2011 EC1010 Final Solutions

May 10, 2011

Multiple Choice Questions

26 A

27 B

28 D

29 C

30 B

31 A or D

32 B

33 D

34 D

35 B

36 B

37 C or D

38 D

39 B

40 C

41 C

42 A

43 D

44 B

45 C

46 C

47 A

48 D

49 D

50 C

Question 4

a.) i.) See Figure 1. A rise in TFP causes a rise in the standard of living through two effects. First, it raises output directly via an increase in A. Second, the rise in output raises the stock of savings, inducing a rise in the steady state capital stock. For both reasons, the standard of living rises.

ii.) See Figure 2. All economies are heading towards the same steady state. Because growth is increasing in the distance to steady state, those further from steady state will exhibit higher growth rates.

b.) i.) According to the quantity theory of money, inflation is $g_P = g_M - g_Y$, where g_M denotes money growth and g_Y output growth. For the figures given, inflation is $g_P = g_M - g_Y = 3 - 2 = 1\%$.

ii.) The Fisher equation for the real return is $r = i - g_P$, where i denotes the nominal interest rate. As a result, to attain a required *real* return of 2%, the nominal rate i must be $r + g_P = 4 + 1 = 5\%$.

iii.) According to the theory of *purchasing power parity*, the real exchange rate, $\frac{eP}{P^*}$, equals one. Let e denote the country's nominal exchange rate, P its price level, and P^* the price level abroad. Thus, if P is growing at 1 percent, while P^* is constant, then to ensure the real exchange rate, $\frac{eP}{P^*}$, is constant, e must be falling; i.e., the currency is depreciating relative to foreign ones. Intuitively, the rise in domestic prices leads to a fall in export demand, which causes the exchange rate to depreciate (or, alternatively, the rise in the domestic money supply causes a weaker currency.) This depreciation is sufficient to make domestic exports equally expensive as goods from anywhere else in the world.

Question 5

a.) i.) See Figure 3. The reduction in the supply of savings causes an excess demand for loanable funds. In turn, this causes the real interest rate to rise to clear the market.

ii.) See Figure 4. Because the domestic real interest rate rises, domestic assets become relatively attractive. There are two effects. First, demand by domestic residents for foreign assets falls, causing the supply of domestic currency to fall. Second, there is an increase in demand for domestic assets from abroad. This raises the demand for domestic currency. Both effects cause an appreciation of the domestic currency.

iii.) When the government runs a deficit, the interest rate rises, which causes the currency to appreciate. This currency appreciation causes the nominal (and real) exchange rate to rise, reducing demand for exports. This, in turn, can cause a current account deficit.

b.) i.) The real interest remains the same: this is effectively controlled abroad. In a global market for capital, changes in savings by a small open economy have no effect on world interest rates.

ii.) Capital inflows rise by the horizontal distance between S and S'. They increase to fill the gap left by the fall in national savings.

iii.) Net foreign assets fall. As inflows rise, foreigners obtain domestic assets; e.g., they purchase government bonds. As a result, the domestic economy becomes more indebted to abroad and net foreign assets fall in value.

Question 6

i.) According to the permanent income hypothesis, a fall in expected future growth rates would cause consumption to fall today: namely, this changes reduces lifetime income.

ii.) See Figure 5. The fall in consumption demand causes the AD curve to shift inwards, causing a recession. Over time, the recession will reduce costs and, as a result, will cause downward pressure on prices. Prices fall until the economy reverts back to potential.

iii.) Because production falls below potential and prices are expected to fall, the Taylor rule dictates that the central bank lower interest rates.

iv.) Lowing interest rates would raise demand–especially investment and consumption–causing the AD curve to shift outwards again. The central bank lowers rates in an attempt to return output to potential.

v.) A variety of answers are accepted here, but students should convey some knowledge about what during the credit crisis in the U.S. An ideal answer would be: *The financial*

crisis caused banking problems, which caused the money multiplier to fall: because of the precarious position of banks' balance sheets and their levels of capital, they were reluctant to lend. In addition, the rise in uncertainty caused consumption and investment to fall. As a result, aggregate demand fell and the AD curve shifted inwards, causing a recession. In response, the central bank lowered interest rates. However, because of the liquidity trap, they had to engage in quantitative easing; i.e., to raise the money supply and counter the fall in the multiplier, they purchased large quantities of assets. Graphically, they tried to shift the AD curve outwards again.

In any case, to obtain full credit students must refer to issues specific to the crisis (e.g., banking problems, the fall in the money multiplier, the liquidity trap, quantitative easing, etc.) Simply saying there was a recession, which caused AD to shift inwards, is insufficient.

