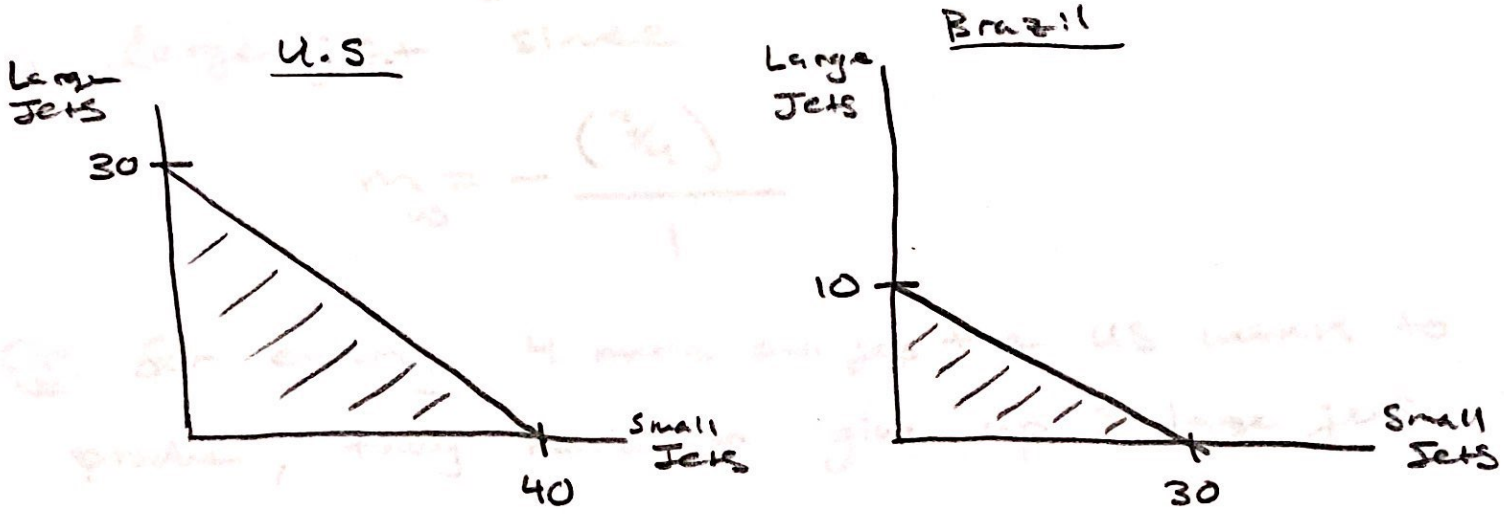
Module 3:

Comparative Advantage & Trade

Slide 4: How Comparative advantage creates gains from trade: PPFs



What are their unique opportunity costs?

U.S.

Using, $y = mx + b$

$\Rightarrow b = 30$

$\Rightarrow \boxed{y = mx + 30}$

Brazil

$y = mx + b$

where, $b = 10$

$\Rightarrow \boxed{y = mx + 10}$

What's m (i.e. our trade-offs ratio)?

$\Rightarrow$ plug in a point that is not the intercept:

take $(40, 0)$

$\Rightarrow 0 = m(40) + 30$

$-30 = m(40)$

$\Rightarrow m = -\frac{3}{4}$

$\Rightarrow \boxed{y = -\frac{3}{4}x + 30}$

take $(30, 0)$

$\Rightarrow 0 = m(30) + 10$

$\Rightarrow -10 = m(30)$

$\Rightarrow m = -\frac{1}{3}$

$\Rightarrow \boxed{y = -\frac{1}{3}x + 10}$

What does this tell us?

1) For every 1 more small jet the US wants to produce they will have to give up 3/4 a large jet since

$$m_{US} = -\frac{(3/4)}{1}$$

Or, for every 4 more small jets the US wants to produce, they have to give up 3 large jets.

