

Show your work and present your work clearly and neatly!

1. Use the simple Keynesian Model presented in class for this problem. You are given the following information about an economy:

$$\begin{aligned} \text{In equilibrium, } Y_e &= AE \\ AE &= C + I + G + (X - IM) \\ C &= a + b[Y - (T - TR)] \\ Y &= C + (T - TR) + Sp \\ Y_e &= 320 \end{aligned}$$

You are also provided the following table:

Y	(T - TR)	C	I	G	(X - IM)	Sp
0	20	5	40	20	10	-25
100	20		40	20	10	
200	20	155	40	20	10	25

$$\begin{aligned} Y &= C + (T - TR) + Sp \\ \text{if } Y &= 0 \\ 0 &= 5 + 20 + Sp \\ -25 &= Sp \end{aligned}$$

For this problem assume that (T - TR), I, G and (X - IM) are all autonomously determined outside of the model. Assume that the marginal propensity to consume and autonomous consumption do not change in this problem.

a. (1 point) Write an equation for the consumption function with respect to disposable income, [Y - (T - TR)]. Show all the work you did to find this equation.

$$\begin{aligned} C &= a + b[Y - (T - TR)] \\ C &= a + .75[Y - (T - TR)] \\ 5 &= a + .75[-20] \\ 20 &= a \\ \boxed{C} &= \boxed{20 + .75[Y - (T - TR)]} \end{aligned}$$

$$MPS = \frac{\Delta Sp}{\Delta(Y - (T - TR))} = \frac{50}{200} = .25$$

$$MPC = 1 - MPS = 1 - .25 = .75$$

or Alternatively if Y = 200

$$\begin{aligned} Y &= C + (T - TR) + Sp \\ 200 &= C + 20 + 25 \\ 155 &= C \\ MPC &= \frac{\Delta C}{\Delta(Y - (T - TR))} = \frac{150}{200} = .75 \end{aligned}$$

b. (1 point) What is the equilibrium level of GDP, Y_e , for this economy? Show your work.

$$\begin{aligned} Y &= AE, \text{ in eq } \Rightarrow Y = C + I + G + (X - IM) \\ Y_e &= 20 + .75[Y_e - (T - TR)] + 40 + 20 + 10 \\ Y_e &= 90 + .75Y_e - .75(20) \\ .25Y_e &= 90 - 15 \\ .25Y_e &= 75 \\ Y_e &= 300 \end{aligned}$$

c. (1 point) Given your answer in (b), describe this economy and how it is performing. Make sure you identify whether the economy is in a recession or a boom and what is happening to the level of unemployment in this economy. Explain the reasoning behind your answers!

$Y_e < Y_{fe} \Rightarrow$ The economy is in a recession & unemployment is high. There is too little spending.

d. (1 point) Suppose that this economy wishes to use fiscal policy to return the economy to Y_{fe} . Describe fully the fiscal policy options that could be implemented to reach full employment verbally.

To reach Y_{fe} the government could increase government spending or decrease taxes.

e. (1 point) Provide the numeric values for the fiscal policy you described in (d). Make sure your answer provides two different types of fiscal policy that could be implemented in this economy so that this economy reaches Y_{fe} . Show your work.

$$\begin{aligned} i) \Delta Y &= \left(\frac{1}{1-b}\right)(\Delta G) \\ 20 &= (4)(\Delta G) \\ \Delta G &= 5 \quad \text{Increase government spending by } \$5 \end{aligned}$$

