

## Answer keys to Homework #1

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### Homework #1

a) For Home to have comparative advantage in chips, the condition is such that:

$$\frac{q_{LC}}{q_{LF}} < \frac{q_{LC}^*}{q_{LF}^*} \quad (1)$$

In the same way, for Foreign to have comparative advantage in fish, we must have

$$\frac{q_{LF}^*}{q_{LC}^*} < \frac{q_{LF}}{q_{LC}} \quad (2) \text{ which is in fact equivalent to (1).}$$

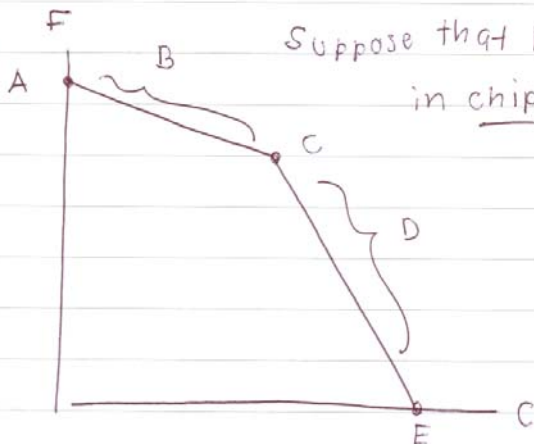
For Home to have absolute advantage in fish

$$q_{LF} < q_{LF}^* \quad (3)$$

$$q_{LC}^* < q_{LC} \quad (4)$$

(4) for Foreign to have absolute advantage in chips.

b) Suppose that Home has comparative advantage in chips.



point C is when Home is the sole producer of ~~fish~~ <sup>chips</sup> and Foreign is sole producer of ~~chips~~ <sup>chips</sup>. Both Home and Foreign produce chips at area D and point E. Both Home and Foreign produce fish at area B and point A.

Home is the sole producer of ~~fish~~ chips at area B and point C. Foreign is the sole producer of fish at area D and point E.



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C. Home has absolute and comparative advantage in chips. under the Ricardian model, wage in each country will be equal across sector. Then following from CRS technology, interior solution requires:

$$P_C \leq W a_{LC}$$

$$P_F \leq W a_{LF}$$

If economy is diversified

$$W = \frac{P_C}{a_{LC}} = \frac{P_F}{a_{LF}} \quad (5)$$

$$\text{and } W^* = \frac{P_C^*}{a_{LC}^*} = \frac{P_F^*}{a_{LF}^*} \quad (6)$$

(5) and (6) are wage rates in Autarky equilibriums. Now consider trading equilibrium, in case that both countries specialize in one good

$$W = \frac{P_C^H}{a_{LC}}$$

$$W^* = \frac{P_F^H}{a_{LF}^*}$$

Home's wage may not higher than Foreign. The case that Home's wage will be higher than Foreign's is when Foreign diversifies:  $W^* = \frac{P_F^H}{a_{LF}^*} = \frac{P_C^H}{a_{LC}^*}$

In this case  $W > W^*$  since  $a_{LC} < a_{LC}^*$ .

Similarly, Foreign has higher wage than Home if Home diversifies and then  $W = \frac{P_F^H}{a_{LF}} = \frac{P_C^H}{a_{LC}}$

In this case,  $W < W^*$  since  $a_{LF} > a_{LF}^*$