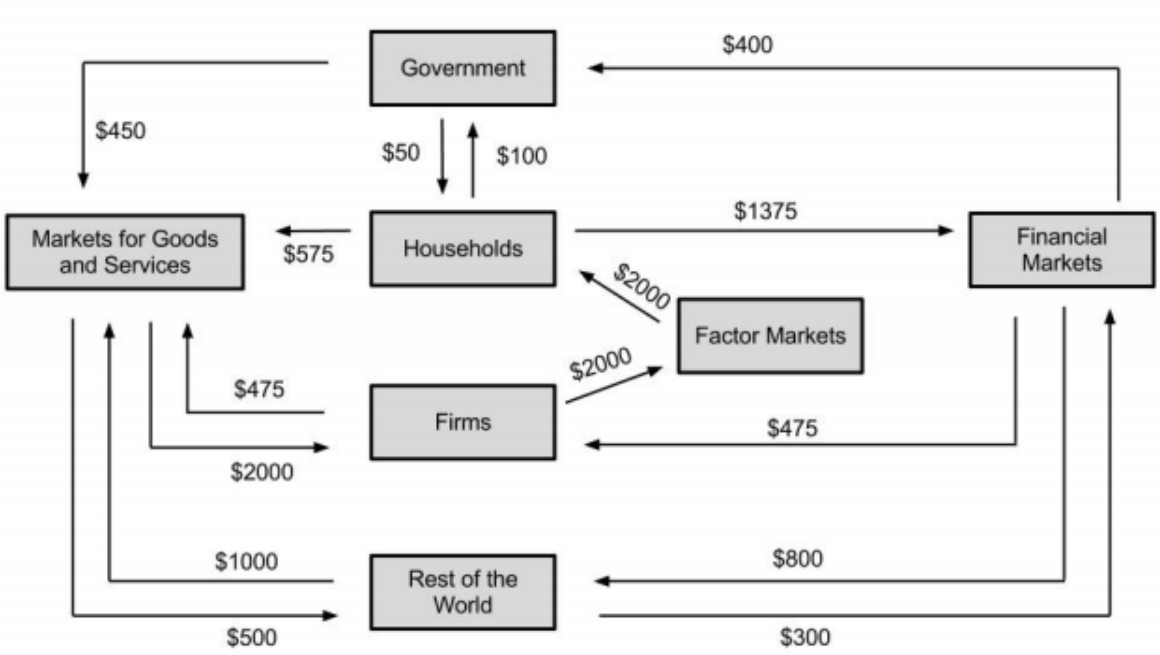
Handout Week 14

Econ 102, Spring 2014

Exercises

1. Capital Inflow (KI)

Consider this circular flow chart:



a. What is the total value of leakages?

Leakages = Sprivate +T-TR+M=1375+100-50+500=1925

…where Sprivate =Y-C-T+TR=2000-575-100+50=1375 (you could have also read this from the line pointing from households to financial markets)

b. What is the total value of injections? Make sure this matches your answer to part a.

Injections=G+I+X=450+475+1000=1925

c. What is the value of net capital inflows?

Net capital inflows=M-X=500-1000=-500

d. What is the value of national savings?

Public savings=T-TR-G=100-50-450= -400

NS=Private savings + Public savings = 1375-400=975

e. Is the government running a surplus or a deficit?

We saw that the government was running a deficit when we found that public savings was negative (see part d)

2. Keynesian Economics

Assume that the government runs a balanced budget, that the economy is closed, and that there are no transfer payments (i.e. TR=0). Taxes are constant at T=$500. Assume that people in this country always save 30% of their income. In a given year, GDP is measured at Y=$5500, investment spending is measured at $1000 and consumer spending is measured at C=$4000.

a. Find the consumption function, or the total amount consumers consume as a function of disposable income.

