

Problem Set # 7

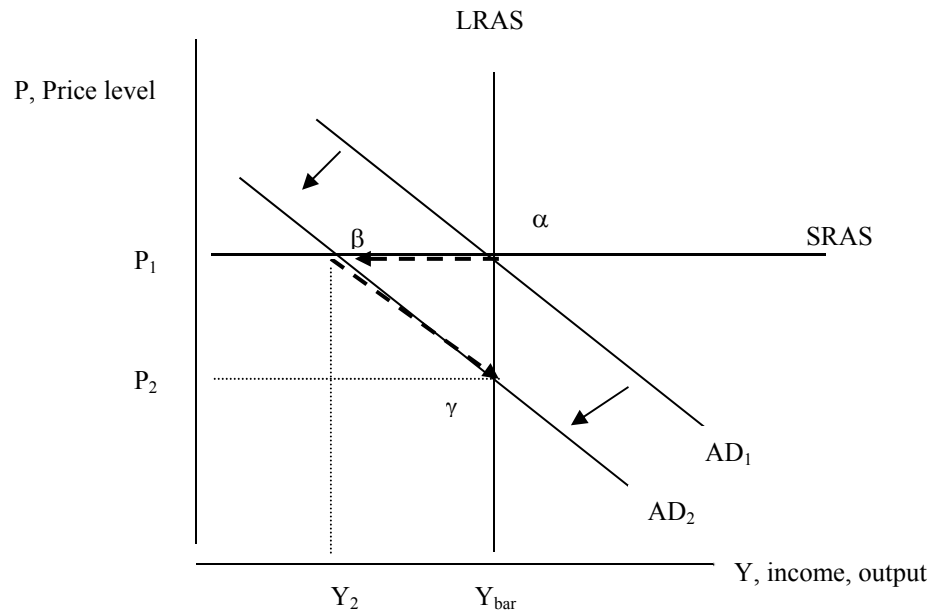
Solutions

Chapter 10 #1

- Interest-bearing checking accounts make holding money more attractive. (Due to their 'instant access' nature, checking account balances are counted as 'cash' or 'money'). This increases the demand for money
- The increase in money demand is equivalent to a decrease in the velocity of money. Recall the quantity equation

$$M/P = kY$$

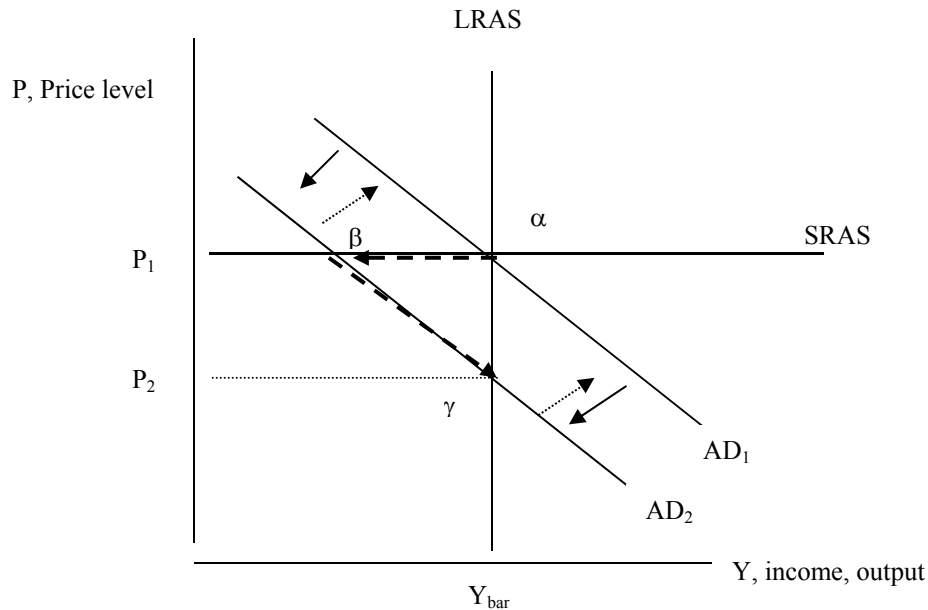
where $k = 1/V$. For this equation to hold, an increase in real money balances for a given amount of output means that k must increase; that is, velocity falls. Because interest on checking accounts encourages people to hold money, dollars circulate less frequently. If the Fed keeps the money supply the same, the decrease in velocity shifts the aggregate demand curve downward, as in the figure below. In the short run when prices are sticky, the economy moves from the initial equilibrium, point α , to the short-run equilibrium, point β . The drop in aggregate demand reduces the output of the economy below the natural rate.



