

Economics 101b; Fall 2001; Mock Midterm

1. (30 points) Consider an economy with a labor force growth rate of 2% per year, a depreciation rate of 4% per year, a rate of growth of the efficiency of labor of 2% per year, and a savings rate of 16% of GDP.

a. Suppose that the diminishing-returns-to-capital parameter α is $1/3$. What is the proportional increase in the steady-state level of output per worker generated by an increase in the savings rate from 16% to 17%?

b. Suppose that the diminishing-returns-to-capital parameter α is $1/2$. What is the proportional increase in the steady-state level of output per worker generated by an increase in the savings rate from 16% to 17%?

c. Suppose that the diminishing-returns-to-capital parameter α is $2/3$. What is the proportional increase in the steady-state level of output per worker generated by an increase in the savings rate from 16% to 17%?

d. Suppose that the diminishing-returns-to-investment capital α is $3/4$. What is the proportional increase in the steady-state level of output per worker generated by an increase in the savings rate from 16% to 17%?

2. (30 points) Consider a flexible-price full-employment economy in which the relevant parameters are:

$Y^* = \$10,000$ (In billions: potential output equals \$10 trillion)

$t = 0.33$ Tax rate of $1/3$.

$I_r = 90$ A 1 percentage point fall in the interest rate raises investment spending by \$90 billion a year.

$C_y = 0.5$ A marginal propensity to consume of three-quarters.

$\epsilon_r = 10$ With an initial value for the real exchange rate ϵ set at the traditional indexed value of 100, a 1 percentage point change in the interest rate difference vis-à-vis abroad generates a 10% shift in the exchange rate.

$X_\epsilon = 6$ A 10% change in the exchange rate leads to a \$60 billion a year change in exports.

Consider a second flexible-price full-employment economy in which all parameters are the same except the parameter I_r --the responsiveness of investment to a change in the real interest rate. That parameter is lower: 60 instead of 90.

- a. What would be the difference in the effects of a \$100 billion expansion in government purchases on these two economies?
- b. Explain why the answers are different.

3. (10 points) Suppose that you were told that the rate of inflation was about to decline significantly over the next decade. Would you expect the velocity of money to rise unusually fast, behave normally, or fall over the course of that subsequent decade? Explain why.

4. (30 points) Suppose that the short-term nominal interest rate--the one the central bank actually controls--is 3%. But also suppose that the inflation rate is zero, that the *term premium* is 4%, and that the *risk premium* is 3% as well.

- a. What is the real interest rate relevant for the IS curve?
- b. Suppose that the IS equation of the economy is: $Y = \$10000 - 300 \times r$. What is the equilibrium level of real GDP?
- c. Suppose that the central bank wants to use monetary policy to raise Y to \$9000. Can it do so by open market operations that lower the short-term nominal interest rate? Explain why or why not.
- d. What other policy steps can you think of that the government and central bank could take to raise equilibrium real GDP to \$9000?