Nanyang Technological University
School of Social Sciences

HE2002 Macroeconomics II

Solution to Tutorial 8

Question 2.

(a) Only in Situation A the output equals to potential output, and the umeployment rate equals to natural rate of unemployment, u_n . Note that the borrowing rate in the medium run equilibrim is $i - \pi^e + x = 4 - 2 + 1 = 3$ percent.

(b) In situation B, the actual output is higher than the potential output and the borrowing rate is $2 - 2 + 1 = 1$ percent. The central bank needs to raise the nominal interest rate i from 2 to 4 percent to restore the real interest rate in the medium run equilibrium.

(c) In situation C, the actual output is below the potential output and the borrowing rate is $4 - 2 + 3 = 5$ percent, and thus the central bank needs to lower nominal interest rate by 2 percent to restore the real interest rate in the medium run equilibrium.

(d) In situation D, the actual output is below the potential output and the borrowing rate is $4 - 2 + 1 = 3$ percent. Furthermore, the government spending is lower than the level in the medium run equilibrium by 20. If we lower the nominal interest rate by 2 percent, from part (B) we know the investment will become 170, which tend to offset the lower government spending than situation A, and thus restore the medium run equilibrium.

(e) In situation E, the actual output is above the potential output and the borrowing rate is $4 - 2 + 1 = 3$ percent. Furthermore, the government spending is above than the level in the medium run equilibrium by 20. If we lower the nominal interest rate by 2 percent, from part (C) we know the investment will become 130, which tend to offset the higher government spending than situation A, and thus restore the medium run equilibrium.

Question 3.

(a) skip.

(b) The central bank needs to lower the nominal interest rate by 2 percentage points to maintain r_n at its level in the medium run equilibrium.

(c) The central bank needs to increase r to descourage investment to offset the increase in government spending.

(d) The central bank needs to increase r to descourage investment to offset the increase in consumption led by lower tax.

(e) The increase in G or the decrease in T consistitute a fiscal expansion, which increases aggregate demand in the short run, and thus shift IS curve to the right in the short run. To restore potential output level, central bank needs to increase the policy rate (r_n) to move up the LM curve in the medium run equilibrium.

Question 4.

(a) IS curve shifts to the right in $t+1$ due to increase in consumer confidence. The value of expected inflation in t is π_{t-1}. In $t+1$, output will be higher than those in t, which is potential output. π_{t+1} will also be higher than π_t since $\pi_{t+1} - \pi^e_{t+1} > 0$ as the actual output is higher than the potential output, and $\pi^e_{t+1} = \pi_t$.

(b) $\pi_{t+2} - \pi^e_{t+2}$ is still positive due to positive output gap, and $\pi^e_{t+2} = \pi_{t+1}$, and thus inflation in $t+2$ is higher than that in $t+1$.

(c) Inflation rate will keep rising over time, and thus not sustainable.

(d) We still have $\pi_{t+1} - \pi^e_{t+1} > 0$, so $\pi_{t+1} > \pi_t = \bar{\pi}$. Output in $t+1$ is also higher than that in t.

(e) $\pi_{t+2} > \bar{\pi}$ still holds due to positive output gap. But it is not clear whether inflation rate and output in $t+2$ is higher than those in $t+1$ or not.

(f) When the actual inflation rate continues to be higher than the inflation target, which is the expected inflation, people start to revise their expectations.

(g) expected inflation in (a)(b)(c) is rising over time, while remains the same in (d)(e)(f). Output is higher than potential level in all scenarios, and the actual inflation is rising over time in all scenarios.

(h) Neither scenario seems completely realistic. In part b, the central bank acce pts a level of inflation that is always greater than its target. In part c, expected inflation remains anchored at a target rate of inflation that is never achieved.