

Economics 102
 Summer 2017
 Quiz #4
 June, 21, 2017

Name ANNOTATED KEY

Write all answers neatly and legibly.

1. Use the short-run Keynesian Model to answer this set of questions. You are given the following information:

- $C = 10 + .8(Y - T)$ where C is consumption spending, Y is real GDP, and T is taxes
- $T = 20$
- $TR = 0$ where TR is transfers
- $G = 10$ where G is government spending
- $I = 10$ where I is planned private investment spending
- $X - IM = 5$ where X is exports and IM is imports

a. (2 points) Examine the above information and then answer the following questions:

- i. This economy is operating with a government budget Budget surplus.
- ii. This economy is operating with a trade surplus.
- iii. This country is (tending to) borrowing from) foreign countries.
- iv. This country's private saving function, Sp, with respect to real GDP can be written as the equation: $Sp = -14 + .2Y$.

- i) $G - (T - TR) = 10 - 20 = -10$ since $G < (T - TR) \Rightarrow$ Budget surplus
- ii) $X > IM \Rightarrow$ Trade surplus
- iii) if $X - IM > 0$ then $IM - X < 0 \Rightarrow K1 < 0 \Rightarrow$ lending to foreigners
- iv) $Sp = -10 + (1 - .8)(Y - T)$
 $Sp = -10 + .2(Y - T)$ this w/respect to $(Y - T)$ | $Sp = -10 + .2(Y - 10)$
 $Sp = -10 + .2Y - 4$ | $Sp = -14 + .2Y$ this w/respect to real GDP

b. (1 point) Given the above information calculate the equilibrium values of Y and C for this economy. Show your work to get full credit. Put your final answer in the provided blanks.

Equilibrium level of Y = 95
 Equilibrium level of C = 70

In equilibrium, $Y = AE$
 $Y = C + I + G + (X - IM)$
 $Y = 10 + .8(Y - 20) + 10 + 10 + 5$
 $.2Y = 35 - 16$
 $.2Y = 19$
 $Y_e = 95$
 $C = 10 + .8(95 - 20)$
 $C = 10 + .8(75)$
 $C = 10 + 60$
 $C_e = 70$

c. (1 point) Suppose the government increases its level of government spending to 30 ($G' = 30$). Holding everything else constant, what will be the direction and change in real GDP due to this spending change? Show your work to get full credit.
 The direction and change in real GDP will be an increase of 100.

2 Methods:

$$\Delta Y = \left(\frac{1}{1-b}\right) (\Delta G)$$

$$\Delta Y = \left(\frac{1}{1-.8}\right) (20)$$

$$\Delta Y = 5(20) = 100$$

$$\text{or } Y' = C + I + G' + (X - IM)$$

$$Y' = 10 + .8(Y' - T) + 10 + 30 + 5$$

$$.2Y' = 55 + .8(-20)$$

$$.2Y' = 55 - 16$$

$$.2Y' = 39$$

$$Y' = 195$$

$$\Delta Y = Y' - Y = 195 - 95 = 100$$

$$\begin{array}{r} 55 \\ -16 \\ \hline 39 \\ \times 5 \\ \hline 195 \end{array}$$

d. (2 points) Go back to the initial information. Suppose that this government decides to increase government spending by 20 and taxes by 10 in order that they have a balanced budget. Write a verbal statement of what you think the impact of these spending changes will be on real GDP in this economy given this model and the initial information. No numbers necessary here: for full credit give a well-reasoned, logical answer.

my logic

$$\left[\begin{array}{l} \text{An } \uparrow \text{ in } G \Rightarrow \uparrow \text{ in } Y \\ \Delta Y = \left(\frac{1}{1-b}\right) \Delta G \quad \text{since } \Delta G > 0 \Rightarrow \Delta Y > 0 \\ \text{An } \uparrow \text{ in } T \Rightarrow \downarrow \text{ in } Y \\ \Delta Y = \left(\frac{-b}{1-b}\right) \Delta T \quad \text{since } \Delta T > 0 \Rightarrow \Delta Y < 0 \end{array} \right.$$

my written answer

If the government increases both G and T with $G > T$ this will cause real GDP to increase since the multiplier effect of a change in G is greater than the multiplier effect of a change in T .

