_BE$, $4W_A < 5W_BE$)

	A	B
S	10	5
T	4	5

Case 3 ($10W_A < 8W_BE$, $20W_A > 4W_BE$)

	A	B
S	10	8
T	20	4

Case 4 ($4W_A < 9W_BE$, $2W_A > 3W_BE$)

	A	B
S	4	9
T	2	3

a. For each case, determine the following:
   (i) the pre-trade relative price of S in terms of T (that is, P_S/P_T)
   (ii) the direction of comparative advantage
   (iii) the limits to the relative wage rate.

b. For Case 2, which country would prefer a term of trade of $P_S/P_T = 1.1$ rather than a terms of trade of 2? Explain.

c. Consider the two countries, A and B, in Case 4. Suppose the wage rate in A, W_A equals \$10 per hour and the wage rate in B, when measured in dollars, E x W_B equals \$5 per hour (remember Country A is America and Country B is Britain). Calculate the pre-trade price of S and T in both A and B. Is there a basis for mutually beneficial trade? Why or why not? Suppose that W_A rises to \$12 per hour. Everything else held constant, what would happen to trade patterns? Why?

2. Suppose there are 20,000 hours of labor available in Country A. 5 hours of labor are required to produce 1 unit of S, while 4 hours are required to produce 1 unit of T.

a. Draw Country A's PPF, putting T on the y-axis and S on the x-axis.
b. What is the relative price of S in terms of T? That is, find P_S/P_T
c. Suppose the world relative price is 2. That is, in the rest of the world, $P_S/P_T = 2$. What does Country A import and export?

1) A

i] P_S/P_T For
$A_1 = 3$ $B_1 = 5/4$
$A_2 = 5/2$ $B_2 = 1$
$A_3 = 1/2$ $B_3 = 2$
$A_4 = 2$ $B_4 = 3$

ii] Advantage in:

Country	T	S
1	A	B
2	A	B
3	B	B
4	B	A

iii]

Wage Rates	Country
$5/3 < \frac{W_A}{EW_B} < 6$	1
$1/2 < \frac{W_A}{EW_B} < 5/4$	2
$1/5 < \frac{W_A}{EW_B} < 4/6$	3
$5/12 < \frac{W_A}{EW_B} < 9/4$	4

B

A; as they get more imports of good S per each export of T.

C

$P = WL$:
$P_{AS} = 4 \times \$10 = \$40$
$P_{AT} = 2 \times \$10 = \$20$
$P_{BS} = 9 \times \$5 = \$45$
$P_{BT} = 3 \times \$5 = \$15$

$W_A @ \$12$:
$P_{A'S} = 4 \times \$12 = \$48$
$P_{A'T} = 2 \times \$12 = \$24$

Yes there is a basis for mutually beneficial trade as $P_{AS} < P_{BS}$ & $P_{AT} > P_{BT}$
$\$40 < \$45$ $\$20 > \$15$
$-\$5$ — $\Delta 10$ — $+\$5$

@ $W_A = \$12$: $P_{A'S} > P_{BS}$ & $P_{AT} > P_{BT}$
$\$48 > \$45$ $\$24 > \$15$
$+\$3$ — $\Delta 6$ — $+\$9$

A In this case A would start importing both goods as B produces & sells both @ a cheaper cost. A would need to lower their workers pay rates.

2) A

	A
S	5
T	4

T ↑

	A	B
S	5	4
T	4	5

a. Draw Country A's PPF, putting T on the y-axis and S on the x-axis.
b. What is the relative price of S in terms of T? That is, find P_S/P_T
c. Suppose the world relative price is 2. That is, in the rest of the world, $P_S/P_T = 2$. What does Country A import and export?
d. Suppose A imports 2000 units of the good you said it would import in part c). Using your PPF from part a), illustrate Country A's trade triangle. Assume Country A completely specializes in its comparative advantage good.

3. The data below comes from Table 3.3 in Chapter 3 of the text:

	Country A	Country B
Soybeans	3	12
Textiles	6	8

Show the effect on world output if each country moved toward specialization in the production of its comparative *disadvantage* good. That is, how much would world output be reduced if each country cut back producing the good in which it did have comparative advantage in by 1 unit in order to produce more of the other good?

* In Advantage

WO_f	A	B
S	3	0
T	0	5/2

→ 5 1/2
$\Delta WO = 1\frac{1}{2}$

3)

WO_i	A	B
S	1	1
T	1	1

= 4

For A)
1S = 1/2 T

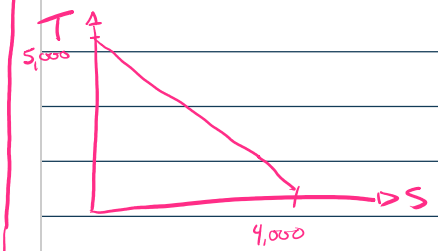
For B)
1 T = 2/3 S

WO_f	A	B
S	0	5/3
T	3/2	0

= 9/6 + 10/6 = 19/6
= 3 1/6

$\Delta WO = WO_f - WO_i = -5/6$ units of output

2)



B)

$\frac{P_S}{P_T} = \frac{4,000}{5,000} = 4/5$

C)

$\frac{P_{WS}}{P_{WT}} = \frac{2}{1}$ | A will import S & export T

D)