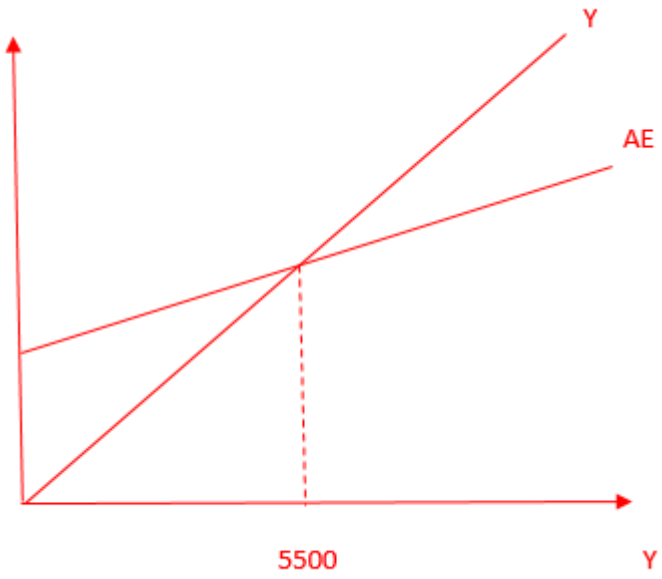
We are given the MPS, which is .3. Thus MPC=1-.3=.7. Plugging this into the consumption function, we get that C=a+b(Y-t)=a+.7(Y-T). We still need a, the "autonomous spending", or the amount consumers would consume if they had no disposable income. We can do this by plugging in the point we're given: 4000=a+.7(5500-500). Solving this we get a=500. So C=500+.7(Y-T)

b. Find the aggregate expenditure function, AE, as a function of disposable income.

AE=C+I+G+(X-M)=500+.7(Y-T)+1000+500=2000+.7(Y-T)

(Note that G=T=$500 because the government runs a balanced budget.)

c. Plot Y and AE against Y, and find the equilibrium point. (I.e. where AE=Y-T)



Equilibrium: Y=AE=2000+.7(Y-T)

Then Y=$5,500

Note that we could also do this whole analysis as a function of Y instead of a function of (Y-T). It just involves rearranging the terms a little bit.

d. Suppose the economy is now at an AE level that is to the right of the equilibrium point, what happens to inventory? Is this an economic boom or recession? What policies can government use so that the economy will move to the equilibrium point?

The inventory will goes up since Y is greater than AE when AE level is to the right of the equilibrium point. The economy is in a recession. The government should increase its spending or reduce tax.

In lecture, we will show you that we can set AE=Y and solve for Y. This yields the following equation:

Y = [1/(1−b)]*[$a - b(T - TR)+ I +G +(X - M)$]

The first term, (1/(1-b)) is called the expenditure multiplier, and tells you by how much Y increases per dollar change in autonomous expenditure.

e. By how much will Y increase if we increase “a” by $100?

We have to find the value of the multiplier and then multiply in by 100.

1/(1-b)=1/(1-.7)=1/.3=3.33….

So Y will increase by $333

f. Will Y increase or decrease if we change the MPS to .4?

MPC decreases

By using $Y = [1/(1-b)]*[a - b(T - TR) + I + G + (X - M)]$,

Y= [1/(1−b)]*[500-b(500-0)+1000+500+0],

Then in equilibrium, if 1-b=0.3, Y=5,500; if 1-b=0.4, Y=4,250

This implies smaller Y.

An easier way to see it might be to look at the graph in part c. If we decrease b, the AE line gets less steep, and the new equilibrium point is smaller.

Exam-Style Problems

1. Capital Inflow (KI)

For the next two questions, consider the following information about the Macroland economy in 2012:

GDP=$15 billion

Taxes = $4 billion

Private savings = $3 billion

Investment = $4

Consumption =$9

Net Capital Inflows =$0

1. Does the government run a deficit or a surplus? (Hint: You need to find G and TR.)

a. Deficit

b. Surplus

Answer: b

The government runs a surplus if SG>0.

