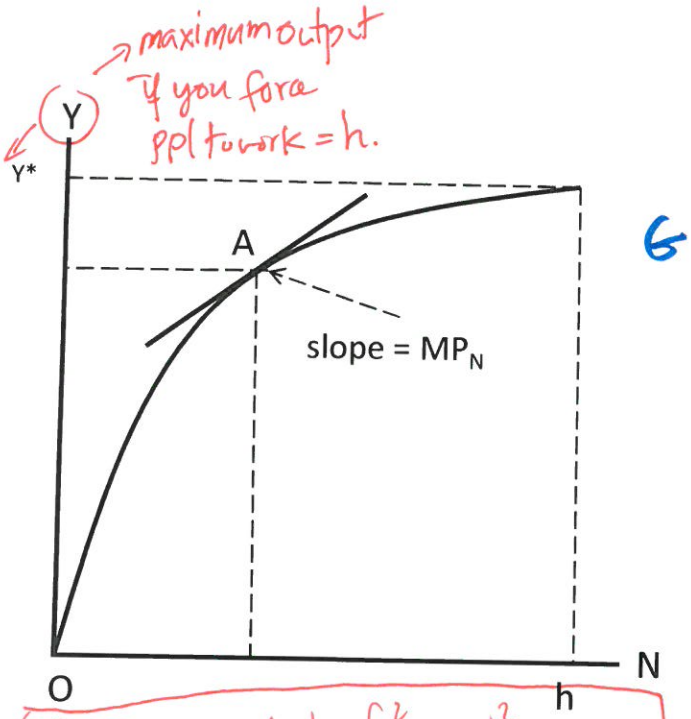
Output in term of leisure v.s. the PPF

$\Rightarrow$ $y = C + G$ ← Exogenous

$y = A \cdot f(k, h-L)$

$C = y - G$

$= Af(k, h-L) - G$



maximum output if you fora ppl to work = h.

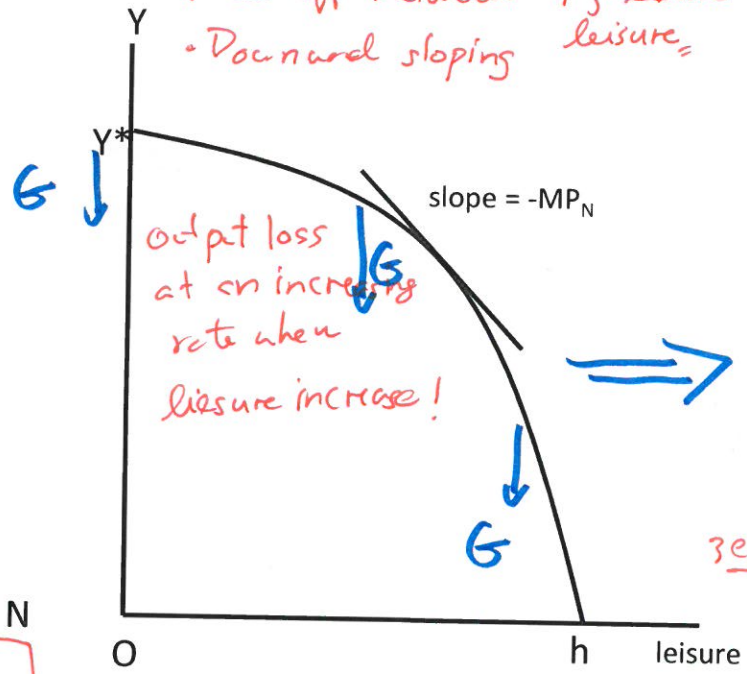
Concave production $f'' \Rightarrow \frac{d^2y}{dN^2} < 0$; $MP_N \downarrow$ as $N \uparrow$

