Fiscal and Monetary Policy in the Growth Model
ECON 3133
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Problems

1. Consider a closed economy in which net exports, X – IM, equals 0. Suppose that consumption is insensitive to the interest rate, but the share of investment in GDP rises by 2 percent for every 1 percent decline in the interest rate.

   a. By how much does investment rise as a share of GDP if government purchases decrease by 4 percent of GDP?

   b. By how much does the interest rate change?

2. Suppose that output is equal to its potential at 4,000 and the equilibrium interest rate is 0.05. Money demand is given by
$$M = (0.3\times Y - 4{,}000\times R)\times P.$$
Money supply is set at 1,000 by the Federal Reserve.

   a. What price level is required for equilibrium in the money market?

   b. Suppose the Federal Reserve increases the money supply by 100. What is the new price level? What is the percentage change in the money supply and the price level?

   c. Starting with a money supply of 1,000 and a price level of 1.0, how does an increase in the interest rate from 0.05 to 0.10 affect the equilibrium price level? What could cause such an increase in the real interest rate?

   d. Starting with M = 1,000 and P = 1.0, what effect does an increase in output from 4,000 to 4,500 have on the equilibrium price level?

3. Describe the qualitative effect of each of the following on output in the long-run growth model:

   a. An outward shift in the labor supply schedule.

   b. An improvement in technology.

   c. An increase in the money supply.

   d. A reduction in the tax rate t on income.

4. Suppose that there is a reduction in investment incentives in the long-run growth model. Investment as a share of GDP is lower for any given interest rate.

   a. Show what happens in a diagram like Figure 9.11.

   b. Assume that neither consumption nor net exports vary with the interest rate. Does investment fall? Why or why not?

   c. Now assume that net exports vary negatively with the interest rate. What happens to investment?

5. Suppose the Federal Reserve attempted to keep the price level constant over time. (i.e., a zero inflation policy.) Describe how the money supply would have to change in response to each of the following situations.

   a. An increase in potential GDP.

   b. An increase in income taxes with no change in potential GDP.

   c. A change in investment incentives that increase investment at any interest rate.

   d. An exogenous increase in foreign demand for U.S. goods.

6. In the early 1980s, government purchases grew as a share of GDP. Simultaneously, the current account moved from near balance in 1980 to a large deficit in the mid- to late 1980s. Use the long-run growth model to explain the behavior of net exports in relation to the growth in government purchases.

7. Describe the qualitative effect of each of the following on the price level in the long-run growth model.

   a. An increase in the labor supply.

   b. A decrease in the sensitivity of investment to the interest rate.

   c. A widespread, increased taste for consumption rather than saving.

   d. A decrease in government purchases.

   e. An increase in the average tariff rate on imports