We know SG=T-TR-G, so we need to find TR and G

We can get G from GDP=C+I+G , 15=9+4+G, so G=2

We can get TR from Sprivate=GDP+TR-T-C, 3=15+TR-4-9, so TR=1

Thus SG=4-1-2=1>0, so it is a surplus

2. Which is larger: Leakages or National Savings?

a. Leakages

b. National Savings

Answer: a

Leakages = T-TR+SP= 4-1+3=6

National Savings=SP+SG=3+1=4

3. The government of Mankiwland runs a budget surplus. If the budget surplus decreases, the interest rate will_____ and private investment will _____.

a. increase, increase

b. decrease, increase

c. increase, decrease

d. decrease, decrease

Answer : c

When the government is running a surplus, the demand for loanable funds decreases. (Alternatively, the supply of loanable funds increases.) This leads to a lower interest rate than would exist in a "balanced budget" scenario, which in turn leads to a greater amount of private investment. If this surplus were to decrease, we would get closer to the "balanced budget" scenario, so the interest rate increases and private investment decreases.

2. Keynesian Economics

1. In the closed economy of Macroland, the supply of loanable funds is given by r=1+.002S and the demand for loanable funds is given by r=8-.005S. Suppose the government suddenly begins running a $700 deficit. As a result of this deficit, consumer spending will_____.

a. increase by $500

b. decrease by $500

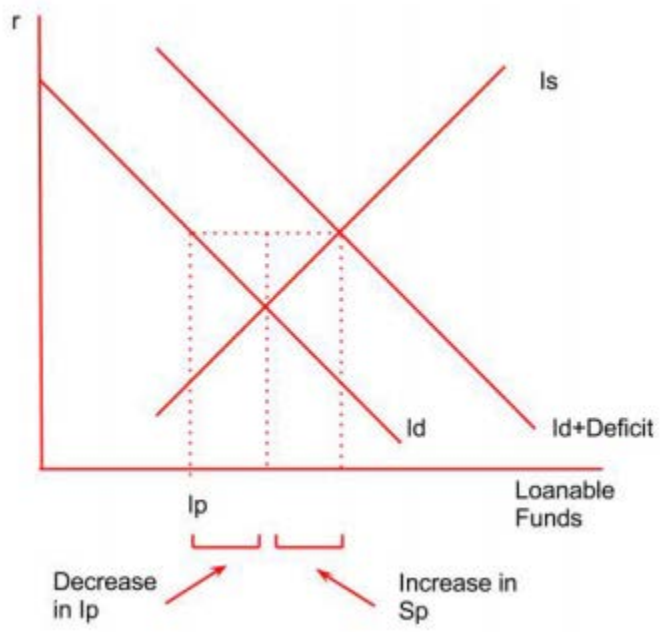
c. increase by $200

d. decrease by $200

Answer: B

Setting supply and demand equal give I=1000 and r=4 at initial equilibrium

With r on y-axis and loanable funds on x-axis:



Change in Sp= —Change in C

Shift the demand curve to the right to include the deficit:

r=8-.005(x-700)=11.5-.005x where x is supply of loanable funds

Setting the equation equal to the supply curve gives new level of Is=1500

private savings increased by 500 ☐ private consumption decreased by 500

2. If net exports are positive, which must be larger: national savings or investment?

a. national savings

b. investment

Answer: A

X-M>0, KI<0, NS+KI<NS, so I<NS

3. Krugmanland in a closed economy. The supply of loanable funds is given by r=.25S. The demand for loanable funds is given by r=10-.25S. Suppose Krugmanland opens to trade and private savings increase by 4. What is the value of capital inflows?

a. 8

b. 4

c. -4

d. -8

Answer: D

Initial equilibrium: r=5%, S=20. When S=24, r=6%. At 6%, domestic demand for loanable funds =16. The difference, 8, must be capital flowing abroad. So capital inflows must be -8

4. Suppose a closed economy suddenly opens to trade and runs a trade deficit. Suppose the government also begins to run a deficit. Compared to the initial, closed-economy, deficit-free equilibrium, the equilibrium interest rate will _____.

a. increase

b. decrease

c. be indeterminate

d. there is not enough information to answer this question

Answer: C

The trade deficit means KI>0 so we shift the supply of loanable funds outward. The government deficit shifts the demand for loanable funds outward. Combining the effects of these two shifts, we get that the change in interest rates is indeterminate.