$y \to y^*$ when $N \to h$

production $f'' \Rightarrow$ Law of diminishing Marginal Productivity

given fixed "A", "K" → output ↑ at decreasing rate

Production function ✓



Trade-off Between Y; ~~leisure~~ leisure

- Downward sloping

G ↓

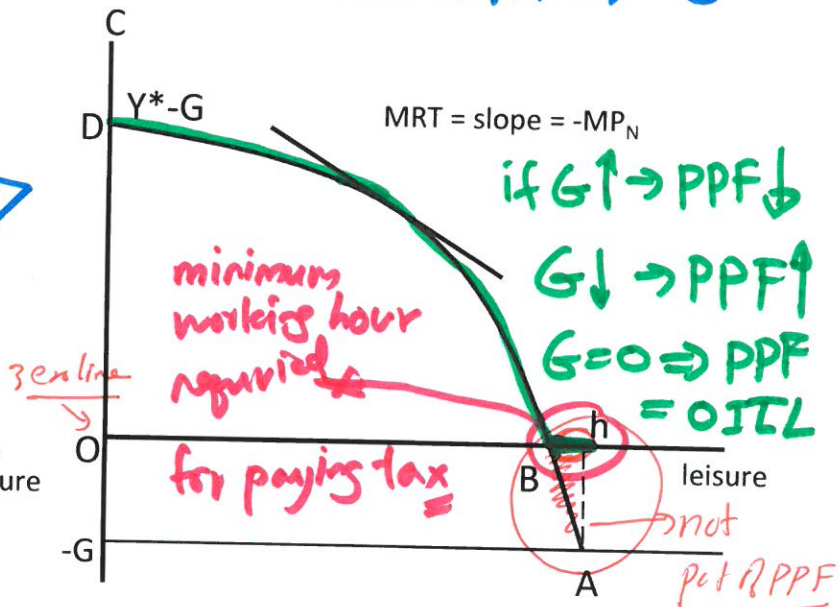
output loss at an increasing rate when leisure increase!

G

G

Output in term of leisure ✓

OITL



if G↑ → PPF↓

G↓ → PPF↑

G=0 ⇒ PPF = OITL

PPF: private consumption v.s. leisure (Feasible allocation)

PPF ⇒ Shifting down the output interm of leisure by G units

The consumer's max. utility

- The consumer trades off between C and L to maximize utility, **given w.**

- $w_1 \Rightarrow (C_1, L_1)$

  $w_2 \Rightarrow (C_2, L_2)$

  $C \Rightarrow$ optimal Consumption demand

  $L \Rightarrow$ optimal leisure demand.