Over time, the low level of aggregate demand causes prices and wages to fall. As prices fall, output gradually rises until it reaches the natural-rate level of output at point γ .

Chapter 10 #3

- a. An exogenous decrease in the velocity of money causes the aggregate demand curve to shift downward. In the short run, prices are fixed, so output falls, as in the figure below.

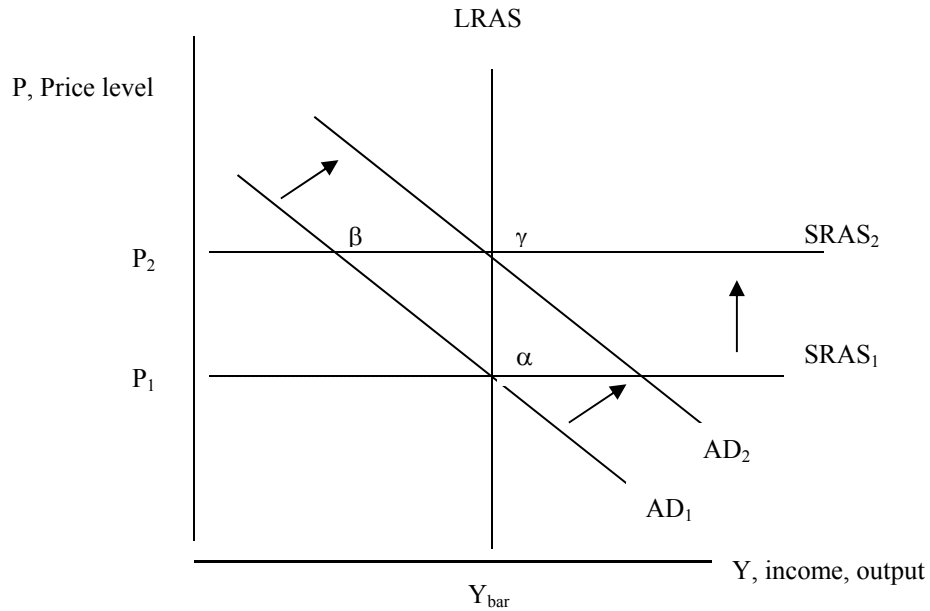


If the Fed wants to keep output and employment at their natural-rate levels, it must increase aggregate demand to offset the decrease in velocity. By increasing the money supply, the Fed can shift the aggregate demand curve upward, restoring the economy to its original equilibrium at point α . Both the price level and output remain constant.

If the Fed wants to keep prices stable, then it wants to avoid the long-run adjustment to a lower price level at point γ in the figure above. Therefore, it should increase the money supply and shift the aggregate demand curve upward, again restoring the original equilibrium at point α . \square

Thus, both Feds make the same choice of policy in response to this demand shock.

- b. An exogenous increase in the price of oil is an adverse supply shock that causes the short-run aggregate supply curve to shift upward, as in the figure below.



If the Fed cares about keeping output and employment at their natural-rate levels, then it should increase aggregate demand by increasing the money supply. This policy response shifts the aggregate demand curve upwards, as shown in the shift from AD_1 to AD_2 above. In this case, the economy immediately reaches a new equilibrium at point γ . The price level at point γ is permanently higher, but there is no loss in output associated with the adverse supply shock.

If the Fed cares about keeping prices stable, then there is no policy response it can implement. In the short run, the price level stays at the higher level P_2 . If the Fed increases aggregate demand, then the economy ends up with a permanently higher price level. Hence, the Fed must simply wait, holding aggregate demand constant. Eventually, prices fall to restore full employment at the old price level P_1 . But the cost of this process is a prolonged recession.

Thus, the two Feds make different policy choice in response to a supply shock.

The text's derivation of the Keynesian Cross and the IS curve differ from that which we've discussed in class. Both are correct and consistent, depending on the assumptions made. The solutions below are based on the text's version of the model.