

Final Exam Solutions  
Economics 101a - Fall 2005

**Multiple Choice**

Version 1: 1) e 2) b 3) c 4) c 5) a 6) d 7) d 8) b 9) a 10) c

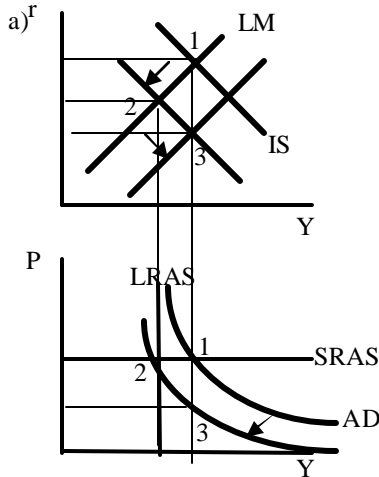
**Problem 1: Growth:**

- a) Steady state condition:  $s f(k) = (\delta+n)k$ ,  $s k^{1/2} = (\delta+n)k$ ,  $k^{1/2} = s / (\delta+n)$ ,  
 so  $k^* = (s / (\delta+n))^2 = (0.20 / (0.10+0))^2 = (0.2/0.1)^2 = 4$ .  
 So  $y^* = k^{*1/2} = 2$   
 And  $c^* = (1-s)y^* = (1-0.20)2 = 1.6$   
 Real rental rate =  $MPK = 0.5(L^*/K^*)^{1/2} = 0.5 k^{*-1/2} = 0.5/2 = 0.25$   
 Real Wage =  $MPL = 0.5(K^*/L^*)^{1/2} = 0.5 k^{*1/2} = 0.5(2) = 1$

- b) Under a rise in saving:  $k^*$  rises,  $c^*$  is ambiguous, real rental rate falls, real wage rises.  
 Note that a rise in saving will raise consumption until the golden rule is achieved, but a rise in saving beyond that point can lead to a fall in consumption in steady state. (a,d,b,a)/(d,a,a,b)

Because the supply of capital is higher, this raises the marginal product of labor, raising the labor demand in the labor market. There is no effect on the supply of labor in this market. As the labor demand curve shifts right along the labor supply, it raises the equilibrium real wage.

**Problem 2: Short Run and Long Run**



The fall in government spending lowers total expenditure and output for a given level of interest rate and price level. This is a leftward shift in the IS curve and AD curve. In the long run, the price falls and raises the real money supply. This requires a rise in  $Y$  or a fall in  $r$  to maintain equilibrium in the money market. This is a rightward shift in the LM curve

- b) Short run:  $r$  falls,  $I$  rises,  $sp$  falls, no change in  $M/P$ . (b,a,b,c)/  
(a,b,c,b)

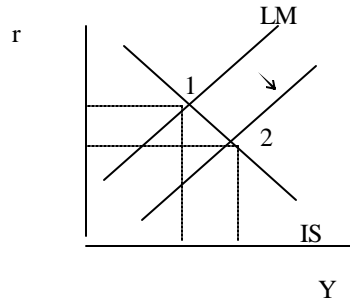
- c) Long run:  $r$  lower,  $I$  higher,  $sp$  at initial,  $M/P$  higher (c,b,a,b)/  
(b,c,b,a)

- d) Since the interest rate is falling here, it means that consumption now would rise in the long run just like investment does. So private saving falls (moves more) in the long run now. This fall in private saving means that the cut in  $G$  raises national saving by less. So the interest rate falls less, and investment rises by less. (b,b,a) / (b,b,a)

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**Problem 3 IS/LM**

a)



A rise in money supply will force the interest rate down to maintain equilibrium in the money market – to raise money demand to equal the higher money supply. A fall in  $r$  for a given  $Y$  is a downward or rightward shift in the LM curve

- b)  $Y$  rises,  $r$  falls,  $I$  rises,  $C$  rises, national saving rises (we know that saving equals investment in equilibrium) (a,b,a,a) / (b,a,a,a)
- c) Investment and output rise more now when  $r$  falls. This means  $r$  does not need to fall as much to restore equilibrium in the money market. (a,b) / (b,a)
- d) Both variables move by less (b,b) / (b,b)

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**Problem 4:**

All but the autonomous  $C$  are possible explanations. (a,b,a,a) / (b,a,b,b)

A fall in autonomous  $C$  is ruled out, since it would lower the interest rate as it shifts the IS curve left, and this would raise investment, which contradicts the given information.