A108=60063 曾品潔

1. 假設消費者對商品X與Y的消費決策如下所示：

$\text{Max } U = f(X,Y) = X^2Y$

subject to $300 = 10X + 20Y$

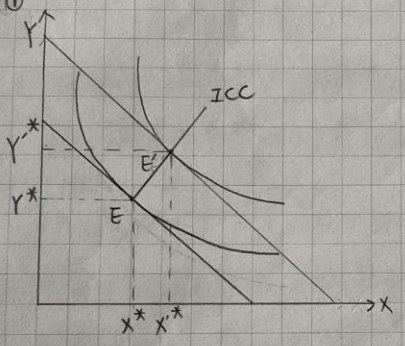
① X商品的所得消費線為何？ * 邊際效用均等法則

② X商品的恩格爾曲線為何？ * M和X*的關係，判斷X是正常中性劣等財

③ X商品的需求曲線為何？

④ 根據上述求解的所得消費線、恩格爾曲線與需求曲線判斷X商品的特性

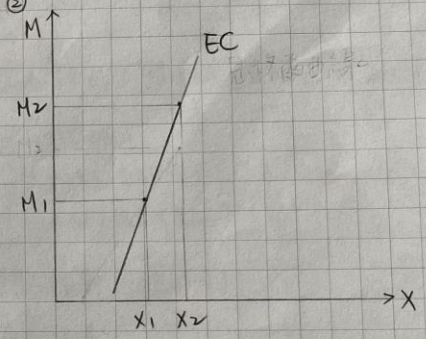
①



$MRS = \frac{MUx}{MUy} = MRT = \frac{Px}{Py}$

$\frac{2XY}{X^2} = \frac{10}{20} \rightarrow X = 4Y$

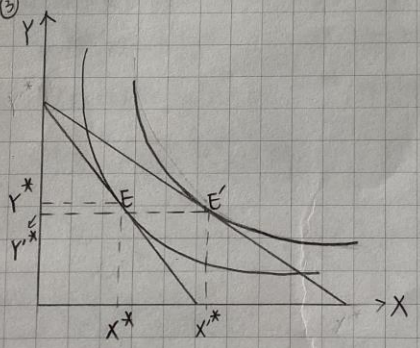
②



代入預算線 $M = 10X + 20Y$

$X^* = \frac{M}{15}$

③



$\text{Max } U = X^2Y \text{ st } 300 = PxX + 20Y$

① 邊際效用均等法則：$MRS_{XY} = \frac{2Y}{X} = \frac{Px}{20} \rightarrow Y = \frac{Px}{40}X$

② 永不滿足定理：$300 = PxX + 20(\frac{Px}{40}X) \rightarrow X = \frac{200}{Px}$

④ 由所得消費線與恩格爾曲線可知X財貨為正常財，由需求線可知X財貨符合需求法則