Econ 3510

Problem Set #7

Answer Key

1. $C = 180 + 0.8(Y - T)$

$I = 190$

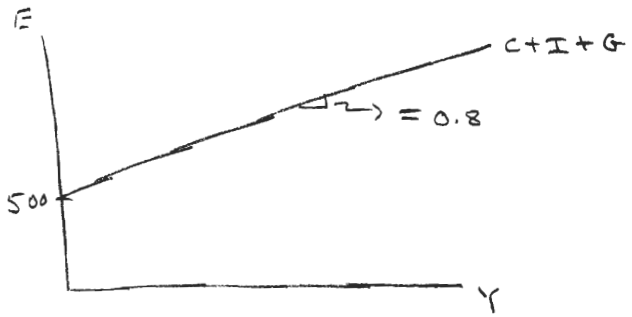
$G = 250$

$T = 150$

a) $MPC = 0.8$

b) $E = C + I + G = 180 + 0.8(Y - 150) + 190 + 250$

$\Rightarrow E = 500 + 0.8 \times Y$



c) $Y = E$

$\hookrightarrow Y = 500 + 0.8Y$

$0.2Y = 500$

$\boxed{Y = 2500}$

d) $E(Y) = 500 + 0.8 \times Y$

$E(3000) = 500 + 0.8 \times 3000 = 2900$

$Y = 3000 \rightarrow$ actual expenditure

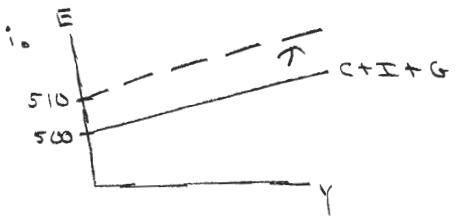
$E = 2900 \rightarrow$ planned expenditure

$\therefore$ unplanned inventory accumulation $= 3000 - 2900 = 100$

2. a) $Y = E = 2500$

b) $\Delta G = 10$

i.



ii. $\Delta Y = \frac{1}{1-MPC}\Delta G = \frac{1}{1-.8} \cdot 10$

$= 50$

$Y^* = 2550$

iii. $C = 180 + .8(Y-T)$

$\Delta C = .8(\Delta Y - \Delta T)$

$= .8\Delta Y = .8 \times 50$

$= 40$

$C^* = 2100$

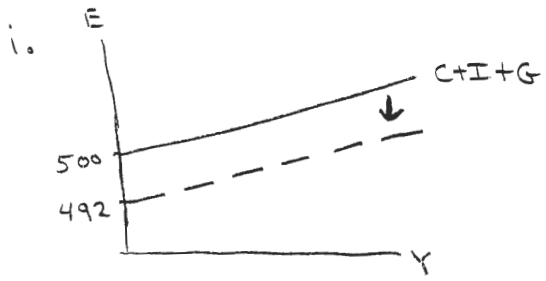
iv. $D = G - T$

$\Delta D = \Delta G - \Delta T^{0} = 10$

$D^* = 110$

c) $\Delta T = 10$

i.



ii. $\Delta Y = \frac{-MPC}{1-MPC}\Delta T = \frac{-.8}{1-.8} \cdot 10$

$= -40$

$Y^* = 2460$

iii. $C = 180 + .8(Y-T)$

$\Delta C = .8(\Delta Y - \Delta T)$

$= .8(-40-10)$

$= -40$

$C^* = 2020$

iv. $D = G - T$

$\Delta D = \Delta G^{>0} - \Delta T = -10$

$D^* = 90$

d) $\Delta G = \Delta T$

i.

