

# Heckscher-Ohlin Theorem

- A capital abundant country will export the capital-intensive good, while the labor-abundant country will export the labor-intensive good.
- Assumptions 1, 2, 3  $\implies$  PPF
- Assumptions 5 and 6 allow use to examine trade
- What does Assumption 4 do in the model?

# Leontief's paradox

- Wassily Leontief, 1953
- used data from US in 1947
- Country with highest capital per worker has lower K/L ratio in exports than imports
- Attempted to show HO thm empirically

# Leontief's paradox

US had more capital as a country but imports were more capital intensive.

- How is this a paradox?
- What are possible explanations?
- Because of this paradox, the Ricardian model is often used instead in order to highlight technology differences. Is the HO model still useful then?

# Factor Endowments in 2010

- Abundant is X factor: if a country has a share of X factor that exceeds its share of world GDP
- Scarce in X factor: if a country has a share of X factor that is less than its share of world GDP
- US share of GDP =  $\frac{US\ GDP}{World\ GDP} * 100\%$
- US share of X factor =  $\frac{US\ stock\ of\ X\ factor}{World\ stock\ of\ X\ factor} * 100\%$

# Factor Endowments in 2010

- US share of GDP= 19.1%
- US share of physical capital= 17.1%
- US share of R&D scientists= 21.4%
- US share of land= 11.8%
- US share of less skilled labor= 3.2%
- US share of skilled labor= 26.7%

# Effective Labor Force

- Effective Labor Force introducing productivity difference across countries.
- $\text{Effective Labor Force} = \text{Labor Force} * \text{productivity}$  (amount of output labor can produce)
- Since the US has skilled labor, its no surprise that exports are labor intensive
- $\text{Effective Factor Endowment} = \text{Actual factor endowment} * \text{factor productivity}$
- A country can be abundant or scarce in effective factor

# Effective Labor Force

- For research and development labor, productivity depends on equipment. So, can use a proxy for productivity-research and development spending per scientist.
- Adjust land, we find that the US has neither abundance or scarcity. What does this mean?
- Normally, the US fluctuates between exporting and importing of food (per year NX)
- This makes sense with idea that US is neither abundant or scarce in effective land.

# Revisiting Leontief's Paradox

- Countries can be abundant in more than one factor.
- Recalculating effective labor in 1947 shows that the US was effective labor abundant (wages were used as a proxy for productivity).
- It was difficult to measure capital stock in 1947, but most economist agree that the US was capital abundant.