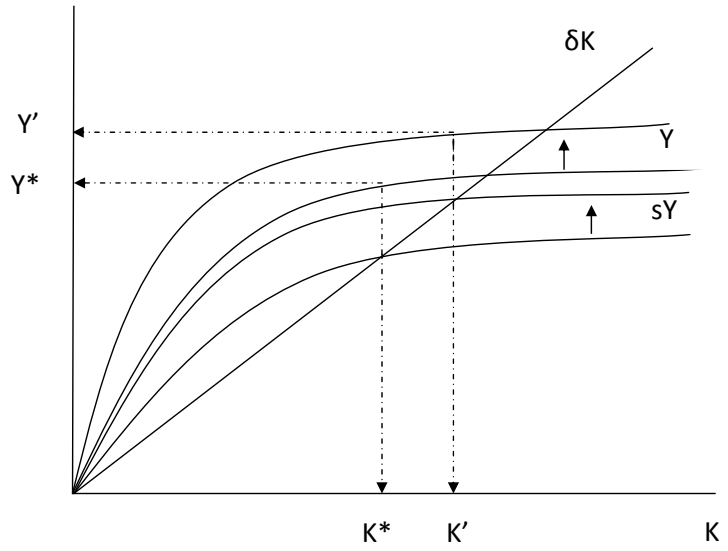

Figure 1: An increase in A. Observe how an increase in A induces an increase in K too.

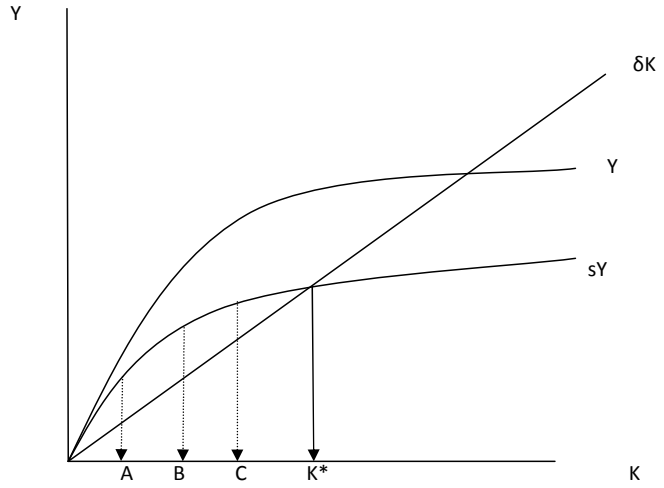

Figure 2: If all countries (e.g., A, B, and C) have the same steady state, they will grow as the move towards the steady state. The growth rate of each depends on the distance to steady state.

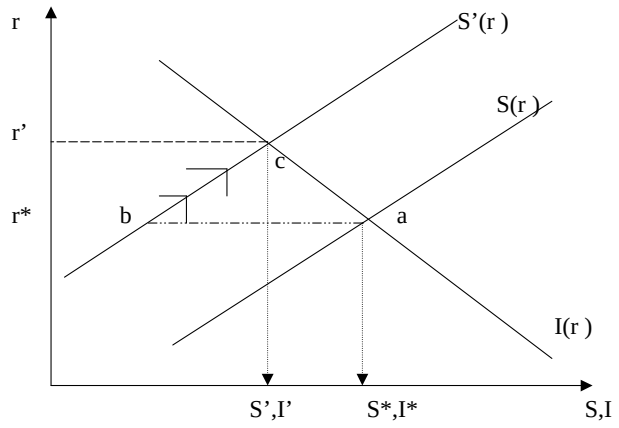

Figure 3: Crowding Out: A fall in government savings—due to permanent tax cuts, thus reducing $T - G$ (the budget balance)—leads to a shift inwards of the saving curve (we initially move from a to b), with the distance between a and b indicating the actual fall in savings. However, in response to rising domestic real rates, savings rise as the economy moves from b to c. In addition, because of the rising interest rate, investment demand falls as we move from a to c.

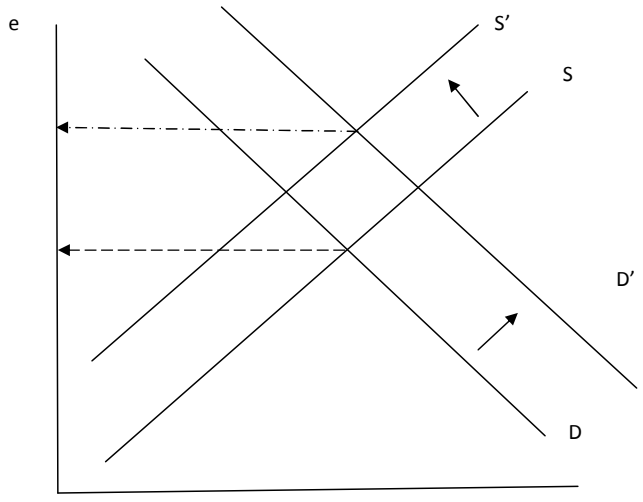

Figure 4: There is a reduction in supply of currency by domestic residents and an increase in demand by foreigners. As a result, the currency appreciates in value.

