PROBLEM SET III

CHP 6 #1

Higher interest rates will discourage investment even when firms finance expenditures out of retained -earnings. Although they do not have to borrow funds, they will pay an opportunity cost to purchase equipment, since they could, have lent money elsewhere and earned interest from it. The higher the interest rate, the greater the opportunity cost of investment spending out of retained -earnings, and less such spending there will be.

CHP 6 #2

First, we could need to know how much a given change in the interest rate or a given change in output causes investment spending to change.-i.e. we would need to know the investment function. We must also know how the deficit reduction would ultimately affect both the interest rate and output-i.e., we would need to know the old and new IS-LM equilibria. All of this together would enable us to determine the ultimate impact of the deficit cut on investment.

CHP 6 #3

Numerical IS-LM model

a)   IS curve

$$Y = C + I + G = 400 + 0.5Y_D + 700 - 4,000i + 0.1Y + 200$$

$$0.4Y = 1,200 - 4,000i$$

$$Y = 3,000 - 10,000i$$

b)   LM Curve

$$(M / P)^d = (M / P)$$

$$0.5Y - 7,500i = 500$$

$$i = -5 / 75 + (0.5 / 7,500)Y$$

c)   Equilibrium Output

$$Y = 3{,}000 - 10{,}000i$$

$$Y = 3{,}000 - 10{,}000[(-5/75) + (0.5/7{,}500)Y]$$

$$(5/3)Y = 11{,}000/3$$

$$Y = 2{,}200$$

d) Equilibrium Interest Rate

$$i = (-5/75) + (0.5/7{,}500)2{,}200$$

$$i = 0.08$$

e)

$$C = 400 + 0.5Y_D$$

$$C = 400 + 0.5(2{,}200 - 200)$$

$$C = 1{,}400$$

$$I = 700 - 4{,}000i + 0.1Y$$

$$I = 700 - 4{,}000(0.08) + 0.1(2{,}200)$$

$$I = 600$$

f) New IS curve

$$Y = C + I + G$$

$$Y = 400 + 0.5Y_D + 700 - 4{,}000i + 0.1Y + 700$$

$$0.4Y = 1{,}700 - 4{,}000i$$

$$Y = 4{,}250 - 10{,}000i$$

Same Lm curve

$$i = -5/75 + (0.5/7{,}500)Y$$

New equilibrium output

$$Y = 4{,}250 - 10{,}000i$$

$$Y = 4{,}250 - 10{,}000[(-5/75) + (0.5/7{,}500)Y]$$

$$(5/3)Y = 14{,}750/3$$

$$Y = 2{,}950$$

New interest rate

$i = -5 / 75 + (0.5 / 7{,}500)2{,}950$

$i = 0.13$

$C = 400 + 0.5Y_D$

$C = 400 + 0.5(2{,}950 - 200)$

$C = 1{,}775$

$I = 700 - 4{,}000i - 0.1Y$

$I = 700 - 4{,}000i - 0.1(2{,}950)$

$I = 475$

g)   The expansionary fiscal policy has caused an increase in Y, an increase in the interest rate, an increase in C, and a decrease in I

h)   New Lm curve

$(M / P)^d = (M / P)$

$0.5Y - 7{,}500i = 1{,}000$

$i = -10 / 75 + (0.5 / 7{,}500)Y$

Same IS curve

$Y = 3{,}000 - 10{,}000i$

Equilibrium output

$Y = 3{,}000 - 10{,}000i$

$Y = 3{,}000 - 10{,}000[(-10 / 75) + (0.5 / 7{,}500)Y]$

$(5 / 3)Y = 13{,}000 / 3$

$Y = 2{,}600$

Equilibrium interest rate

$$i = (-10 / 75) + (0.5 / 7,500)2,600$$

$$i = 0.04$$

$$C = 400 + 0.5Y_D$$

$$C = 400 + 0.5(2,600 - 200)$$

$$C = 1,600$$

$$I = 700 - 4,000i + 0.1Y$$

$$I = 700 - 4,00(0.04) + 0.1(2,600)$$

$$I = 800$$

i)   The expansionary fiscal policy has caused an increase in Y, a decrease in interest rate, an increase in C, and an increase in I

CHP 6 #4

Yes, Decreasing the deficit is a contractionary fiscal policy, which will shift Is curve leftward. This, in itself, has an ambiguous impact on investment spending. It will lower the interest rate, tending to increase investment, but also lower output, tending to decrease investment. However, this policy can be combined with an expansionary monetary policy. The resulting rightward shift in the LM curve can completely reverse the decline in output, and will cause a further decline in the interest rate. If LM shifts by the right amount, the net result can be : no change in output, and a decrease in the interest rate. Investment will unambiguously rise.