

EC1010: Solutions: Tutorial Questions 9

April 12, 2010

1. The government budget constraint is

$$T_1 + T_2 + T_3 + \dots = G_1 + G_2 + G_3 + \dots$$

Implicit in the question is the fact that the government cannot attain any further revenue via taxation. Thus, if G_1 rises today, then government expenditure (on schools, infrastructure etc.) must fall in the future.¹

2. By cutting expenditure—such as public sector pay or unemployment insurance—*permanently* or by taking measures—such as raising VAT—*permanently*, the government could attain structural balance. (Here I am implicitly assuming an increase in tax rates will in fact raise revenue.) As the economy recovers, the actual deficit will fall towards the level of the structural deficit. By reducing tax revenue and increasing expenditures (e.g., on dole payments), automatic stabilizers raise the cyclical deficit in a recession. Conversely, by raising tax revenues and reducing expenditures (e.g., on dole payments), automatic stabilizers increase the cyclical balance in a boom.
3. See Figures 1 and 2. In the short run, output increases to Y' , while the price level remains constant. However, because $Y > Y_n$, this situation is unsustainable. In the long run (after a year, say), the price level rises, causing output to return to potential. According to this analysis, money is neutral in the long run (which is consistent with the quantity theory.)
4. See Figure 3. Initially, the economy is at an output level $Y_1 < Y_n$. To close the output gap, $Y_1 - Y_n$, the government could shift demand by raising expenditure; this is *expansionary fiscal policy*. Similarly, by increasing the money supply, the central bank could also shift demand; this is *expansionary monetary policy*.
5. a. See Figure 4.

¹A minor technical point: The presentation of the government budget constraint implicitly assumes interest rates are zero.

- b. Yes, Figure 1 shows that increases in the price of oil coincide with recessions. This is also what the AS-AD analysis and Figure 4 predicts.
 - c. Because output falls below potential, Okun's law predicts that unemployment will rise above the NAIRU (or natural rate.)
 - d. See Figure 5. Because of the induced recession, prices will eventually fall. As prices fall, the output level will revert to potential.
- 6.
- a. Because people would try to avail of the temporary reduction in VAT rates, aggregate demand would rise.
 - b. The reduction in marginal tax rates would likely raise labour supply, causing an increase in the productive capacity of the country. As a result, potential output would also rise.
 - c. See Figure 6.
 - d. See Figure 7. Because output is above potential, the price level would rise; it would rise until output reached the new, higher level of potential. (However, if the shift in the LRAS curve was relatively small compared to the shift in the AD curve, prices could in fact *rise*.)
 - e. A Keynesian policy would be to raise government expenditure. By contrast, supply-side economists are more concerned with changing peoples' *incentives*.
- 7.
- a. Because an increase in *TFP* increases the productive capacity of the country, potential output would rise.
 - b. See Figure 8.
 - c. See Figure 9. Because the initial level of output (determined by the intersection of *AD* and *SRAS*) is now below the new, higher level of potential, the price level would eventually fall.
 - d. See Figure 10. If the central bank wished to prevent deflation, it would increase the money supply and shift the AD curve outwards. This way, the central bank can short-circuit the adjustment process.