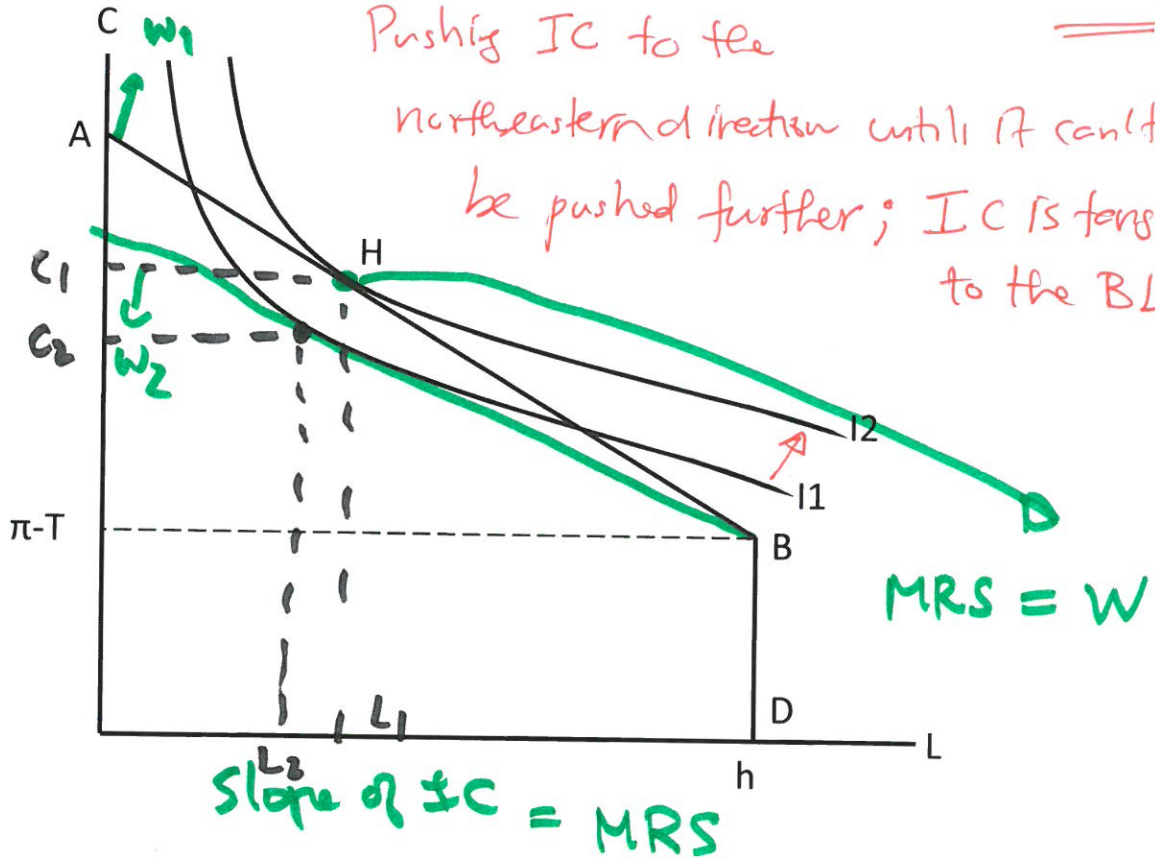
$\max \quad u(C, L)$

$\text{Slope of BL} = \frac{dC}{dL} = -w$

BL: $C = w(h - L) + \pi - T$

$\pi > T$

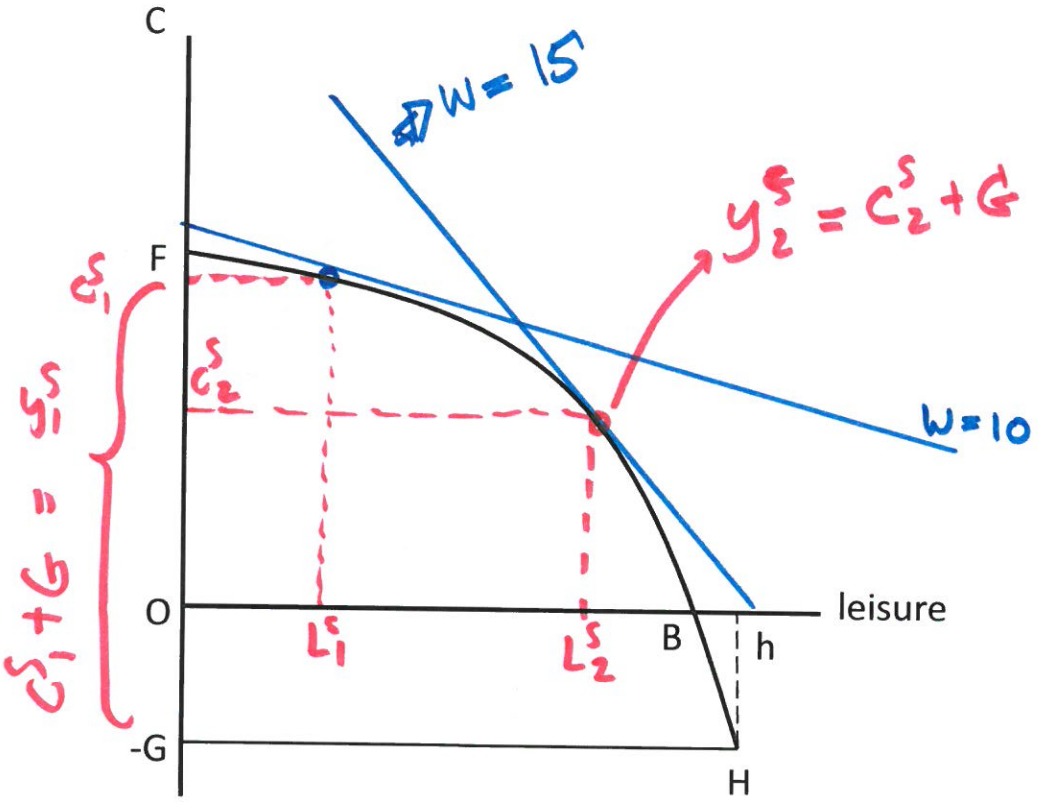
Pushing IC to the northeastern direction until it can't be pushed further; IC is tangent to the BL.



