Spending, Taxes, and the Budget Deficit

Additional Homework Problems

ECON 3133

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1. Suppose that instead of G being exogenous, it is given by the formula

$$G = 1{,}200 - 0.1\times(Y - Y^*),$$

where Y^* is potential GDP and is equal to $6,000 billion. Suppose that the other relationships in the economy are given by the following:

$$C = 220 + 0.63\times Y$$
$$I = 1{,}000 - 2{,}000\times R$$
$$M = (0.1583\times Y - 1{,}000\times R)\times P$$
$$(X - IM) = 525 - 0.1\times Y - 500\times R$$

where the price level is predetermined at P = 1 and the money supply is 900.

a. Derive an algebraic expression for the IS curve for this model. Plot it to scale. Compare it with the standard IS curve, in which government purchases are exogenous. Which is steeper, why?

b. Derive the aggregate demand curve and plot it to scale. How does it compare with the aggregate demand curve when government spending is exogenous?

c. Calculate the effect on GDP of an increase in the money supply of $10 billion. Is the effect larger or smaller than the case where government spending is exogenous? Explain in words what is going on.

d. Is this equation an accurate description of government purchases in the U.S.? If not, what other components of the government budget act as automatic stabilizers? How is the impact of aggregate demand and price shocks affected by such stabilizers?

2. Suppose our model of the economy is the simple spending balance model with the following equations

$$Y = C + I + G + (X - IM)$$
$$C = 100 + 0.9\times Y_D$$
$$Y_D = Y + F$$

where I = 750, (X – IM) = 0, and F stands for government transfer payments.

a. You are told that G + F = 500, and there are no taxes. With this information, can you calculate the point of spending balance?

b. What is the maximum value of Y for which there could be spending balance? What is the minimum value?

c. Explain why government transfer payments and government spending affect aggregate demand differently. Be specific.

3. Explain why imports act as automatic stabilizers. Compare the case in which imports consist mainly of necessities with the case in which they consist mainly of luxury goods.

4. Suppose it is 2017, and the newly elected President, in order to win, promised not to raise taxes and not to tamper with social security and other transfer programs. At 6 percent unemployment, output is very close to potential. There still, however, are the two nagging problems of the government budget deficit and the trade deficit.

   a. In the short run, how can the administration reduce the budget deficit without breaking any of its campaign promises? Be specific about the policy. What effect will the policy have on output and interest rates? How will this policy reduce the budget deficit? Describe the effect of this policy on the trade deficit. Is it unambiguous?

   b. Will this policy reduce the budget deficit in the long run? Again, be specific. What are its long run effects on the trade deficit?

   c. What will the effects of such a policy be, in the short run and in the long run, on the real value of government debt outstanding?

   d. Recall the relationship between nominal interest rates and expected inflation. How might the expectations of such a policy affect long-term nominal interest rates?

5. Suppose that government spending is increased when the economy is below potential GDP. Why doesn't the decrease in government saving lead to an equal decline in total saving and investment?