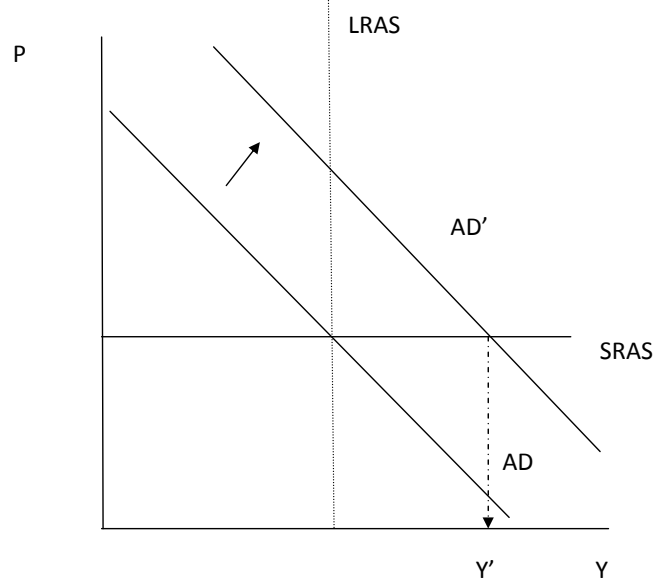


Figure 1: INCREASE IN MONEY SUPPLY, CAUSING INCREASE IN AGGREGATE DEMAND AND IN TURN PRODUCTION

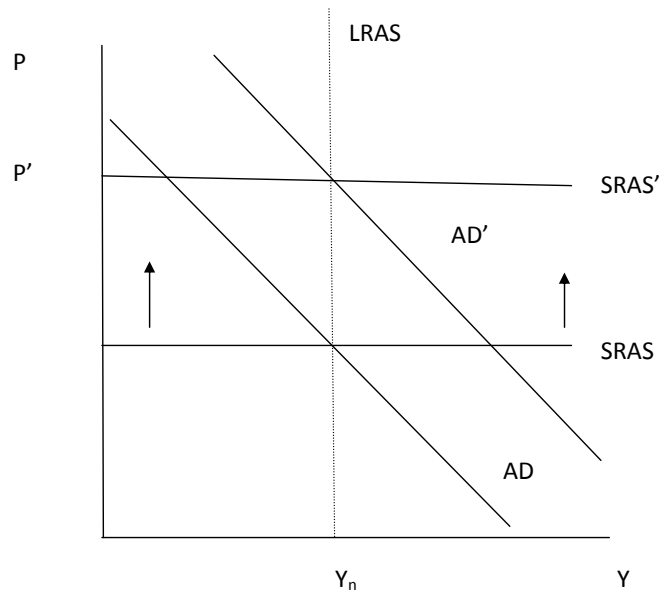


Figure 2: LONG-RUN RESPONSE: EVENTUALLY PRICES RISE AND ECONOMY RETURNS TO POTENTIAL OUTPUT Y_n

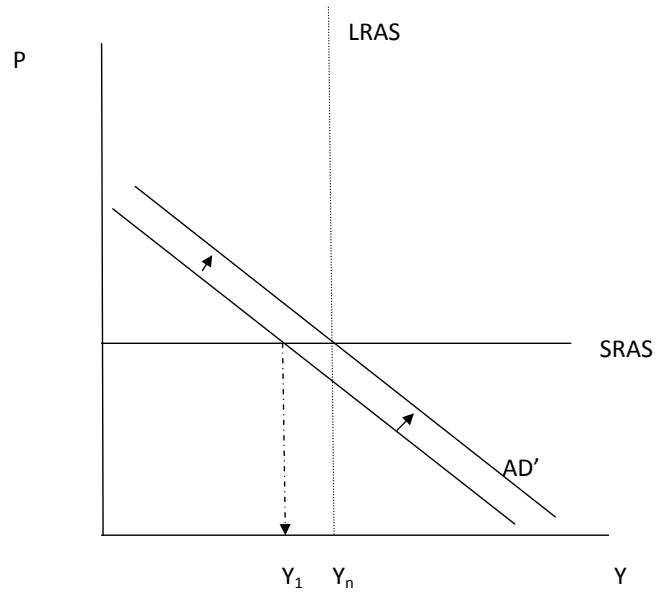


Figure 3: STABILIZATION POLICY

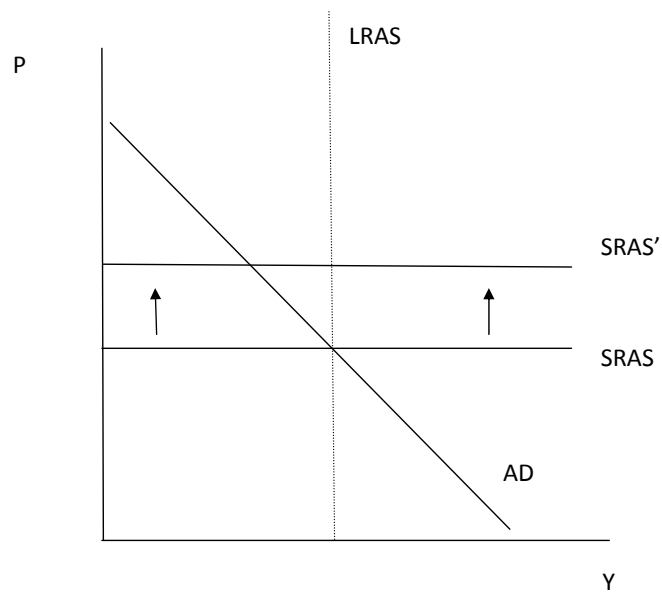


Figure 4: OIL PRICE INCREASE, BRINGING THE ECONOMY TO THE INTERSECTION OF THE AD CURVE AND $SRAS'$, AND CREATING A NEGATIVE OUTPUT GAP.