output ↑ → W ↓
leisure supply ↑ ; W ↑
labor demand ↑ ; W ↓

full employment ⇒ everyone has a job
but # hours can change ! → intensity of working

Production decision: private consumption and leisure



$w_1 = 10$

Producer maximizes profit

$$\pi = Y - w \cdot (h - L)$$

$$= A \cdot f(k, \overbrace{h - L}^{N}) - w(h - L)$$

"MC" "MB" to leisure

$$\max_{(L)} \pi$$

$$\frac{\partial \pi}{\partial L} = A \cdot \underbrace{\frac{\partial f}{\partial N}}_{MP_N} \cdot (-1) + w$$

$$-MP_N$$

marginal value of profit to leisure

$$-MP_N = -w$$

"L" $\Rightarrow \frac{\partial \pi}{\partial L} = 0$

① PPF

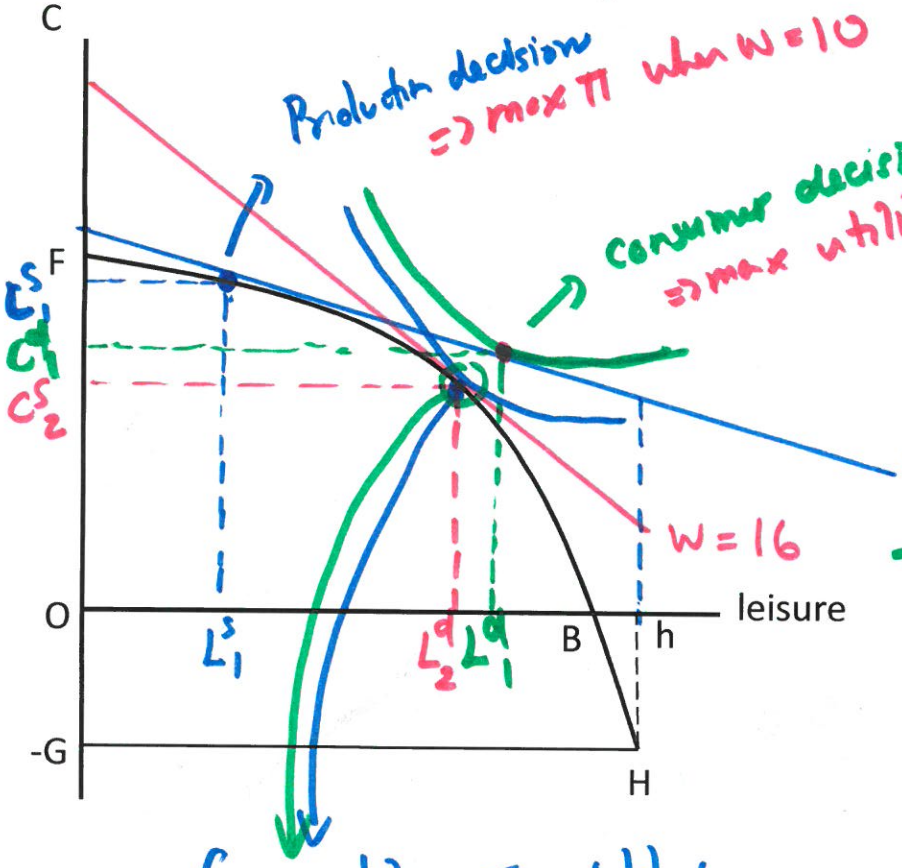
② Consumption Decision

③ Production Decision

} Same Wage line

Firm and household decision combined: Competitive equilibrium

$w = 10$



Production decision
=> max Π when $w=10$

Consumer decision
=> max utility when $w=10$

$w \uparrow$ → clear the markets

C_1^s C_1^d C_2^s

L_1^s L_2^d L_1^d

→ $w=10$ (wage line) BL: $C = 10(h-L) + \Pi - T$

→ Goods market: $C_1^s > C_1^d$

⇒ Excess Supply for private consumption goods.

