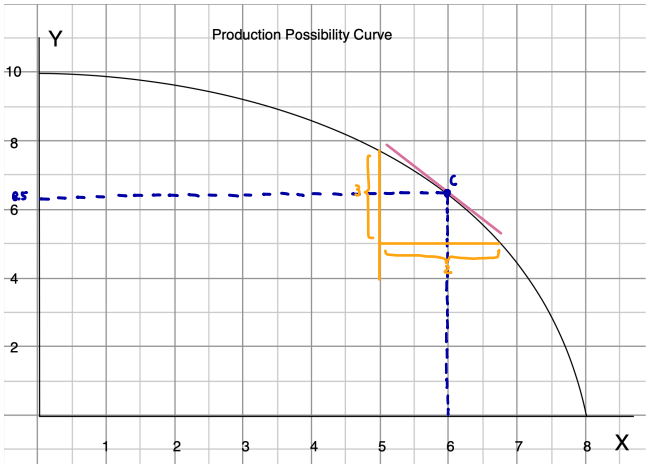
HW Nonlinear PPC



a) Find the opportunity cost of each additional unit of y in terms of units of x

y	x	Opp. Cost of y
0	8	
1	7.9	= 0.1 less of x
2	7.7	= 0.2 less of x
3	7.4	0.3
4	7.1	0.3
5	6.7	0.4
6	6.3	0.4
7	5.8	0.5
8	4.7	0.9
9	3.4	1.3
10	0	3.4

When y increase 1 unit at a time

b) Is the opportunity cost of y increasing? yes

c) Compute the opportunity cost per unit of y when $x = 6$. at point C

d) At $x = 6$, approximate how much more x can be produced if we have y less by 0.2 units.

$\frac{2}{1.5} \approx \frac{-2}{3}$

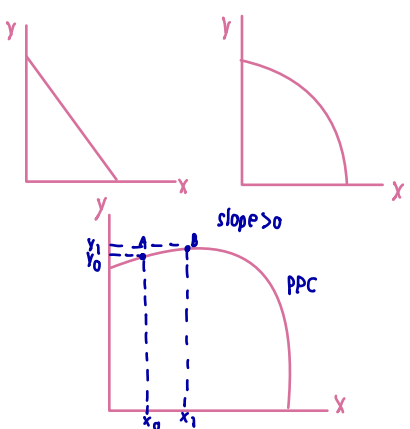
$\approx -.67$ opp cost of y

$\Delta y = 0.2$

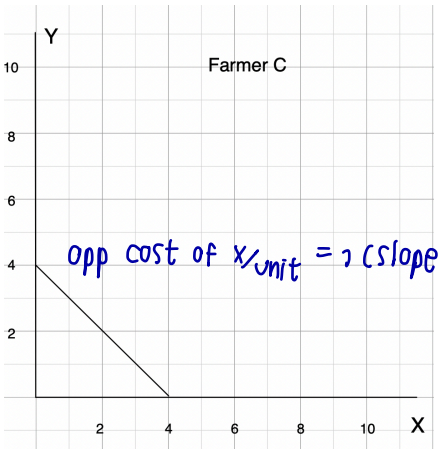
$\Delta x \approx \frac{\Delta y}{\text{slope at C}} \approx \frac{-0.2}{-1.5} \approx 0.13$

~ approx 0.13 unit more of x

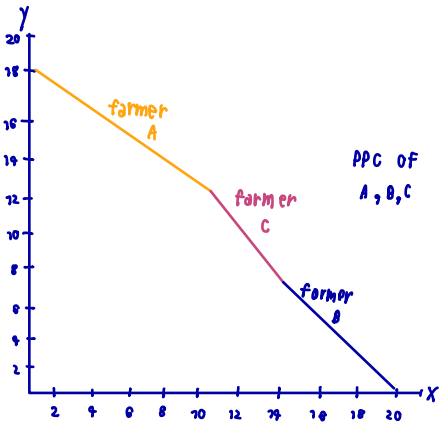
Can a PPC have positive slope?



HW Farmer C has the PPC given below. Find the PPC of all three farmers A, B and C combined.

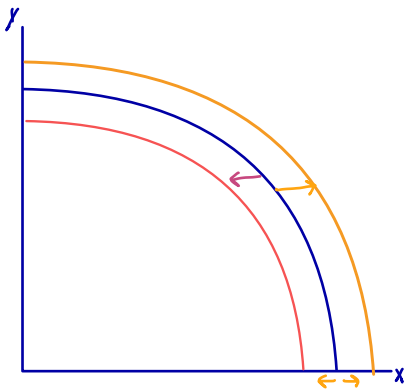


x	y	
0	18	A
1	17.9	
⋮	⋮	
10	12	
11	11	C
⋮	⋮	
19	8	
15	6.67	B
⋮	⋮	
20	0.02	



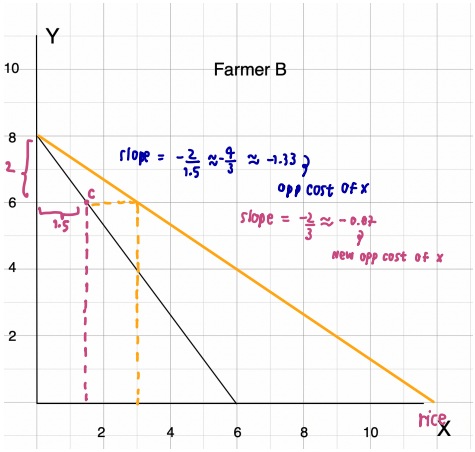
Change in PPC - fix resource, fix technology most efficient

1. COVID-19



2. Improvement of Technology of producing both x and y.

HW. If a new fertilizer is found to double the output of rice (x) for any level of production of fish (y), how will PPC of farmer B change? Does the opportunity cost of x increase? Does the opportunity cost of y increase?



At point C $(1.5, 6)$, $\Delta x = 2$

$\Delta y \approx$ slope at C $\cdot \Delta x$

$\approx (-1.33)(2)$

≈ -2.66

$\frac{1}{-1.33} = -.75$ – opp cost of y

$\frac{1}{-0.67} = -1.49$ – new opp cost of y

∴ The opp cost of x decrease, but the opp cost of y increase

1 more unit of y ⇒ 0.67 unit less of x

1 more unit of x ⇒ 1.49 units less of y