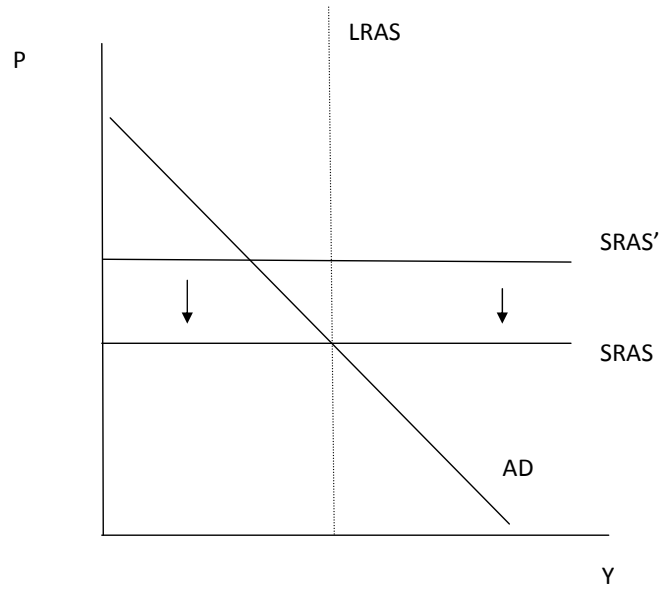


Figure 5: LONG-RUN RESPONSE TO OIL PRICE INCREASE: BECAUSE $Y < Y_n$, THE PRICE LEVEL EVENTUALLY FALLS, AND THE ECONOMY RETURNS TO POTENTIAL.