2) For every 1 more small jet Brazil wants to produce, they will have to give up 1/3 a large jet since

$$m_{Brazil} = -\frac{(1/3)}{1}$$

Or, for every 3 more small jets Brazil wants to produce, they will have to give up 1 large jet.

Question: Who has the comparative advantage of producing small jets?

Answer: Brazil, because their opportunity cost of producing 1 more small jet is smaller than the US's. $\Rightarrow \frac{1}{3} < \frac{3}{4}$ $\Rightarrow$

Slide 9: When will trade happen?

Trade happens when the "price" of the good you are obtaing is less than the opportunity cost it has of producing the good you are trading for.

Ex Opportunity cost of 1 more small jet is 3/4 a large jet. Therefore, the US will be willing to trade for a small jet iff the "price" for the small jet is less than 3/4.

$\Rightarrow$ Trade is $P_{\text{small jet}} <$ opportunity cost of producing small jet

$\Rightarrow$ Trade occurs when

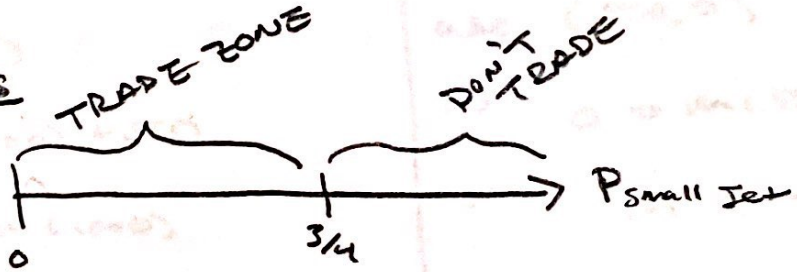
$0 \leq P_{\text{small jet}} < 3/4$ a large jet for US.

Similarly, Trade occurs for Brazil iff

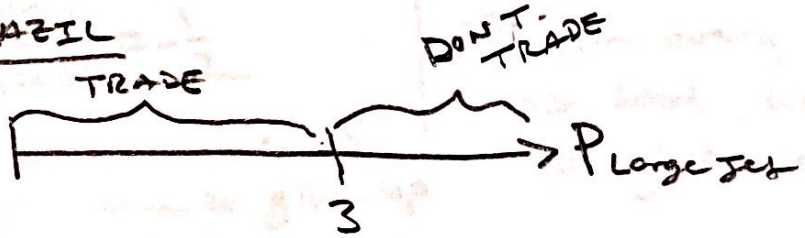
$0 \leq P_{\text{large jet}} < 3$ small jets

since $m = -\frac{1}{3}$

$\Rightarrow$ For US



For BRAZIL



Slide 11: Learn By Doing (LBD) #1

Step 1: What are your two points to plot?

