

Member

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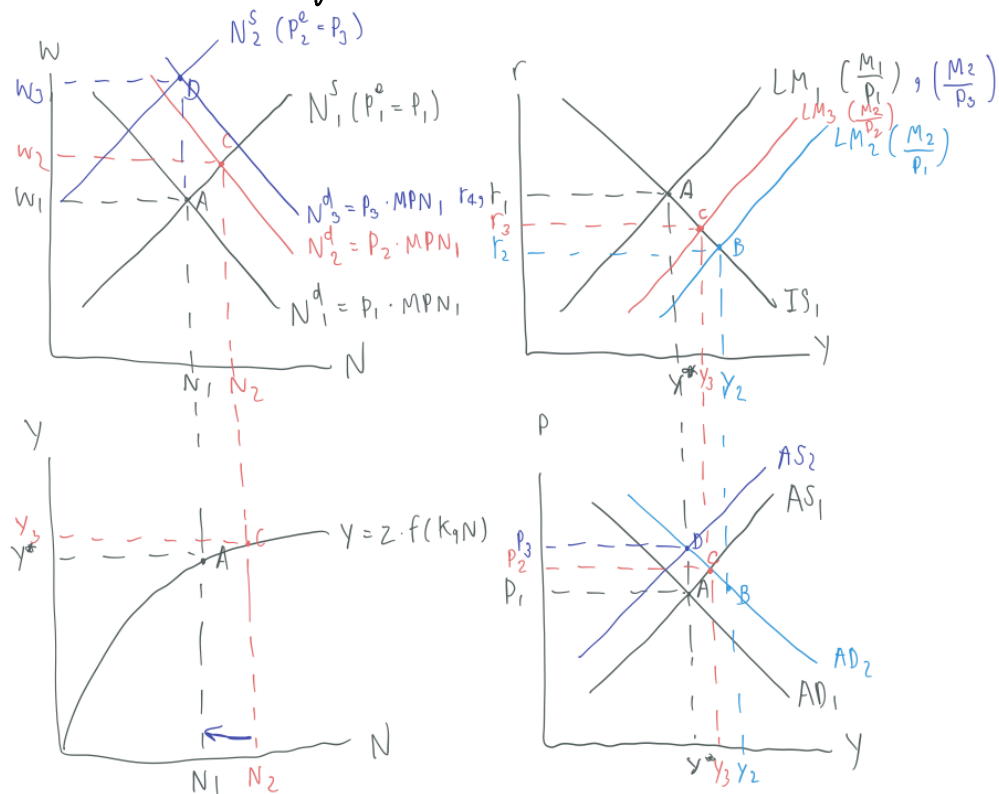
Assignment 3

1.1) True.

1.3) False, there is a supply shock as well, not only demand shocks, which caused by external factors. Ex. natural disasters.

2.1

a)



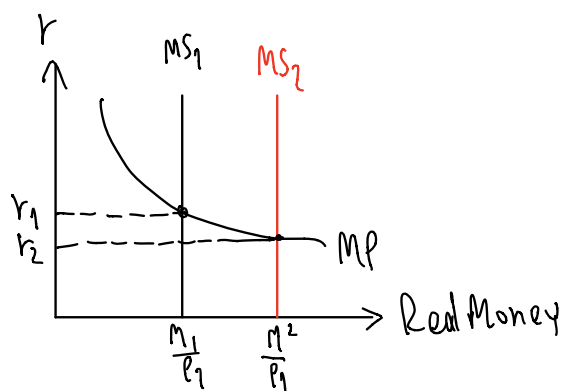
In short-run, the permanent increase in the money supply cause output increases from Y^* to Y_3 and interest rate decrease from r_1 to r_3 . From these, consumption and investment is going up too, from the effect we mentioned before

b) In medium-run, economy will adjust to the potential level of output and labor. These process makes wage going up by given actual employment (N^*). Then, price is going up from P_2 to P_3 and interest rate held back to r_1 making output (Y_3) be back to potential output Y^* .

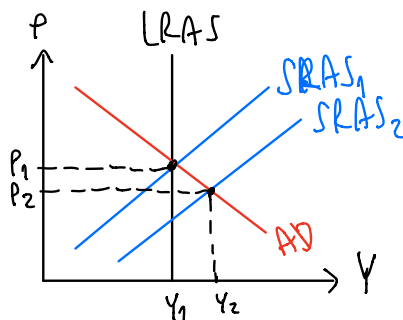
c.)

Variables	Short-run (relative to initial level)	Medium-run	
		Relative to after-shock level (short-run)	Relative to initial level before shock
Output (real GDP)	Increase	Decrease	no change
Consumption	Increase	Decrease	no change
Investment	Increase	Decrease	no change
Labor employment	Decrease	Increase	Decrease
Nominal wage	Increase	Decrease	Increase
Price	Increase (small)	Decrease	Increase
Real wage	Decrease	Increase	Decrease
Interest rate	Decrease	Increase	no change

d.)



→ In the short run, assume that other factors remain constant. An increase in money supply of the economy, will lower its nominal interest rate.



→ Initially, the economy was at the long-run equilibrium at Y_1 . After the shock, it lowers the firms' costs. Therefore, at the old price, SRAS would exceed the aggregate demand. This surplus causes a lower in price (P_2) and a higher of output (Y_2). This is because, output has increased, the unemployment rate has decreased.