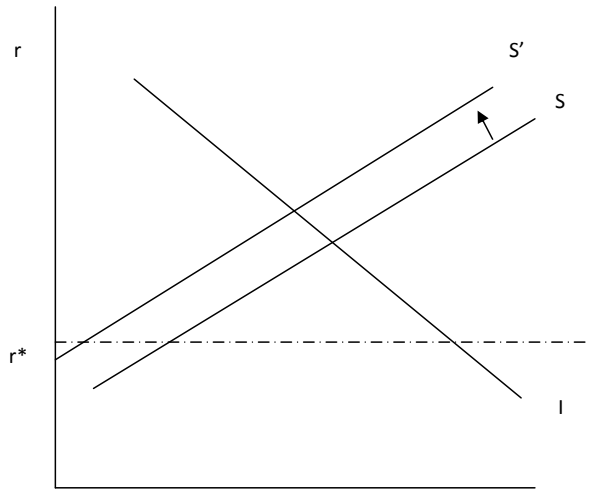

Figure 5: A rise in the budget deficit in a small open economy.

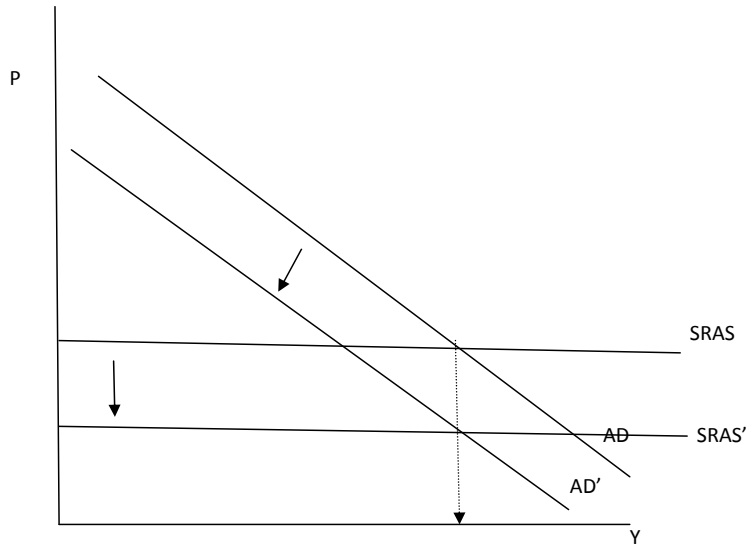

Figure 6: A fall in consumption causes demand to fall, which ultimately causes a recession and falling prices. Prices will continue to fall until the economy returns to potential.

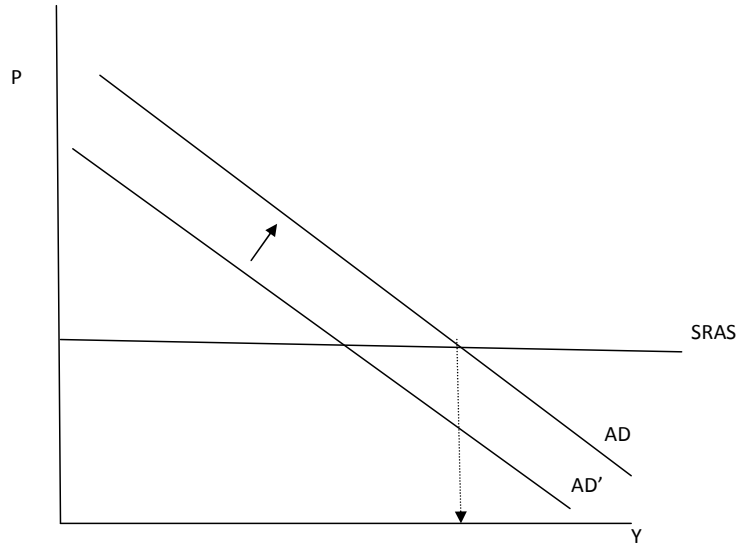

Figure 7: The bank lowers interest rates, causing the AD curve to shift outwards.

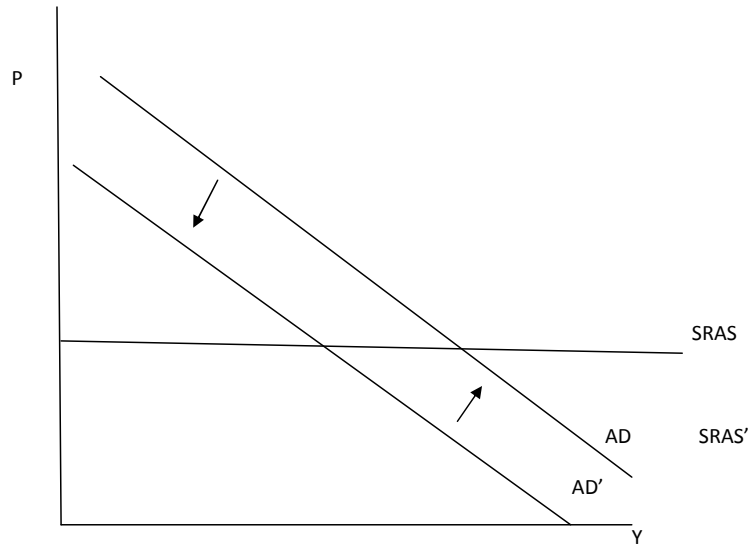

Figure 8: A fall in the money multiplier causes the AD curve to shift inwards. In response the bank engages in quantitative easing, causing the AD curve to shift outwards.