

2023春季宏观第二次作业

1. 解: (1) $y = c + i + g$

$$c = \alpha + \beta(y - t + t_r)$$

$$\text{所以 } y = \frac{\alpha + i + g - \beta t + \beta t_r}{1 - \beta}$$

因为 $c = 100 + 0.8y_d$, $i = 50$, $g = 200$

$$t_r = 62.5 \quad t = 250$$

$$\text{所以 } y = \frac{100 + 50 + 200 - 0.8 \times 250 + 0.8 \times 62.5}{1 - 0.8}$$

$$= 1000$$

答: 均衡收入为10000亿美元

$$(2) \text{ 因为 } y = \frac{\alpha + i + g - \beta t + \beta t_r}{1 - \beta}$$

所以当 $i = i_0$ 时 $y = y_0$, $i = i_1$ 时 $y = y_1$

$$k_i = \frac{\Delta y}{\Delta i} = \frac{y_1 - y_0}{i_1 - i_0} = \frac{1}{1 - \beta} = 5$$

$$\text{同理 } k_g = \frac{\Delta y}{\Delta g} = \frac{1}{1 - \beta} = 5$$

$$k_t = \frac{\Delta y}{\Delta t} = -\frac{\beta}{1 - \beta} = -4$$

$$k_{t_r} = \frac{\Delta y}{\Delta t_r} = \frac{\beta}{1 - \beta} = 4$$

当 g 与 t 同时变化时

$$\Delta y = k_g \Delta g + k_t \Delta t = \frac{\Delta g}{1 - \beta} - \frac{\beta \Delta t}{1 - \beta}$$

$$\text{当 } \Delta g = \Delta t \text{ 时 } \Delta y = \frac{\Delta g(1 - \beta)}{1 - \beta} = \Delta g$$

$$\text{所以 } k_b = \frac{\Delta y}{\Delta g} = 1$$

答: 投资乘数为5, 政府支出乘数为5, 税收乘数为-4, 转移支付乘数为4, 平衡预算乘数为1.

$$2. \text{解: (1) } \Delta y = 1200 - 1000 = 200$$

$$k_g = \frac{\Delta y}{\Delta g} \therefore \Delta g = \frac{\Delta y}{k_g} = \frac{200}{5} = 40$$

答: 增加政府购买400亿美元

$$(2) \text{ 同理 } k_t = \frac{\Delta y}{\Delta t}$$

$$\text{所以 } \Delta t = \frac{\Delta y}{k_t} = \frac{200}{-4} = -50$$

答: 减少政府税收500亿美元

$$(3) \text{ 因为 } k_b = 1 = \frac{\Delta y}{\Delta g}$$

所以增加政府购买和税收各2000亿美元。

3. 解: 均衡时 $S = i$

所以 当 $i = 400$ 时

$$S = -1600 + 0.25y_d = 400 = i$$

$$y_d = 8000$$

当 $i = 600$ 时 $S = -1600 + 0.25y_d = 600 = i$

$$y_d = 8800$$

$$y_d' - y_d = y' - t + t_r - (y - t + t_r) = \Delta y = 800$$

答: 均衡国民收入增加800

4. 解: (1) $c = \alpha + \beta(y - t + t_r)$

$$y = c + i + g \quad y_d = y - t + t_r$$

此题不考虑 t_r

$$\text{所以 } y = \frac{\alpha + i + g - \beta t}{1 - \beta}$$

因为 $c = 1000 + 0.75y_d$, $i = 800$, $g = 750$, $t = 600$

$$\text{所以 } y = \frac{1000 + 800 + 750 - 0.75 \times 600}{1 - 0.75}$$

$$= 8400$$

$$y_d = y - t = 8400 - 600 = 7800$$

答: 均衡国民收入为8400, 可支配收入为7800

$$(2) c = 1000 + 0.75y_d$$

$$= 1000 + 0.75 \times 7800 = 6850$$

答: 消费支出6850

(3) 因为均衡所以 $S = i$

$S = \text{私人储蓄} + \text{政府储蓄}$

$$\text{政府储蓄} = t - g = -150$$

$$\text{私人储蓄} = 800 - (-150) = 950$$

答: 私人储蓄为950, 政府储蓄为-150

$$(4) k_i = \frac{\Delta y}{\Delta i} = \frac{1}{1 - \beta} = 4$$

答: 投资乘数为4

5. 解: 因为 $MPS = 1 - \beta = 0.2 \therefore \beta = 0.8$

$$k_g = \frac{\Delta y}{\Delta g} = \frac{1}{1 - \beta} = 5 \quad MPC = \frac{1}{1 - \beta} = 5$$

$$k_{t_r} = \frac{\Delta y}{\Delta t_r} = \frac{\beta}{1 - \beta} = 4$$

$$k_t = \frac{\Delta y}{\Delta t} = -\frac{\beta}{1 - \beta} = -4$$

因为 $\Delta g = \Delta t = \Delta t_r = 300$

$$\therefore \Delta y = \Delta g k_g + \Delta t_r k_{t_r} + \Delta t k_t + MPC \times 600$$

$$= 300 \times 5 - 300 \times 4 + 300 \times 4 + 600 \times 5 = 1500$$

答: 新的均衡国民收入将增加1500

附加题:

解: (1) $y = c + z + g + nx$

$$c = 30 + 0.8y_d$$

$$y_d = y - t + t_1 = y - tn$$

$$\text{所以 } y = 30 + 0.8(y - tn) + 60 + 50 + 50 - 0.05y$$

$$y = 600$$

答: 均衡收入为 600

$$(2) nx = 50 - 0.05y = 50 - 0.05 \times 600 = 20$$

答: 在均衡收入水平上, 净出口余额为 20

$$(3) y = c + z + g + nx$$

$$c = a + \beta(y - tn) \quad \& nx = a - by$$

$$y = \frac{a - \beta tn + z + g + a}{1 - \beta + b}$$

$$k_z = \frac{\Delta y}{\Delta z} = \frac{1}{1 - \beta + b} = 4$$

答: 投资乘数为 4

$$(4) \Delta y = k_z \Delta z \quad \text{当 } \Delta z = 70 - 60 = 10 \text{ 时}$$

$$\Delta y = 40 \quad y = 40 + 600 = 640$$

$$k_{nx} = \frac{\Delta y}{\Delta nx} = -0.05$$

$$nx = 50 - 0.05y = 50 - 0.05 \times 640 = 18$$

答: 均衡收入为 640, 净出口余额为 18

$$(5) y = \frac{a - \beta tn + z + g + a}{1 - \beta + b}$$

$$nx = a - by = 40 - 0.05y$$

$$\text{所以 } y = 560 \quad nx = 40 - 0.05 \times 560 = 12$$

答: 均衡收入为 560, 净出口余额为 12