

Part I. Answer six of the following nine questions in this part.

1. It is said that “money is neutral” in the long run. Explain the neutrality of money.
2. Many phenomena in economics are symmetrical, i.e., the analysis of an increase is just the reverse of the analysis of a decrease. One exception is the analysis of a central bank’s ability to maintain indefinitely an overvalued currency versus its ability to maintain indefinitely an undervalued currency. Explain.
3. Suppose a reputable study shows that a new workplace safety regulation will reduce the growth of real GDP. Is this a conclusive argument against implementing the regulation? Explain.
4. True, false, or uncertain: “Since farmers’ incomes exhibit greater variability on average than the incomes of nonfarmers, the permanent income hypothesis predicts that farmers’ marginal propensity to consume out of current income will be greater than that of nonfarmers.” Explain your reasoning.
5. True, false, or uncertain: “In an open economy with a pegged (fixed) exchange rate, monetary policy is completely ineffective.” Explain your reasoning.
6. In the Ramsey-Cass-Koopmans model of infinitely-lived households with perfect foresight, will a tax cut (with no change in government purchases, now or in the future) cause an increase in consumption spending? Explain.
7. True, false, or uncertain: In an economy with a high interest-elasticity of money demand, an increase in the cost of basic raw materials will cause more inflation and a smaller reduction in output than in an economy with a lower interest-elasticity of money demand. Explain your reasoning.
8. If the aggregate production function of an economy is

$$Y = e^{\lambda t} K^{\alpha} L^{1-\alpha}$$

where $\lambda = 2\%$ and $\alpha = 1/3$, compute the growth rate of *per capita* GDP if the population growth rate is 3% and the capital stock accumulates at a rate of 6%.

9. Assume an economy is initially at long-run equilibrium. Suppose a war destroys one-half of a country’s capital stock. Use q-theory to explain the change in the capital stock and q at the

time of this shock and the path to long-run equilibrium.

Part II. Answer one of the following two questions in this part.

10. One of the problems that growth theorists have struggled with is how to explain why some countries, such as the United States, have a GDP per capita some 17 times greater than that of such countries as Bangladesh and Kenya. One possibility is cross-country differences in both physical and human capital.

- a. What is the difference between human capital and technological know-how?
- b. Suppose $G(E)$ represents human capital per worker as a function of years of education, E . If the Solow growth model is extended to include human capital, how are its basic characteristics altered, if the value of E is fixed exogenously? (Does the economy converge to a balanced growth path? Will changes in the saving rate change the long-term growth rate? What determines the long-term growth rate of output per worker? Will this growth rate be altered in the long term by an increase in E ?)
- c. What proportion of the cross-country differences in per capita GDP can be accounted for by actual differences in physical and human capital? What is the current explanation for the remaining cross-country differences? Describe the various characteristics of a country that would be included in this explanation.

11. Consider the following model of an economy:

$$(1) Y = C(Y-T) + I(r) + G + NX(\epsilon)$$

$$(2) M/P = L(i, Y)$$

$$(3) NX(\epsilon) = CF(r - r^*)$$

$$(4) I = r + \pi^e$$

$$(5) \epsilon = eP/P^*$$

$$(6) Y = \bar{Y} + \alpha(P - P^e) \quad \alpha > 0$$

$$(7) \bar{Y} = F(\bar{K}, \bar{L})$$

where:

Y = real output

\bar{Y} = natural rate of real output

\bar{K} = capital stock (fixed)

\bar{L} = labor force (fixed)

C = real consumption
T = real tax revenue
I = real gross private investment
r = domestic real interest rate
 r^* = world real interest rate
G = real government spending
NX = real net exports
CF = real net capital outflows (net foreign investment)
 ϵ = domestic real exchange rate (quantity of foreign goods required to trade for one unit of domestic goods)
e = domestic nominal exchange rate (units of foreign currency per unit of domestic currency)
M = nominal money supply
P = domestic price level
 P^* = foreign price level
 P^e = expected domestic price level
I = nominal domestic interest rate
 π^e = expected inflation rate

- a. What happens to the short-run aggregate supply curve (equation 6) if α is infinite?
- b. What is the implication for net exports when $CF(r-r^*) = 0$ versus when $CF(r-r^*)$ is perfectly elastic?
- c. Case 1. Assume the following:
 α is infinite.
 $CF(r-r^*) = 0$
 $\pi^e = \bar{p}$, a fixed constant.

What is the short-run impact of an increase in government spending (holding tax revenue and the money supply constant) on (a) output, (b) the real interest rate, (c) consumption, (d) investment, and (e) the real exchange rate?

- d. Case 2. Assume the following:
 α is infinite.
 $CF(r-r^*)$ is perfectly elastic.
 $\pi^e = \bar{p}$

What is the impact of an increase in government spending (holding tax revenue and the

money supply constant) on (a) output, (b) the real interest rate, (c) consumption, (d) investment, and (e) the real exchange rate?

Part III. Answer one of the following two questions in this part.

12. a. Countries that adopt the Euro are required to keep their government budget deficits below 3% of GDP. Currently a number of countries including France and Germany have exceeded this limit. Provide an economic rationale to justify why this restriction on fiscal policy was imposed for monetary policy purposes.
- b. The U.S. federal government ran budget surpluses from 1998 to 2001. Federal budget deficits returned in 2002 as a result of tax cuts and increases in spending. These deficits are growing and expected to continue for the foreseeable future. Explain at least two positive and two negative potential impacts of these deficits for the U.S. economy.
13. The U.S. economy is recovering from the recession of 2001, but the U.S. dollar has been depreciating against the yen and the euro. On top of these conditions, the U.S. budget deficit is expected to rise.

Analyze the **causes** and **effects** of dollar depreciation and the mushrooming U.S. debt on the U.S. economy and the world economy.