ii. $\Delta Y = \frac{1}{1-MPC}\Delta G - \frac{MPC}{1-MPC}\Delta T$

$= \frac{1}{1-.8} \cdot 10 - \frac{.8}{1-.8} \cdot 10$

$= 10$

$Y^* = 2510$

iii. $C = 180 + .8(Y-T)$

$\Delta C = .8(\Delta Y - \Delta T)$

$= .8(10 - 10)$

$= 0$

$C^* = 2060$

iv $D = G - T$

$\Delta D = \Delta G - \Delta T = 10 - 10 = 0$

$D^* = 100$

3. $C = 170 + 0.6(Y-T)$

$T = 200$

$I = 100 - 4r$

$G = 350$

$\left(\frac{M}{P}\right)^d = 0.75Y - 6r$

$\left(\frac{M}{P}\right)^s = 735$

$\left(\frac{M}{P}\right)^d = \left(\frac{M}{P}\right)^s$

a) $Y = E = C + I + G = 170 + .6(Y - 200) + 100 - 4r + 350$

$= 500 + .6Y - 4r$

$.4Y = 500 - 4r$

$\boxed{Y = 1250 - 10r}$

b) $0.75Y - 6r = 735$

$0.75Y = 735 + 6r$

$\boxed{Y = 980 + 8r}$

c) (IS) $Y = 1250 - 10r$

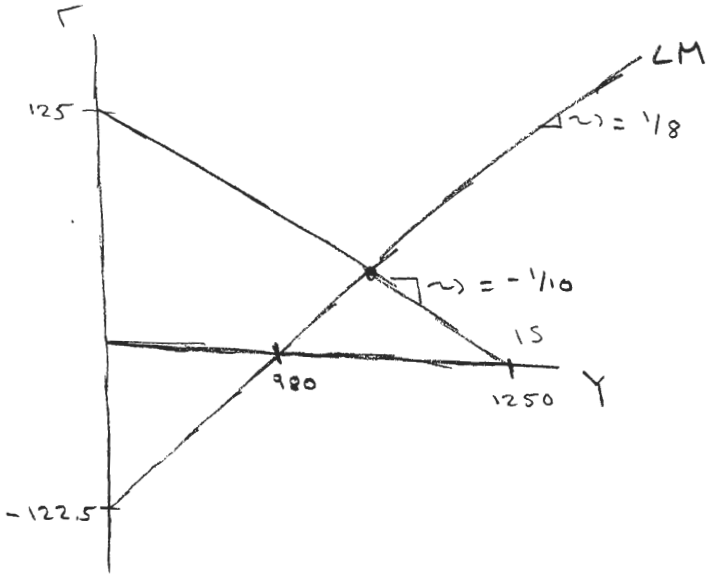
$10r = 1250 - Y$

$r = 125 - \frac{1}{10} Y$

