

14.02 Answers.

Quiz 1.

T,F,U. 5 points each.

1. True. If investment is very sensitive to the interest rate, then a small decline in the interest rate will increase investment significantly. Therefore, the IS curve will be close to flat. Any change in monetary policy will therefore lead to large changes in the equilibrium level of output.

2. False. For the past 10 years, the European Union has had relatively high unemployment rates. The U.S., conversely, has experienced surprisingly low unemployment, particularly in the last 2 years.

3. False. Since the CPI accounts for all goods consumed by U.S. residents, imported goods and services are considered in its final tabulation. This is not the case for the GDP deflator. Thus, if prices of imported goods rise, the CPI index method will yield higher inflation rates.

4. False.

5. False. The marginal propensity to consume is equal to (total consumption minus c_0) divided by disposable income. This answer would be true if c_0 was equal to 0. But, since, in the real world, this is an untrue assumption, this answer is false.

6. False. An increase in the marginal propensity to save decreases the marginal propensity to consume. The IS curve shifts in and the economy sags. This does not say anything is wrong with the ISLM model. If the MPS rises, total saving may fall if Y falls. Nevertheless, investment must equal saving. When the IS curve shifts in due to a rise in the MPC, equilibrium Y falls and interest rates go up. The effects on saving and investment will be ambiguous.

7. False. In the ISLM graph, the IS shifts out and the LM moves in. This unambiguously rises interest rates. However, depending on how much each of the curves shifts, the final effect on output is ambiguous.

8. False. A reasonable assumption is that the economy is always on the LM curve since financial markets move very quickly (almost immediately) when out of equilibrium to move back to equilibrium. The goods market, conversely, is not so immediate in its adjustment. The dynamic setup shows that it takes infinite time to move from one equilibrium to another. So the economy is not always on the IS curve.

MEDIUM PROBLEMS

9. a. The LM curve 12 months from now will shift in (or to the left) due to the monetary contraction. Thus, in 12 months, output will decline and interest rates will rise.

b. The expectation of a monetary contraction will cause people to believe that interest rates and output will rise in the future. These expectations lead to

a decline in current consumption and current investment. The IS curve shifts in. Today's output and interest rates will decline.

c. Consumption will decrease since consumption today is negatively impacted by an expected decline in output tomorrow. Furthermore, investment will decline since investment is negatively impacted by an expected decline in future output and an expected rise in future interest rates. Borrowing will be more expensive and the net present value of investments will decline. Government spending is left unchanged.

d. The price of bonds is negatively correlated to the interest rate. Since interest rates today decline, the price of bonds today will rise.

10. a. Nominal GDP = $(\$60,000 \times 120) + (\$20 \times 400,000) = \$15,200,000$
Real GDP with 1990 as a base year = $(\$50,000 \times 120) + (\$10 \times 400,000) = \$10,000,000$
Deflator = 1.52

b. This will have no effect on 1992's nominal GDP since these goods are used.

c. Inflation = $(1.52 - 1) / 1 = 0.52$ or 52% inflation. Note the GDP deflator in 1990 is equal to 1 because 1990 is the base year.

d. i.

LONG QUESTION

11. $Z = c_0 + c_1(Y - tY) + d_0 + d_1Y - d_2i + G$ or $Z = c_0 + d_0 + G + (c_1(1-t) + d_1)Y - d_2i$.

12. The demand curve will be upward sloping. Autonomous spending will be the value of the intercept. The slope will be $c_1(1-t) + d_1$

13. $Y = Z$ so that $Y = [1 / (1 - c_1(1-t) - d_1)] * [c_0 + d_0 + G - d_2i]$

14. The IS curve is downward sloping and the LM curve is upward sloping. As investment becomes more sensitive to i , the IS curve becomes flatter. As d_2 rises, investment becomes more sensitive to i and monetary policy becomes more effective in changing output. See #1.

15. If t rises, the slope of the demand curve, Z , falls. The demand curve becomes flatter and equilibrium in the goods market decreases.

16. If t rises, the demand curve becomes flatter. For every level of interest rate, there is a lower level of output. So, you know that the IS curve shifts to the left. What about the steepness of the IS curve? This can be found by calculating di/dY which equals $-[1 - c_1(1-t) - d_1]/d_2$. So, if t rises, that value becomes more negative. Every one unit rise in output corresponds to a larger decline in i . The IS curve is steeper.

17. The IS curve shifts in and becomes steeper. To counteract the adverse output effects of the increase in t , the Fed must expand the money supply by buying bonds. The LM will shift out until Y is equal to the original Y .

18. When the IS curve becomes steeper, monetary policy becomes less effective. Every movement in the LM results in a smaller change in output.