Question ③

$$\begin{aligned}
 1) \quad \pi_t^e &= (1-\theta)\bar{\pi} + \theta\pi_{t-1} \\
 &= 1(2\%) + 0 \\
 &= 2\% \\
 \pi_t &= \pi_t^e - 0.7(u_t - u_t^N) + v_t \\
 &= 2\% - 0.7(3\% - 5\%) + 0 \\
 &= 3.4\%
 \end{aligned}$$

the inflation rate at 3.4% will be the same as period $t_1, t+1, t+2, t+3, t+4, t+5$ since when $\theta = 0$, the only factor that determines the inflation expectation is the inflation target.

If government still stay the target at the same level, the rate of inflation will be 3.4%.

When comparing both target inflation and inflation rate, the target inflation is lower than inflation rate.

2) No, since the inflation expectation would occur from 2 parts consisting of the target inflation and the previous inflation. It's impossible for government to remain the inflation constant.

3) θ increase because people expect that the inflation would be constant rather than the fluctuation of inflation.

$$\begin{aligned}
 4) \quad \pi_{t+6}^e &= (1-\theta)\pi + \theta(\pi_{t-1}) & \pi_{t+8} &= \pi_{t+7}^e - 0.7(3\% - 5\%) \\
 &= 0 + \pi_{t+5} & &= 6.2\% + 1.9\% \\
 &= 3.4 & &= 8.1\%
 \end{aligned}$$

$$\begin{aligned}
 \pi_{t+6} &= \pi_{t+5}^e - 0.7(3\% - 5\%) & \pi_{t+9} &= \pi_{t+8}^e - 0.7(3\% - 5\%) \\
 &= 3.4\% + 1.9\% & &= 10.0\% + 1.9\% \\
 &= 5.3\% & &= 11.9\%
 \end{aligned}$$

$$\begin{aligned}
 \pi_{t+7} &= \pi_{t+6}^e - 0.7(3\% - 5\%) \\
 &= 5.3\% + 1.9\% \\
 &= 7.2\%
 \end{aligned}$$

5) when $\theta = 1$, people are engaging the previous inflation to predict the future inflation. The rate of inflation are fluctuated each period and the unemployment rate is 3% affecting the increase of inflation is 1.9% for every year.

6) Central bank would not successful in achieving the targeted inflation in period $t+10$ even if the unemployment stay at 6% controlling by government. According to Phillips curve, if the central bank prefers to decrease inflation rate, the unemployment rate must rising. The negative relationship between the inflation rate and the unemployment rate.

$$\begin{aligned}
 \pi_{t+10} &= \pi_{t+9}^e - 0.7(6\% - 5\%) \\
 &= 0\%
 \end{aligned}$$

The inflation rate above are still higher than targeted inflation.

$$\begin{aligned}
 7) \quad \pi_{t+11} &= \pi_{t+10}^e - 0.7(u_{t+11} - 5\%) \\
 2\% &= 0\% - 0.7(u_{t+11} - 5\%) \\
 0.7(u_{t+11} - 5\%) &= 0\% - 2\%
 \end{aligned}$$

$$\begin{aligned}
 u_{t+11} - 5\% &= \frac{2\%}{0.7} \\
 u_{t+11} - 5\% &= 2.86\% \\
 u_{t+11} &= 7.86\%
 \end{aligned}$$

target level
 $\pi_t^e = 2\%$
 from (1)

$$\begin{aligned}
 8) \quad \pi_{t+12} &= \pi_{t+11}^e - 0.7(6\% - 5\%) \\
 &= 2\%
 \end{aligned}$$

$$\begin{aligned}
 \pi_{t+13} &= \pi_{t+12}^e - 0.7(6\% - 5\%) \\
 &= 2\%
 \end{aligned}$$

$$\begin{aligned}
 \pi_{t+14} &= \pi_{t+13}^e - 0.7(6\% - 5\%) \\
 &= 2\%
 \end{aligned}$$

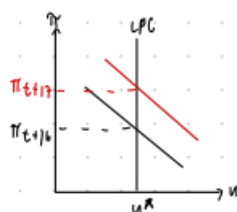
$$\begin{aligned}
 \pi_{t+15} &= \pi_{t+14}^e - 0.7(6\% - 5\%) \\
 &= 2\%
 \end{aligned}$$

If the unemployment rate stays at the same level at 6%, 4 period of the inflation rate will constant at 2%.

- 9) θ may decrease from 1 to 0 when the targeted level of inflation occurred. As the inflation rate stay at the targeted level controlling by government, the inflation rate might be contained the same value from the previous macroeconomic outcomes.

$$\begin{aligned}\pi_{t+1} &= (1-\theta)\pi + (1-\theta)(\pi_{t-1}) \\ &= \pi_{t+1} \\ &= 2\% \\ \pi_{t+1} &= 2\% - 0.7(1\% - 5\%) \\ &= 2\%\end{aligned}$$

10) $\pi_{t+1} = 2\% - 0.7(5\% - 5\%) + 1\%$
 $= 8\%$



11) $\pi_{t+1} = 2\% - 0.7(5\% - 5\%) + 1\%$
 $= 4\%$

$\pi_{t+1} = 4\% - 0.7(5\% - 5\%) + 1\%$
 $= 8\%$

12) $\pi_{t+1} = 2\% - 0.7(5\% - 5\%) + 1\%$
 $= 3\%$

$\pi_{t+1} = 2\% - 0.7(5\% - 5\%) + 1\%$
 $= 8\%$

when $\theta = 1$, the inflation rate is not the same as the targeted inflation.

- 13) If the government wants to stay at the same targeted level of inflation, they have to increase the unemployment rate.

14)