Quiz #1 - EconS 527

October 22nd, 2018

Question #1 (100 Points)

Consider the example of the closed economy ($IS-LM$ model) discussed during our last class. Assume that there is no Fiscal policy, $G=0$, and consider the system of equations that give the equilibrium conditions in the goods and the money markets, the IS and the LM relationships. The goods market (the IS part of the model) is described by

$$\begin{aligned} C &= 30+0.5(Y-T) \\ T &= 0.15Y \\ I &= 65-r \end{aligned}$$

where C is consumer expenditure, T is tax revenue, Y is aggregate output, I is investment expenditure, and r is the interest rate. The money market (the LM part of the model) is described by

$$\begin{aligned} M_d &= Y-10r \\ M &= 500 \end{aligned}$$

where L is money demand and M is the fixed money supply.

a) Find the equilibrium levels of Y and R and identify the government's current deficit or surplus. [**Hint**: Consider that the IS function is obtained from $Y=C+I+G$ and the LM function from $M_d=M$. In addition the deficit is measured by $G-T$.]

Solution
Part (a): Consider that the IS function is obtained from $Y=C+I+G$

$$\begin{aligned} Y &= 30+0.5(Y-0.15Y)+65-r+0 \quad (1) \\ 0.575Y &= 95-r \\ y &= 165.22-1.74r \quad (2) \end{aligned}$$

the LM is obtained function from $M_d=M$

$$\begin{aligned} Y-10r &= 500 \quad (3) \\ Y &= 500+10r \quad (4) \end{aligned}$$

Substituting (4) into (2) we obtain,

$$\begin{aligned} 500+10r &= 165.22-1.74r \\ r &= -28.51 \\ Y &= 165.22+1.74\times 28.51 \\ Y &= 214.83 \end{aligned}$$

Finally, the deficit is $G-T=0-(0.15\times 214.83)=-32.22$.surplus!