(LM) $Y = 980 + 8r$

$8r = -980 + Y$

$r = -122.5 + \frac{1}{8} Y$



d) $Y = 1250 - 10r$

$Y = 980 + 8r$ $\Rightarrow$ $1250 - 10r = 980 + 8r$

$270 = 18r$

$r^* = 15$

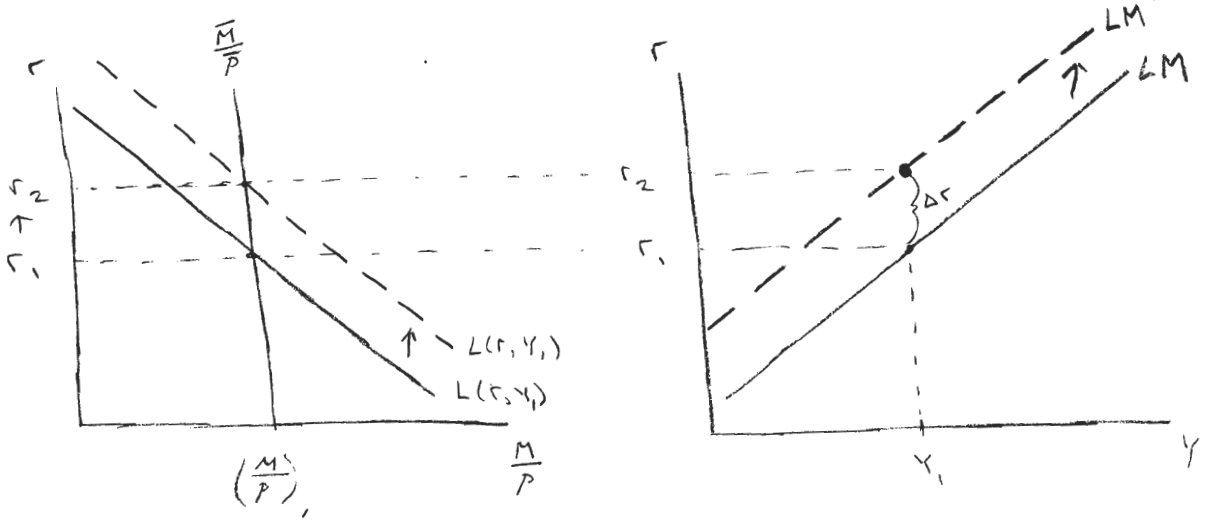
$Y^* = 1100$

$I^* = 40$

$C^* = 710$

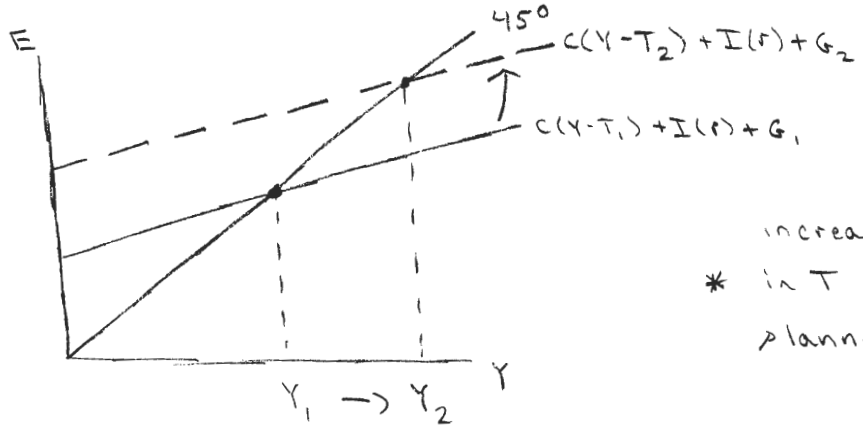
e) Surplus $= T - G = 200 - 350 = -150 \rightarrow$ deficit

4.



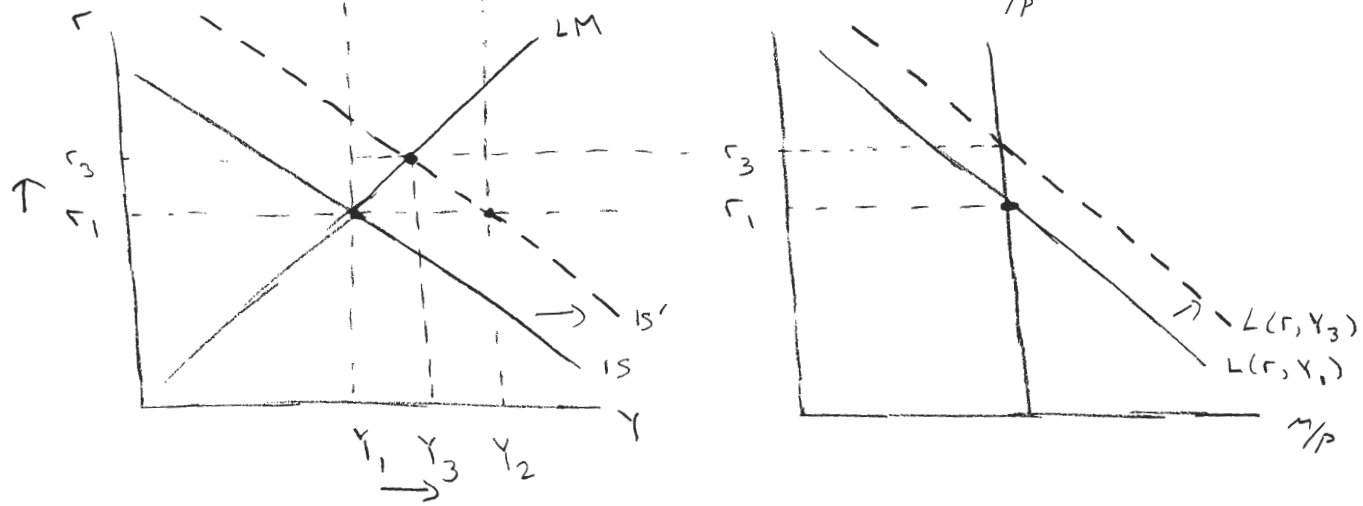
5. $\Delta G > 0$ $\Delta T < 0$

a)



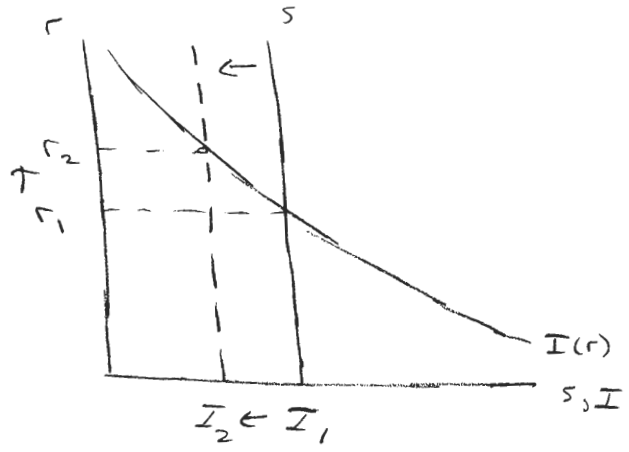
* increases in G and reductions in T both serve to increase planned expenditure

b)



c) In the short run, the fiscal expansion generates an increase in equilibrium output and the real interest rate.

Loanable Funds



In the classical model, a fiscal expansion reduces national saving and pushes up interest rates b/c output is fixed at the full-employment level.