Comparitive Advantage (David Ricardo).

Consider the $2 \times 2 \times 1$ framework.

[2 Countries: H, F
2 Goods: X, Y
1 Factor of production: L].

Define l_{xh}, l_{yh}, l_{xf}, l_{yf} as in case of absolute adv.

Consider $l_{xh} < l_{xf}$. [H is technologically superior in X]
$l_{yh} < l_{yf}$. [H is technologically superior in Y]

i.e H has absolute advantage in both the goods X, Y traded b/w H & F.

When one country has absolute adv in both the goods, then trade occurs b/w them based on comparitive adv.

Note: Assumption: $l_{xh} < l_{xf}$
$l_{yh} < l_{yf}$

Additionally: $l_{yf} < l_{xf}$ [F has comparitive adv in Y]

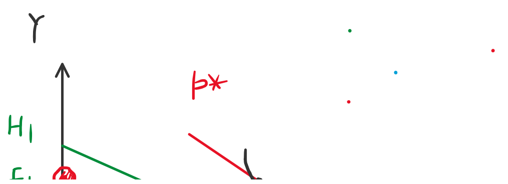
Eg: H: $l_{xh} = 80$ $l_{yh} = 90$
F: $l_{xf} = 120$ $l_{yf} = 100$

Both have $\bar{L} = 720$.
Find the pattern of trade.

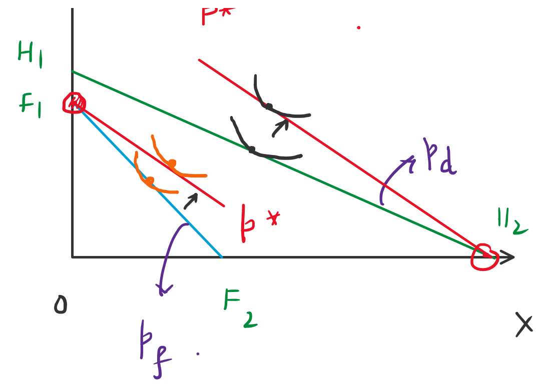
PPF_H: $l_{xh} \cdot X + l_{yh} \cdot Y = \bar{L} \Rightarrow 80X + 90Y = 720$ --- (i)

PPF_F: $l_{xf} \cdot X + l_{yf} \cdot Y = \bar{L} \Rightarrow 120X + 100Y = 720$ --- (ii)

PPF_H: $\frac{X}{9} + \frac{Y}{8} = 1$, $\left| \frac{dY}{dX} \right|_H = \frac{8}{9} = p_d$



$PPF_F: \frac{X}{6} + \frac{Y}{7.2} = 1, \quad \left|\frac{dy}{dx}\right|_F = 1.2 = p_f$



As $p_d < p_f \Rightarrow$ Autarky prices differ

$\Rightarrow$ Trade occurs at a international relative price p^* s.t $p_d < p^* < p_f$

Pattern of trade under comparitive adv:

F : Produce only Y.
H : Produce only X.

This is welfare enhancing for both the countries (given by the movement to higher SIC)

Factor Markets (Continuation).

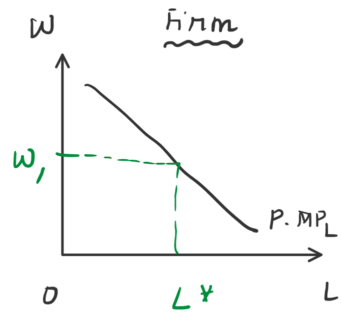
i) Perfect competition in both goods mkt & factor mkt:

Optimal condition in factor mkt: $MP_L = \frac{W}{P}$.

Given perfect competition in both goods mkt & factor mkt, firm is a price taker in both $\Rightarrow P = \bar{P}, \ W = \bar{W}$

Prodn fn: $q = q(L, \bar{K})$,

$\Pi = \bar{P} \cdot q - \bar{W} \cdot L = \bar{P} \cdot q(L, \bar{K}) - \bar{W} \cdot L$



Obj of firms: choose 'L' to maximize q.

$\frac{\partial \pi}{\partial L} = 0 \Rightarrow P \cdot \left(\frac{\partial q}{\partial L}\right) - W = 0 \Rightarrow \boxed{MP_L = \frac{W}{P}} \Rightarrow$ Optimal condition

↳ solves for L^*

— — ———— condition

↳ solves for L^*

ii) Perfect competition in Factor Market, Monopoly in Goods Mkt.

Monopoly: single seller for the output,
i.e the monopolist faces the entire mkt demand.

let the mkt dd be: $P = P(q)$, $P' < 0$.

monopolist's prodn fn be: $q = q(L, \bar{K})$, $\frac{\partial q}{\partial L} > 0$, $\frac{\partial^2 q}{\partial L^2} < 0$

& Firm is a price taker in the factor mkt; w = parameter

$$\pi = P \cdot q - w \cdot L = P(q) \cdot q - wL$$
$$= \underline{P\{q(L, \bar{K})\}} \cdot q(L, \bar{K}) - wL$$

Max π w.r.t 'L' :-

$$\frac{\partial \pi}{\partial L} = 0 \Rightarrow \left(\frac{\partial P}{\partial q}\right) \cdot \frac{\partial q}{\partial L} \cdot q + P \cdot \frac{\partial q}{\partial L} - w = 0.$$

$$R = P(q) \cdot q$$
$$MR = \frac{\partial R}{\partial q} = P' \cdot q + P.$$

$$\Rightarrow P' \cdot MP_L \cdot q + P \cdot MP_L - w = 0.$$

$$\Rightarrow MP_L [\underbrace{P' \cdot q + P}_{= MR}] = w.$$

$$\Rightarrow MP_L \times MR = w.$$

$$\Rightarrow \boxed{MRP_L = w} \text{ ... Optimal condition.}$$

Q. At mkt wage rate $w = w_1$ under competitive setup. Compare the labour employment when there is perfect comp in factor mkt & monopoly in factor mkt.

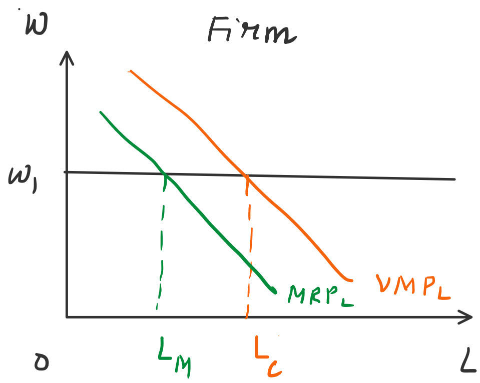
i) If good's mkt is competitive:

Optimal ...

i) If good's mkt is competitive:

Optimal condition: $P \cdot MP_L = W$.

$\Rightarrow VMP_L = W$.



ii) If good's mkt is monopoly:

Optimal condition: $MR \times MP_L = W$.

$[\boxed{MR} = P' \cdot q + P$; As $P' < 0 \Rightarrow MR < P] \Rightarrow L_M < L_C$