14.02 Principles of Macroeconomics

Problem Set #4, Questions and Answers

Posted: Thursday, March 21, 2002

Due Date: Thursday, April 4, 2002

You have 4 points bonus.

Please remember to write your TA's name and section time on the front page of your problem set.

Part I: True, False Questions. Decide whether each statement is true or false and justify your answer with a short argument. (5 points each, 50 points total)

1.) The Fed policy is more effective in a close economy than in an open economy with a flexible exchange rate policy.

2.) If the annual yield on the T-Bill is higher than the one-year German-government interest rate, then the US dollar is expected to appreciate.

3.) If the autonomous consumption "$\equiv c_0$" is small enough, then the long-run elasticity is approximately equals to one.

4.) When the US GDP grows by 5%, then we expect the capital to grow by 5% as well.

5.) The decrease of interest rates by the Fed will certainly lead to a rise in investment, consumption and net real export within a few months.

6.) The Marshall-Lerner condition is inconsistent with the J-curve.

7.) The PPP theory implies that, the real exchange rate is bounded in the long run.

8.) We expect the short-run MPC for durables to be smaller than short-run MPC for services.

9.) If the GB£ depreciates rapidly w.r.t. the US$, then the British trade balance will worsen before it improves.

10.) If the economy starts with a balanced trade, then an expansionary fiscal policy will lead to the twin-deficit.

Part II: (6 points each, 24 points total)

For an economy that its equilibrium is characterized by the following function:

$$Y = C(Y^D, r) + I(Y, r) + G + Ex(Y^W, e) - eQ(Y, e)$$

1. By analyzing the above equation, explain what is the short-term and medium-term effect of real depreciation on GDP, real and nominal export, real and nominal import, real and nominal net export.

2. How the equation above should be modified in order to reflect the recent tariffs imposed by the US on import (z% per goods imported)?

3. By analyzing the modified equation that accounts for the tariffs, explain what is the short-term effect of increase in tariffs on GDP, real and nominal export, real and nominal import, real and nominal net export.

4. By analyzing the modified equation that accounts for the tariffs, explain what is the medium-term effect of increase in tariffs on GDP, real and nominal export, real and nominal import, real and nominal net export.

*In the short- and medium-term, we assume real exchange rate does not change.

Part III: (6 points each, 30 points total)

The production function for an economy is:

$$Y = A K^{\delta} L^{(1-\delta)}$$

1. Draw a graph of the production function in the (K/L,Y/L) space.

2. What is the elasticity of Y w.r.t capital?

3. What is the marginal production of capital?

4. What is the optimal K*? K/L? Is K*=Y?

5. How an increase in the technology will likely affect the optimal capital? Do you expect capital to adjust immediately?