

ECON 222
Macroeconomic Theory I
Fall Term 2009

Answers to Assignment 4

Question A5

A decreases temporarily

N^D shifts down to the left as the demand for labour decreases because MPN declines.

FE shifts to the left

1. N^D declines

2. for a given amount of N and K, can produce less

FE shifts to the left to FE2, LRAS shifts to the left to LRAS2

Y is above new full-employment, pressure on prices

SRAS shifts up until AD and LRAS2 intersect

LM curve shifts up to left to restore equilibrium as prices increase

r increases

A decreases permanently

In addition to decline in N^D , N^S would increase since future wealth declines

IS shifts down since savings increases

FE and LRAS shift to the left since produce less with a given level of N and K, but not as much as in case when A decreases temporarily since N^S pushes N in opposite direction of the decline in N^D

LM will shift up if still above full-employment

Final impact on r is ambiguous

Question A6

i) $Y = 1200 - 1000r - 2e$

$$300 = 1200 - 1000(.05) - 2e$$

$$e = 425, NX = -385$$

ii) $190 = 0.5(Y) - 120(r + \pi^e)$

$$190 = .5Y - 120 \cdot .15$$

$$Y = 416$$

$$416 = 1200 - 50 - 2e$$

$$e = 367, e_{nom} = 367$$

$$NX = -350.2$$

iii) $190/P = .5 \cdot 300 - 120 \cdot (.15)$

$$190/P = 132 \rightarrow P = 1.439$$

$$e = 425$$

$$425 = e_{nom} 1.439/1$$

$$e_{nom} = 295.34$$

Question A7

(Given a typo in the original question, a couple other answers were accepted (not shown)).

Option 1) Cdn Investment \$ 100 USD = \$ 95 CAD

$$95 \times 1.06 = \$100.7 \text{ CAD}$$

Option 2) US investment \$100 x 1.05 = 105 USD

$$105 \times .90 = \$94.5 \text{ CAD}$$

Option 3) Japanese investment \$95 x 80 x 1.04 = 7904 Yens

$$7900/70 = \$112.91 \text{ CAD}$$

Bubbles should buy the Japanese Bond

Question B3

B3a)

i) MPKf decreases, this decrease I and (S-I) shifts down to right, lowering r to r_2

IS shifts down to left lowering r

$r_2 < r_{for}$ → possibility for arbitrage

enom declines from $enom_1$ to $enom_2$

NX increase and IS shifts back to IS1

ii) Md/P curve shifts down to left and r will decrease as people try to get rid of money and acquire bonds.

Price of bonds will increase so the return declines.

AD curve shifts up and LM shift down to right

$r_2 < r_{for}$ → Demand for CDN declines, pushing down $enom$

NX increase, shifting up the NX curve in the goods market graph

The IS curve shifts up to the right and Y increase until $r = r_{for}$

AD curve also shift up to right

at Y_3 , $Y > \bar{Y}$, upward pressure on P

SRAS shifts up AD curve until they intersect at LRAS

As P increase (M/P) decline and e increase, the LM and IS curve move back to IS1 and LM2

iii) Sgvt increases so (S-I) shifts down to the right

IS shifts down to left and AD shifts down to left

$r < r_{for}$ so Central bank needs to decrease the MS to keep $r = r_{for}$ and prevent $enom$ from declining

LM shift up to left until $r=r_{for}$ and AD shifts down to left

In the LR, we are below full-employment so there will be downward pressure on prices and e will decline, increasing NX shift the IS back and (M/P) will increase so the LM shifts back up

b) False, real money demand does not depend on P . If P doubles, M_d doubles so M_d/P does not change.

Question B4

Green GDP measures takes into some consideration the impact of growth on the environment

Green GDP = GDP - depreciation of fixed capital - depletion of natural and environmental resources

Problems

1. Hard to measure: Market value for nature?
2. Only focuses on impact of environment on income, so still miss impact on some non-income related natural resources etc.

B 4i)

$Af(k)$ and $sAf(k)$ both shift up since productivity has declined. The curve for c shifts down since the total amount of consumption declines for a given level of k . At k^*1 , we are above our new steady state level of capital, k^*2 . In the SR, Y and K must grow at a rate less than n as we reach our new steady state. Once we are back in our new steady state, Y and K growth at rate n .

B 4 c i)

No curves shift, we move to a point k below our original k^*1 . Since at k^2 , $sAf(k) < (n+d)k$, Y and K grow at a rate higher than n . Once we are back in steady state, they grow at rate n once again.

$$\begin{aligned}y &= Ak^{0.4}n^{-.4} \\y &= Ak^{0.4} \\sAk^{0.4} &= (n+d)k \\k^{0.6} &= 8.8 \\k^* &= 38.142 \\y^* &= 8.58 \\c^* &= y - (n+d)k^* \\&= 8.58 - .09 \cdot 38.142 \\&= 5.147\end{aligned}$$

B 4 c ii)

$$\begin{aligned}\frac{dc}{dk} &= .4Ak^{-.6} - .09set = 0 \\k^{.6} &= 8.888 \\kg &= 38.142 \\&\text{Yes at golden rule.}\end{aligned}$$