Competitive Equilibrium

(i) Agents optimize

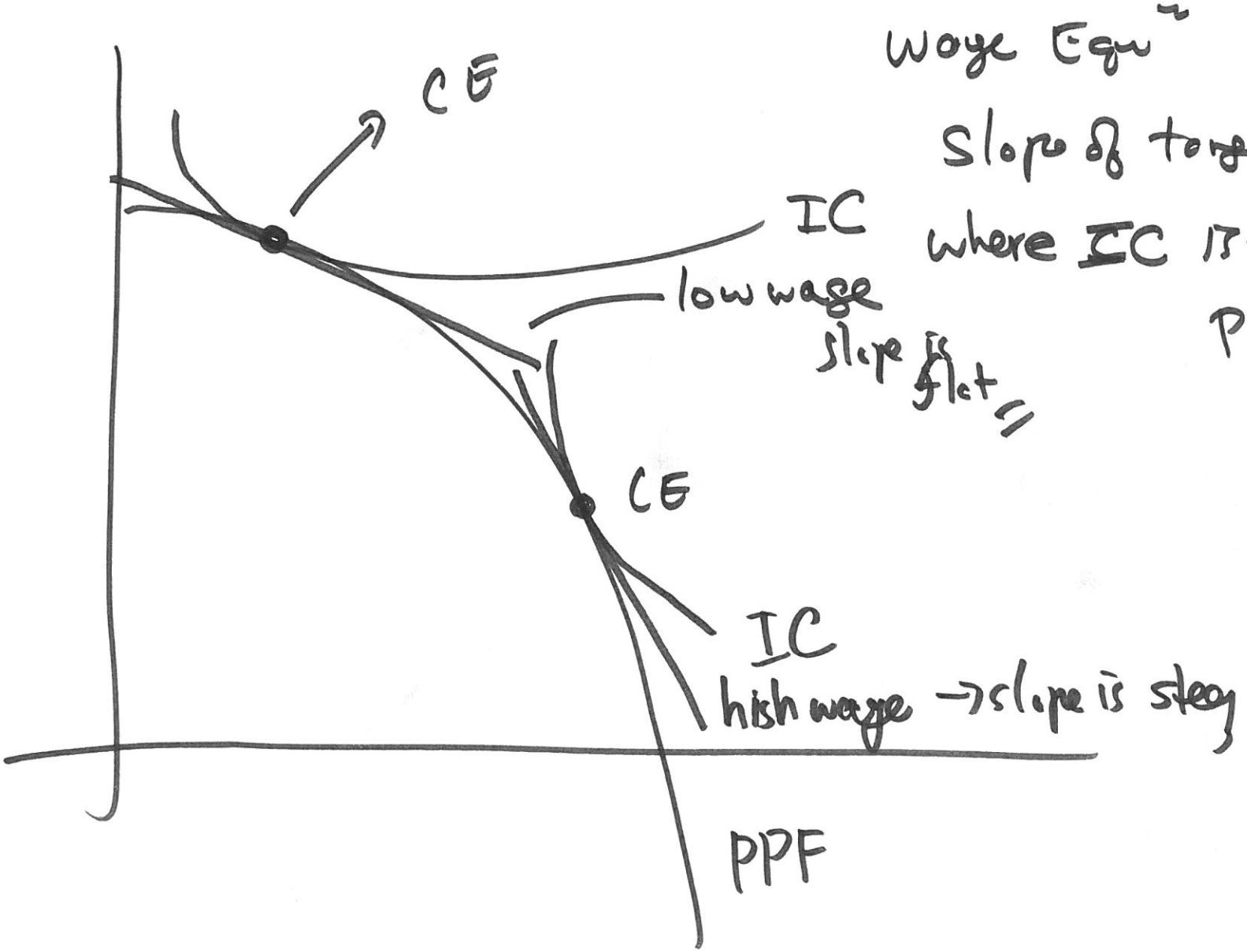
(ii) consumption = Consumption Supply / leisure demand = leisure supply

→ ~~labor~~ leisure market

~~leisure~~ labor market

$L_1^d > L_1^s$ ⇒ ED for leisure ✓

$N_1^s < N_1^d$ ⇒ ED for labor ✓



Wage Eqn

Slope of target point where IC is tangent to PPF.