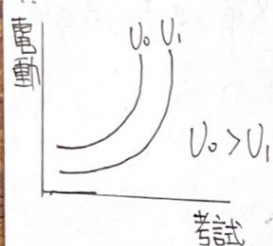


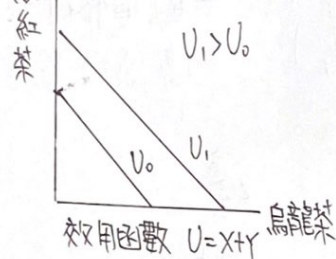
- 一.
- | | | | |
|------|-------|-------|-------|
| 1. D | 6. D | 11. C | 16. A |
| 2. B | 7. C | 12. B | |
| 3. D | 8. C | 13. D | |
| 4. A | 9. A | 14. D | |
| 5. A | 10. B | 15. C | |

二.

1. (A)



(B)



2.

$$(1) 20X + 10Y = 300$$

$$U = f(X, Y) = X^{\frac{1}{3}} Y^{\frac{2}{3}}$$

$$MRS_{XY} = \frac{\frac{1}{3} X^{-\frac{2}{3}} Y^{\frac{2}{3}}}{\frac{2}{3} X^{\frac{1}{3}} Y^{-\frac{1}{3}}} = \frac{P_X}{P_Y} = \frac{20}{10}$$

$$\frac{4}{3} X^{-\frac{1}{3}} Y^{\frac{2}{3}} = \frac{1}{3} X^{-\frac{2}{3}} Y^{\frac{2}{3}}$$

$$\frac{64}{27} X Y^{-1} = \frac{1}{27} X^{-2} Y^2$$

$$\frac{64X}{27Y} = \frac{Y^2}{27X^2}$$

$$27Y^3 = 64X^3$$

$$Y^3 = 64X^3$$

$$\frac{Y^3}{X^3} = 64$$

$$\left(\frac{Y}{X}\right)^3 = 64, \frac{Y}{X} = 4, Y = 4X$$

$$60X = 300, X = 5, Y = 20$$

消費者均衡 5 杯咖啡 20 個包子

$$(2) U = f(X, Y) = 3X + Y$$

$$300 = 20X + 10Y$$

$$MRS_{XY} = 3 > \frac{P_X}{P_Y} = 2$$

$$X = 15, Y = 0$$

15 杯咖啡, 0 個包子

$$(3) U = f(X, Y) = \min(X, Y)$$

$$\text{subject to } 300 = 20X + 10Y$$

$$2Y = X$$

$$2Y = X, X = 12, Y = 6$$

12 杯咖啡, 6 個包子

$$3. \text{Max } U = f(X, Y) = X^{\frac{1}{3}} Y^{\frac{2}{3}}$$

$$\text{subject to } 300 = 20X + 10Y$$

最適消費 $X = 5, Y = 20$

下降 10 元

$$\text{Max } U = f(X, Y) = X^{\frac{1}{3}} Y^{\frac{2}{3}}$$

$$\text{subject to } 300 = 10X + 10Y$$

$$MRS_{XY} = \frac{\frac{1}{3} X^{-\frac{2}{3}} Y^{\frac{2}{3}}}{\frac{2}{3} X^{\frac{1}{3}} Y^{-\frac{1}{3}}} = \frac{P_X}{P_Y} = \frac{10}{10} = 1$$

$$\frac{1}{3} X^{-\frac{2}{3}} Y^{\frac{2}{3}} = \frac{2}{3} X^{\frac{1}{3}} Y^{-\frac{1}{3}}$$

$$\frac{1}{27} X^{-2} Y^2 = \frac{8}{27} X Y^{-1}$$

$$\frac{Y^2}{27X^2} = \frac{8X}{27Y}, 8X^2 Y^3 = 27Y^3, 8 = \left(\frac{Y}{X}\right)^3, \frac{Y}{X} = 2$$

$$Y = 2X, X = 10, Y = 20$$

$$U = X^{\frac{1}{3}} Y^{\frac{2}{3}} = (5)^{\frac{1}{3}} (20)^{\frac{2}{3}} = (2000)^{\frac{1}{3}}$$

$$Y = 2X \text{ 代入 } U = (2000)^{\frac{1}{3}}$$

$$U = X^{\frac{1}{3}} Y^{\frac{2}{3}} = (X \times (2X)^2)^{\frac{1}{3}} = (2X^3)^{\frac{1}{3}} = (2000)^{\frac{1}{3}}$$

$$X = (1000)^{\frac{1}{3}} \quad Y = (8)^{\frac{1}{3}} (1000)^{\frac{1}{3}} = (8000)^{\frac{1}{3}}$$

價格效果: (5, 20) 到 (10, 20)

所得效果: $[(1000)^{\frac{1}{3}}, (8000)^{\frac{1}{3}}]$ 到 (10, 20)

替代效果: (5, 20) 到 $[(1000)^{\frac{1}{3}}, (8000)^{\frac{1}{3}}]$

4

(1)

$$U = f(X, Y) = X^{\frac{1}{3}} Y^{\frac{2}{3}}$$

$$\text{subject to } 300 = 20X + 10Y$$

$$MRS_{XY} = 2 \Rightarrow Y = 4X$$

(2)

$$Y = 4X \text{ 代入 } 20X + 10Y = 11$$

$$60X = 11$$

$$X = \frac{11}{60}$$

(3)

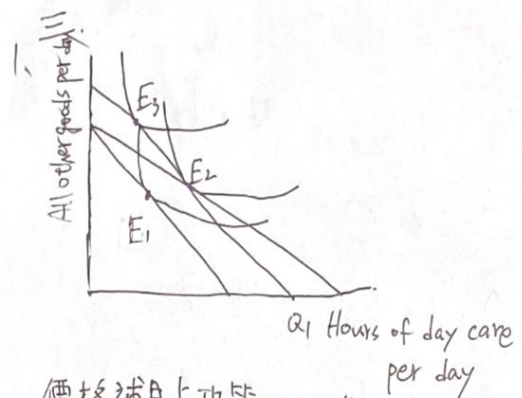
$$Y = \frac{11}{20}$$

$$(4) U = f(X, Y) = X^{\frac{1}{3}} Y^{\frac{2}{3}}$$

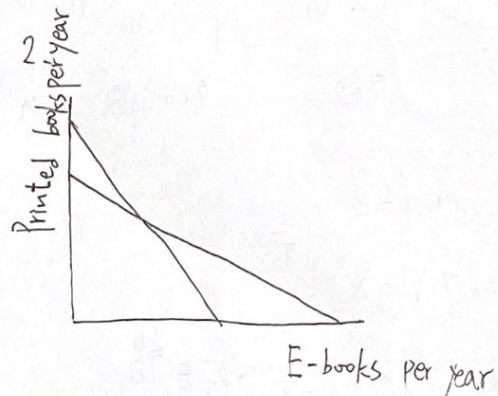
$$\text{subject to } 300 = P_X X + 10Y$$

$$MRS_{XY} = \frac{\frac{1}{3} X^{-\frac{2}{3}} Y^{\frac{2}{3}}}{\frac{2}{3} X^{\frac{1}{3}} Y^{-\frac{1}{3}}} = \frac{P_X}{10}, Y = \frac{4P_X}{5} X$$

$$300 = P_X X + 10 \left(\frac{4P_X}{5} X \right) \Rightarrow 9P_X X = 300, X = \frac{300}{9P_X}$$



價格補貼政策可以對老人長照的數量增加最多，長照業者會最喜歡價格補貼政策，因為消費者對長照購買數量最多



兩國率制不同，造成德國電子書價格高，所以市佔率低