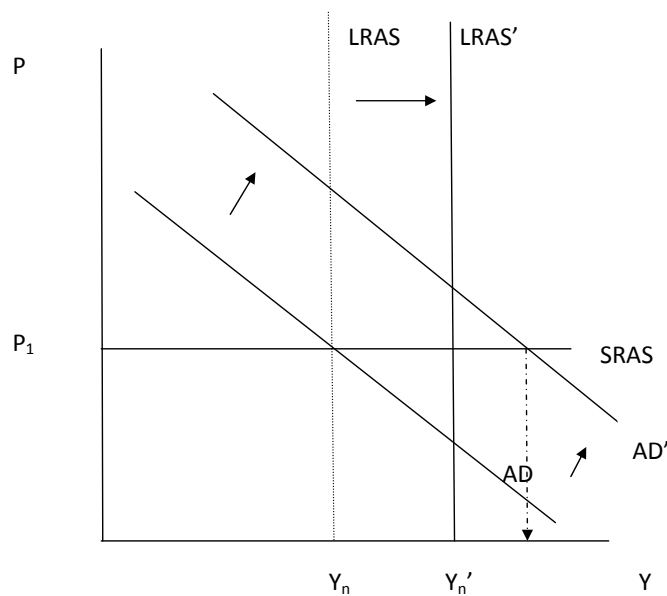


Figure 6: SHORT-RUN EQUILIBRIUM: FALL IN TAX RATES AND INCREASE IN DEMAND

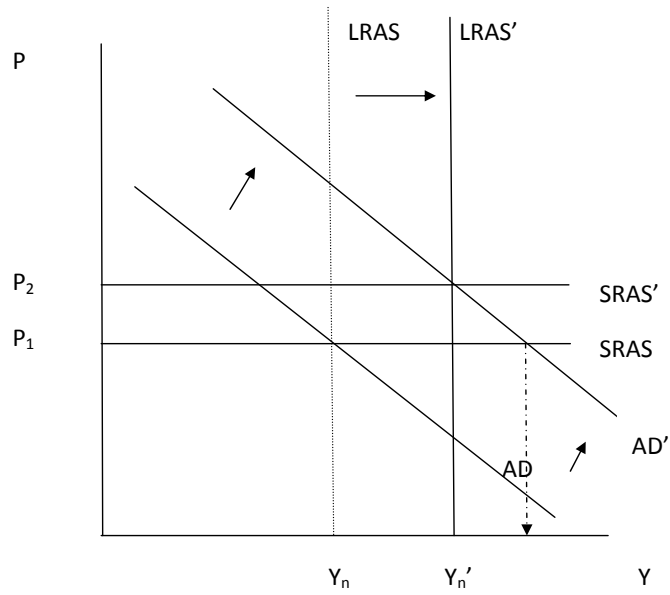


Figure 7: ADJUSTMENT IN LONG RUN

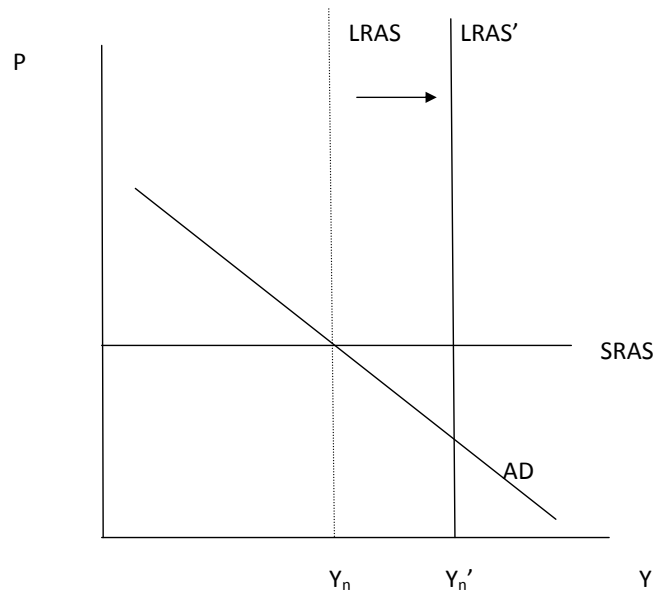


Figure 8: INCREASE IN POTENTIAL OUTPUT

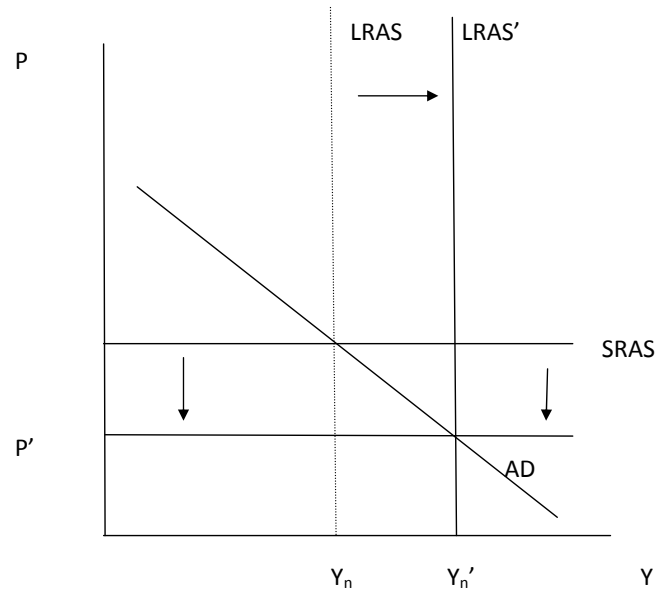


Figure 9: PRICE ADJUSTMENT AFTER INCREASE IN POTENTIAL OUTPUT

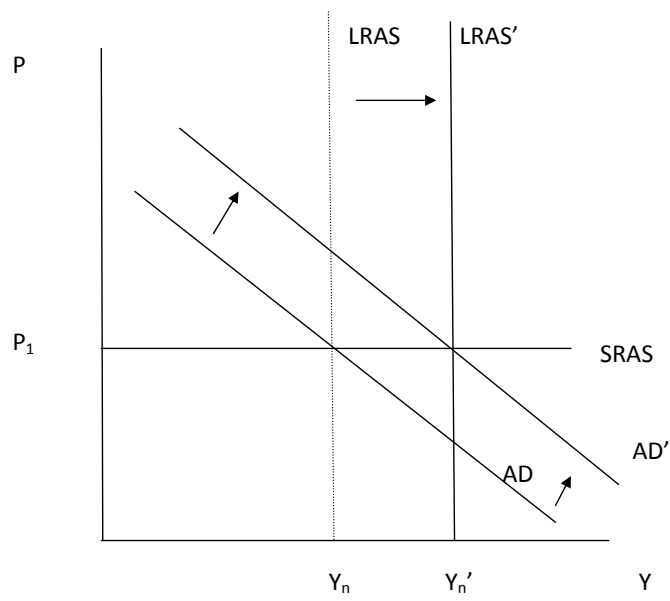


Figure 10: RESPONSE OF BANK TO PREVENT DEFLATION.