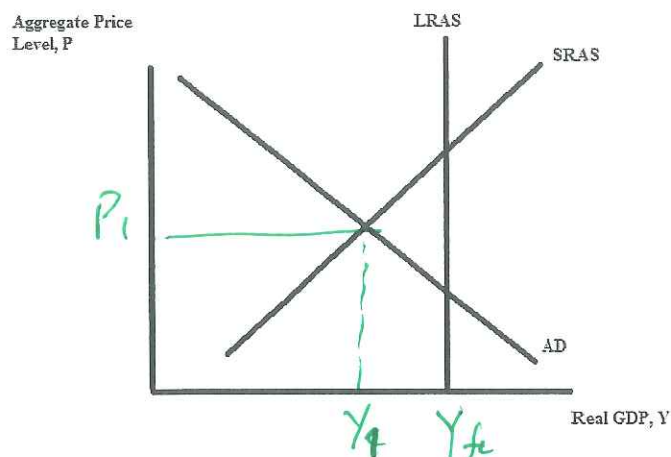
$$\begin{aligned} ii) \Delta Y &= \left(\frac{-b}{1-b}\right)(\Delta T) \\ 20 &= (-3)(\Delta T) \\ \Delta T &= -\frac{20}{3} \quad \text{Decrease taxes by } -\frac{20}{3} \text{ or } -\$6.67 \end{aligned}$$

f. (1 point) Suppose that this economy has passed a balanced budget amendment so that any increase in government spending must be matched by an increase in taxes, or any decrease in taxes must be matched by a decrease in government spending. Calculate the cost of the fiscal policy to reach Y_{fe} under the assumption that there is a balanced budget amendment.

$$\begin{aligned} \Delta G &= \Delta T \\ \Delta Y &= \left(\frac{1}{1-b}\right)\Delta G + \left(\frac{-b}{1-b}\right)\Delta T \\ 20 &= 4\Delta G + (-3)\Delta G \\ 20 &= \Delta G \end{aligned}$$

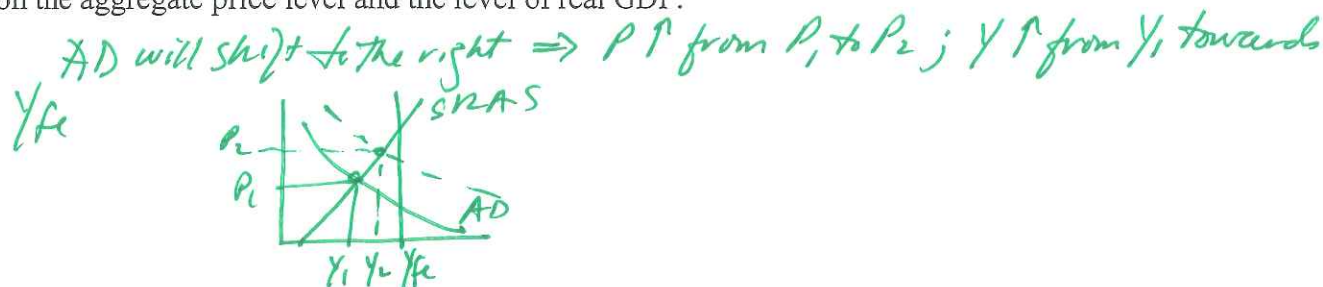
$\uparrow$ government spending & taxes by 20 to reach Y_{fe}

2. Use the AD/AS Model discussed in class to answer this question. You are provided the following graph on an economy where SRAS is the short-run aggregate supply curve, LRAS is the long-run aggregate supply curve, and AD is the aggregate demand curve.



a. (1.5 points) On the graph, label the full employment level of real GDP, Y_{fe} , the short-run equilibrium level of real GDP, Y_1 , and the short-run aggregate price level, P_1 .

b. (1 point) Holding everything else constant, suppose that the government engages in fiscal policy in the form of increased government spending. Predict the short-run effect of this policy on the aggregate price level and the level of real GDP.



c. (1.5 points) Return to the original situation. If the government does not engage in fiscal policy or monetary policy, what will happen in the long-run in this economy? Be specific about the adjustment process that will result in this economy reaching its long-run equilibrium.

In the LR the SRAS will shift to the right due to decreasing nominal wages. At Y_1 the unemployment rate is high & eventually unemployed workers will accept lower nominal wages. ~~The price~~ the aggregate price level will decrease from P_2 and output will return to Y_{fe} .

