

Final Exam Solution Key Economics 101 (Fall 2009)

Version A: question 1 starts “In the long run...”

Version B: question 1 starts: “Which of the following could...”

Version C: question 1 starts: “If US money growth rises ...”

Multiple Choice:

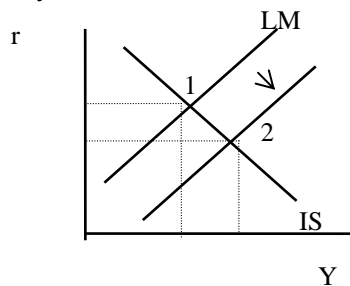
Version A: 1) d 2) c 3) a 4) d 5) b 6) c 7) c 8) d 9) a 10) b

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

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

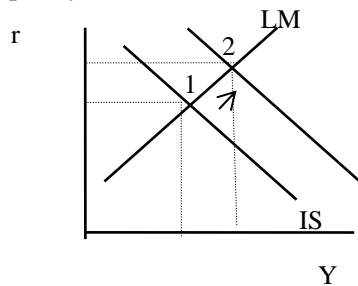
Problem 1: IS-LM Analysis in Short Run

a) Monetary policy:



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

Fiscal (tax cut) policy:



A tax cut stimulates consumption, which raise output for a given interest rate. This is a rightward shift in the IS curve.

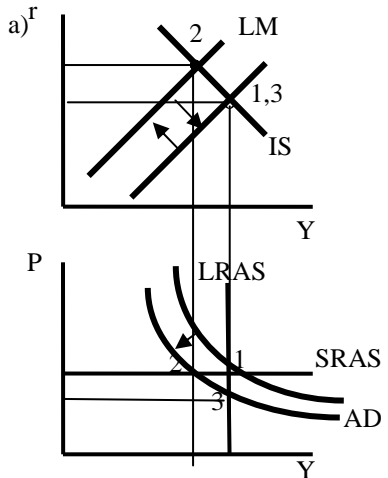
- b) A monetary expansion lowers the interest rate, thus raising investment and hence raising total national saving (since $S=I$). This fiscal expansion does the opposite: it raises the interest rate, crowding out investment, and hence lowering national saving. (You can also tell this last conclusion because $S = Y - C - G$, and C demand must rise more than Y , since the investment part of demand is being crowded out.) Thus the monetary policy would be more desirable in this case, if the government does not want to lower national saving.
- c) Versions A and B: Money demand that is less responsive to the interest rate means that the interest rate must rise MORE in order to clear the money market after a rise in Y , say due to the fiscal expansion. This means the LM curve is steeper, with no effect on the slope of the IS curve. This means that r rises more for a given rise in output, and this crowds out I more, and lowers national saving more. This makes the tax policy a less desirable policy tool for this economy. Version C: Money demand that is more responsive to the interest rate: invert the explanation for versions A and B above.

Version A: c, a, a, a, a, b

Version B: a, c, a, a, a, b

Version C: c, b, b, b, b, a

Problem 2: IS-LM AS-AD Model



a) In the short run, the rise in real money demand means there is an excess demand for liquidity, which raises the interest rate for a given output. This shifts the LM curve level. This makes output fall for a given price level, which shifts the AD curve left. In the long run, the price falls and raises the real money supply to equal the higher money demand. This shifts the LM curve right again, and is a movement down along the new AD curve.

b) Short run: Y falls, r rises, I falls, real money demand does not change (equals M/P in equilibrium which does not change), nominal GDP falls, M/P no change
version A: b,a,b,c,b,c; Ver. B: a,b,c,b,c,b; Ver. C: b,c,b,c,b,a,

c) Long run: price rises, output returns to normal
Version A: a,a,a,c,c,b; Ver. B: a,a,c,c,b,a; Ver. C: a,c,c,b,a,a,

d) The recession is only temporary, since output returns to normal in the long run.

Main idea: While adjustment in the interest rate (and Y) equilibrate the money market in the short run, it is adjustment in price level that does this job in the long run.

Detailed answer: In the short run the fall in income (output) and rise in interest rates keep the quantity of real money demand from rising above the given real money supply (despite the shift in the real money demand function). In the long run, the fall in price level allows the real money supply to rise relative to the nominal money supply, allowing it to equal a higher real money demand at the long run income level.

Problem 3: Neoclassical Model

a) $Y^s = 10 K^{1/2} L^{1/2} = 10 * 10 * 10 = 1000$
 $Y^d = C + I + G = [400 + 0.5(1000-200) - 2000r] + [200] + 200$
 setting $Y_s = Y_d$: $1000 = 1200 - 2000r$
 so $-200 = -2000r$ so $r = 0.10$ or 10%
 $C = [400 + 0.5(1000-200) - 2000 * 0.10]$, $C = 600$
 Real wage = $MPL = 5(K/L)^{1/2} = 5(100/100)^{1/2}$, $W/P = 5$
Version A: $M * 4 = P * Y$, so $P = M * 4 / Y = 1000 * 4 / 1000$, so $P = 2$; ver. B: $P = 4$; ver. C: $P = 1$

b) Cut in G : no effect on real GDP, fall in interest rate, rise in consumption, fall in private saving, no change in national saving. (Since $S = I$, which is fixed, there is no change in national saving. So it must be that the rise in government saving equals a fall in private saving).
Version A: c, b, a, b, c; Version B: b, a, b, c, c; Version C: a, b, c, c, b;

c) rise in money supply: nominal variables rise; real variables do not change
Version A: c, a, a, c, a; Version B: a, a, c, a, c; Version C: a, c, a, c, a,

d) Yes, the classical dichotomy holds: changes in nominal variables do not affect real variables.

Problem 4: Solow Growth Model

a) Steady state condition: $s f(k) = (\delta+n)k$, $s 2k^{1/2} = (\delta+n)k$, $k^{1/2} = 2s / (\delta+n)$,
 so $k^* = (2s / (\delta+n))^2 = (2 * 0.1 / (0.07+0.03))^2 = (0.2/0.10)^2 = 4$.
 So $y^* = 2k^{*1/2} = 4$
 $R/P = MPK = k^{-1/2} = 0.5$.

b) Steady-state capital per person will be higher, driving up output and consumption per person, but driving down the real rental rate on capital.
Version A: a, a, b, a, c, b; Version B: a, c, b, a, a, b; Version C: a, b, a, c, b, a