Let, x = food , y = clothing

=> **Texia**

$(x_1, y_1) = (1000, 0)$

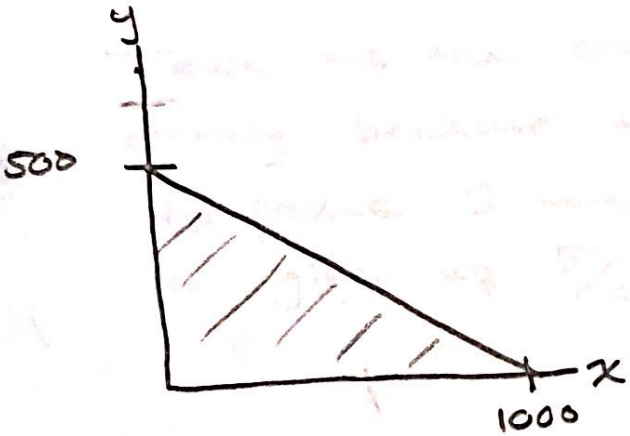
$(x_2, y_2) = (0, 500)$

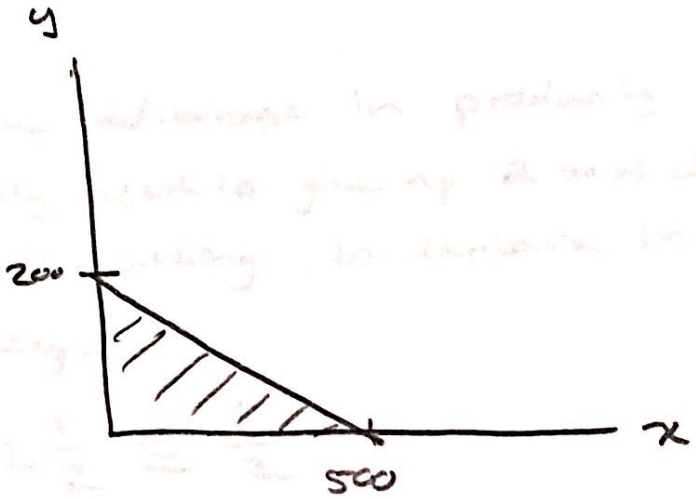
Urbania

$(x_1, y_1) = (500, 0)$

$(x_2, y_2) = (0, 200)$

Step 2: Plot





where, $b = 500$

$b = 200$

Step 3: Get the slope (m) to determine opportunity costs.

$y = mx + 500$

use $(1000, 0)$

$\Rightarrow 0 = m(1000) + 500$

$\Rightarrow -500 = m(1000)$

$\Rightarrow m = -\frac{500}{1000} = -\frac{1}{2}$

=> For every 1 more unit of food, Texia will have to give up 1/2 clothing.

$y = mx + 200$

use $(500, 0)$

$\Rightarrow 0 = m(500) + 200$

$\Rightarrow m = -\frac{200}{500} = -\frac{2}{5}$

=> For every one more unit of food, Urbania will have to give up $\frac{2}{5}$ clothing.

With that said, lets assume that each country has the same amount of workers.

=> Texla has the absolute advantage in producing both small jets & large jets.

Slide 12:

Urbania has the comparative advantage in producing food because they only give 2/5 clothing to Texla's 1/2 clothing.

Texla has the comparative advantage in producing clothing because they only need to give up 2 units of food to produce 1 more unit of clothing to Urbania having to give up 5/2 clothing.

$$2 < 2\frac{1}{2} \equiv \frac{5}{2}$$

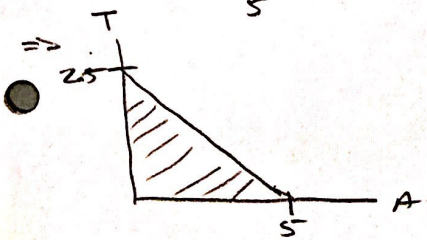
Slide 15:

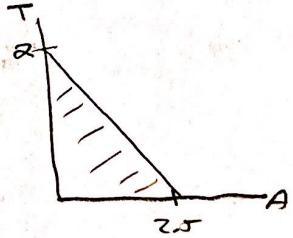
Astralia: $\frac{10}{2} = \frac{5}{1}$ bushels of apples

$\frac{10}{4} = \frac{5}{2} = 2.5$ bushels of Tomatoes

Brazil: $\frac{10}{4} = \frac{5}{2} = 2.5$ apples

$\frac{10}{5} = 2$ Tomatoes





=>

A

$y = mx + 2.5$

$\Rightarrow$ @ $(5,0)$

$0 = m(5) + 2.5$

$\Rightarrow m = -\frac{1}{2}$

B

$y = mx + 2$

$\Rightarrow$ @ $(2.5,0)$

$0 = m(2.5) + 2$

$\Rightarrow m = -\frac{4}{5}$

$\Rightarrow$ For every 1 more Apple Australia & Brazil want to produce, they will have to give up $\frac{1}{2}$ & $\frac{4}{5}$ tomatoes, respectively.

$\Rightarrow$ Australia has the comparative advantage in producing apples.

$\Rightarrow$ For every 1 more tomatoe A & B want to produce, they will have to give up 2 & $\frac{5}{4}$ apple, respectively

$\Rightarrow$ Brazil has the comparative advantage in producing tomatoes.