the numbers

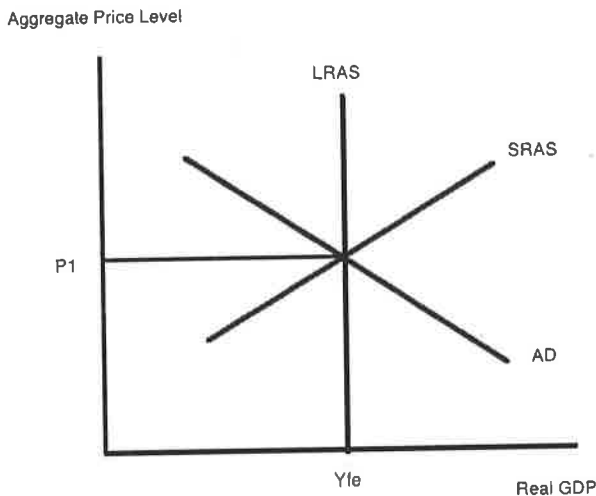
Here are the #'s:

$$\Delta Y = \left(\frac{1}{1-b}\right) \Delta G + \left(\frac{-b}{1-b}\right) \Delta T$$

$$\Delta Y = \left(\frac{1}{.2}\right) (20) + \left(\frac{-.8}{.2}\right) (10)$$

$$\Delta Y = 100 + (-40) = 60$$

2. Consider an economy that is initially in long run equilibrium where Y , real GDP, is at its full employment level (Y_{fe}) and the aggregate price level is P_1 . **For this economy assume that its aggregate production function exhibits diminishing returns.** The following graph represents this economy where LRAS is the long run aggregate supply curve, SRAS is the short run aggregate supply curve, and AD is the aggregate demand curve:

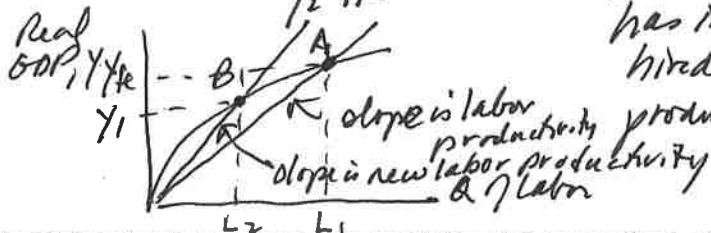


a. (1 point) Given the initial situation, if the government increases its level of spending and everything else is held constant, what does this model predict will happen to the equilibrium level of output and the equilibrium aggregate price level in the short run? Explain your answer for full credit.

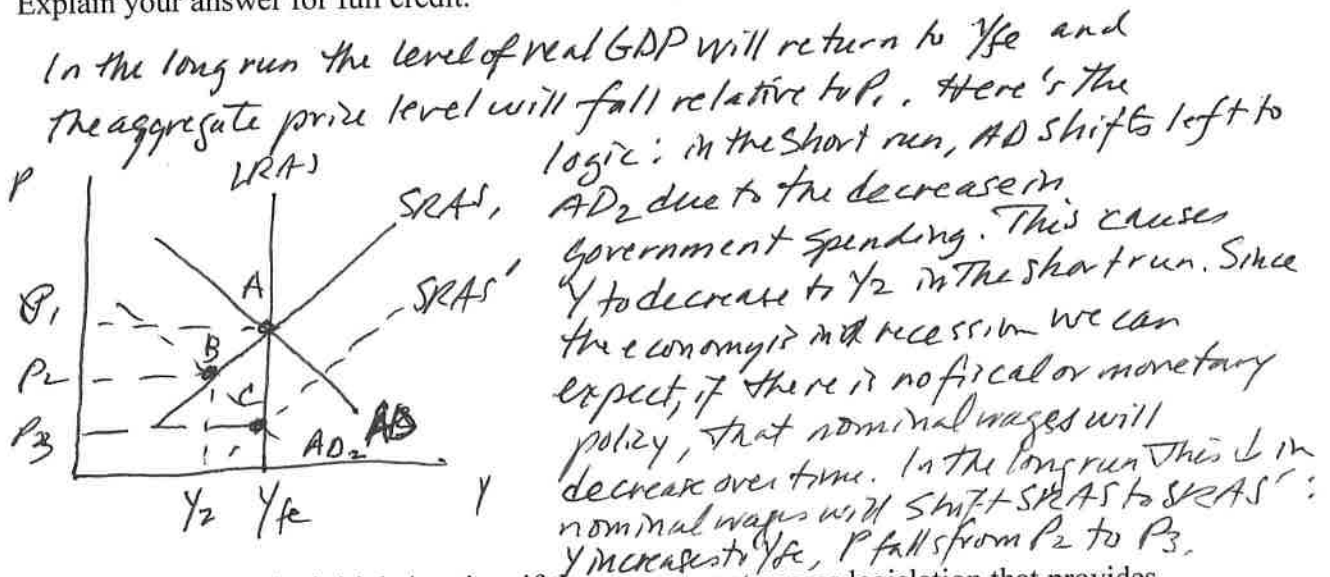
In the short run AD will shift to the right. This will cause a movement along the SRAS curve resulting in an increase in real GDP and an increase in the aggregate price level. [See graph]

