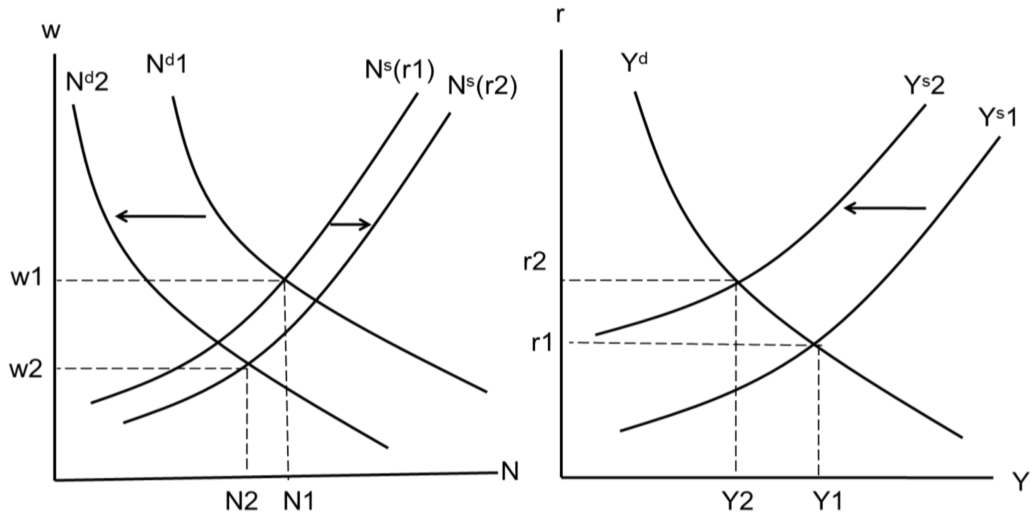
EE312 Macroeconomic Theory
Semester 2/2015
Homework II

Question: Use **the Monetary Intertemporal Model** to analyze the effects of a temporary decrease in current total factor productivity on employment, the real wage, current output, the real interest rate, current consumption, investment and the price level.

- Explain the chain of effects among variables correctly.
- Describe your analysis in words and use diagrams as needed.

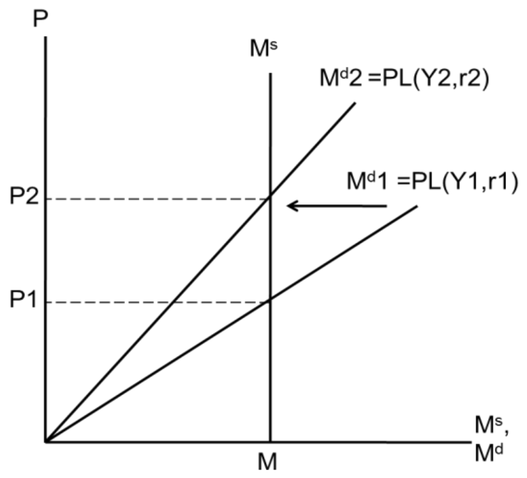
Submission date: Friday 8 April 2016; 13:00 hr

Answer:



A decrease in current total factor productivity (z) causes the marginal production of labor (MP_N) to decrease. The firm demands less labor services for a given real wage. The labor demand curve shifts to the left (from N^d1 to N^d2). The real wage is falling, inducing the consumer to supply less labor services. Employment and output (through the production function) decrease.

The output supply curve shifts to the left from Y^s1 to Y^s2. The real output level falls from Y1 to Y2 while the real interest rate increases from r1 to r2. A higher real interest rate causes the demands for investment and consumption goods to decrease. The lower output (and income) also reduces the demand for consumption goods. Lower investment and consumption cause output demand to decrease to match the lower output supply.



The higher real interest rate causes current leisure to be more costly. The consumer reduces current leisure and provides more labor services. The labor supply curve shifts rightwards from $N^s(r1)$ to $N^s(r2)$. The real wage drops further from w1 to w2. Employment finally decreases from N1 to N2, corresponding to the lower level of output at Y2.

Consumption drops as a result of lower real income and the higher real interest rate. Investment is also lower because of the higher real interest rate.

In the money market, the lower real income causes the demand for money to decrease. The higher real interest rate means higher opportunity cost of holding money which also causes money demand to decrease. The money demand curve rotates to the left from M^d1 to M^d2 and the price level increases from P1 to P2.

In the credit market, the falling real income causes private saving to decrease. The credit supply curve shifts leftwards from S^p1 to S^p2. The real interest rate increases from r1 to r2.

In conclusion, a decrease in current total factor productivity results in a lower real wage, lower employment and output, a higher real interest rate, and lower consumption and investment demand.