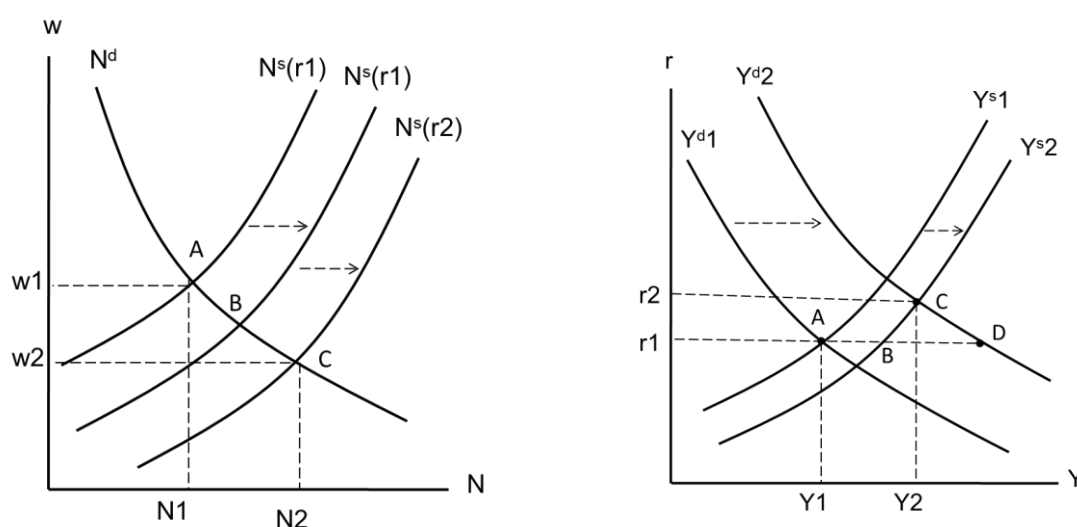


EE312 Macroeconomic Theory
Semester 2/2016
Homework II

Question: Use the **Closed-Economy, Monetary Intertemporal Model** to analyze the effects of a temporary increase in government spending on the real wage, employment, current output, the real interest rate, current consumption, investment and the price level.

Submission date: Friday 7 April 2017; 13:00 hr

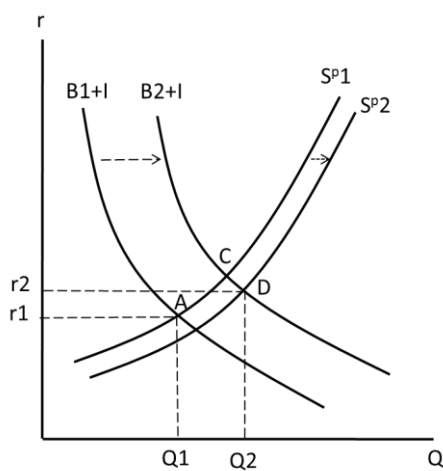


Answer: In the labor market, an increase in government spending implies an increase in lifetime taxes. The consumer's lifetime wealth (and disposable income) decreases. The consumer reduces leisure as it is a normal good. Lower leisure means more labor supply. The labor supply curve shifts to the right. Employment and output are increasing while the real wage is falling. The output supply curve also shifts to the right from point A on Y^s1 to point B on Y^s2 .

In the goods market, the increase in government spending raises the total demand for current goods by the amounts of $\Delta G + MPC\Delta G$. But the lower lifetime wealth also reduces current consumption and the total demand for current goods by the amount of $MPC\Delta G$. So the net increase in total demand for current goods is $\Delta G + MPC\Delta G - MPC\Delta G = \Delta G$. The output demand curve shifts to the right by the amount of ΔG (the distance AD).

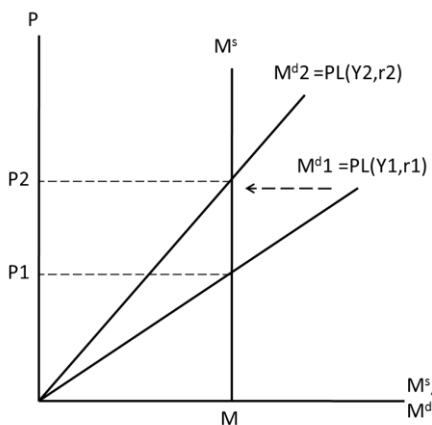
The output demand curve shifts to the right more than the output supply curve because the effect of the increase in government spending on output demand is stronger than the effect on output supply. The effect of the increase in government spending on lifetime wealth and leisure spreads over a lifetime. So the increase in labor supply and the rightward shift of the output supply curve are small. The decrease in current consumption as a result of a decrease in lifetime wealth is also small for the same reason so that the effect of government spending

on the total demand for current goods is strong. The net effect is that the real interest rate increases from r_1 to r_2 .



In the labor market, the rising real interest rate raises the opportunity cost of leisure. The consumer reduces leisure and increases labor supply. The labor supply curve shifts further to the right to $S^p(r_2)$. Employment increases from N_1 to N_2 while the real wage drops from w_1 to w_2 . Output (from the production function) increases from point B to point C on Y_{s2} . In total, output increases from Y_1 to Y_2 . In the goods market, the higher real interest rate also reduces current consumption and investment demand as the real interest rate is the opportunity cost of both current consumption and investment.

The increase in government spending causes an increase in government borrowing (bond sale) and the demand for credit in the credit market. The credit demand curve shifts to the right. The higher real interest rate induces private saving to increase (movement along the curve AC). Higher income also raises private saving, causing the credit supply curve to shift to the right (CD). The intertemporal effect of government spending on current consumption and saving is small. So the net effect is still a higher real interest rate from r_1 to r_2 in the credit market.



In the money market, higher income (and output) induces more demand for money while the higher real interest rate reduces the money demand. If the real interest rate effect is stronger, the demand for money increases. The money demand curve rotates to the left from M^{d1} to M^{d2} , given the money supply. The price level increases from P_1 to P_2 .

In conclusion, an increase in government spending results in higher employment, output and income, a higher real interest rate, a lower real wage, lower investment and lower current consumption (lower lifetime wealth and a higher real interest rate reduce consumption but higher current income increases it; the real interest rate effect is stronger.)