b. (1 point) Given the initial situation, if the government increases the level of net taxation in the economy and everything else is held constant, what does this model predict will happen to the unemployment rate in this economy in the short run? What do you predict will happen to labor productivity in the short run for this economy? Explain your answer for full credit.

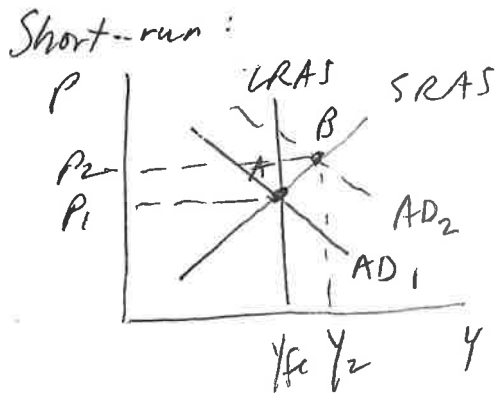
When the government increases the level of net taxation in the economy this causes the AD to shift to the left i.e. real GDP will decrease below Y_{fe} . The economy in the short run is in a recession & that implies the level of unemployment has increased. Since less labor is being hired for a given capital stock, labor productivity will increase.



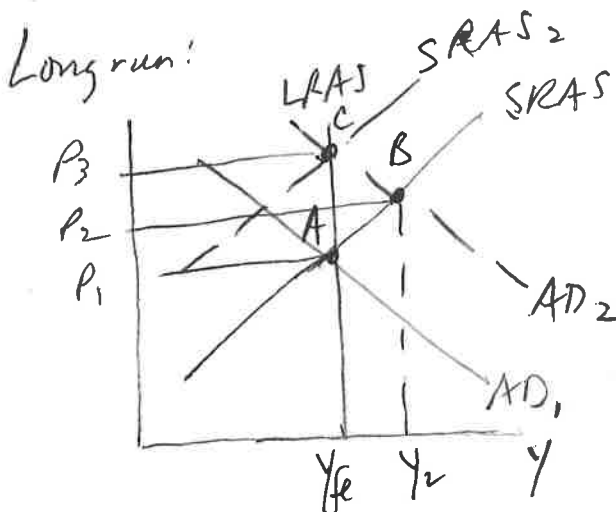
c. (1 point) Given the initial situation, if the government decreases its level of spending and everything else is held constant, what does this model predict will happen to the equilibrium level of output and the equilibrium aggregate price level in the long run? Explain your answer for full credit.



d. (1 point) Given the initial situation, if the government passes legislation that provides businesses with an incentive to invest then what do you predict will happen in the short run to real GDP in this economy? What do you predict will happen in the long run in this economy? Hold everything else constant when you do your analysis. Explain your answer for full credit.



In the short run, AD shifts right and $Y \uparrow$ from Y_{fe} to Y_2 and $P \uparrow$ from P_1 to P_2 .



In the long run, SRAS shifts left due to rising nominal wages brought on by the economic boom ($Y_2 > Y_{fe}$). Y returns from Y_2 to Y_{fe} - that is, Y decreases from Y_2 & returns to its original level. P rises from P_2 to P_3 .