

## Macro Exam 2 Self Test -- ANSWERS

Dr. McGahagan

**WARNING -- Be sure to take the self-test before peeking at the answers.**

### Chapter 8 -- Aggregate Expenditure and Equilibrium Output

FALSE 1. Firms react to unplanned inventory investment by increasing output.

Firms will react by **reducing their orders** until their undesired accumulation of inventory has been sold.

FALSE 2. If actual investment is greater than planned investment, inventories decrease more than planned.

Inventories will **increase** by more than planned.

Actual investment = planned investment + unplanned inventory increase.

FALSE 3. Disposable income is the major determinant of consumption spending in classical thought (for example, in the economics of Jean-Baptiste Say).

Classical economics held that **interest rates** determined saving, and hence consumption,  
since consumption = disposable income - saving

**Keynes** shifted the focus to disposable income.

TRUE 4. The marginal propensity to consume is the change in consumption expenditure divided by the change in disposable income.

FALSE 5. If the MPC is 0.8, the marginal propensity to save will be 0.4.

The MPC + MPS = 1.0, since you must either consume or save every extra dollar.

Hence if the MPC = 0.8, the MPS must be 0.2.

FALSE 6. In the full Keynesian macroeconomic model, private savings of the citizens of a country will equal the sum of private investment, the government budget deficit, and the international current account deficit.

The international current account SURPLUS must be financed by the savings of the country which has the surplus, since the country they have a surplus with will have to borrow to pay for their deficits.

Since  $GDP = C + I + G + NX$

$GDP - T = C + I + G - T + NX$  (subtracting taxes from both sides)

Disposable income =  $C + I + \text{Budget deficit} + NX$

$GDP - C - T = I + G - T + NX$

Savings = Investment + Budget deficit + net exports.

TRUE 7. When the economy is in Keynesian macroeconomic equilibrium, planned investment is equal to actual investment.

TRUE 8. The larger the MPS, the smaller the Keynesian government spending multiplier.

FALSE 9. If the MPC is 0.75, the Keynesian government spending multiplier will be 4/3; that is, an increase of \$ 300 billion in government spending will lead to an increase in GDP of \$ 400 billion.

The multiplier is  $1 / (1 - MPC) = 1 / MPS = 1 / 0.25 = 4$ .

## Self-Test -- Chapter 8 - 2

FALSE 10. If the MPC is 0.75, the lump-sum tax multiplier will be -4, that is, an increase in taxes of \$ 100 billion will lead to a drop in GDP of \$ 400 billion.

The tax multiplier will be -3. Consider the simple Keynesian model with  $GDP = C + I + G$  and  $C = .75 (GDP - T)$

Since  $GDP = .75 GDP - 0.75 T + I + G$ , we have:

$$.25 GDP = - 0.75 T + I + G, \text{ or multiplying through by 4:}$$

$$GDP = -3.0 T + 4 I + 4 G$$

FALSE 11. If an economy shifts from lump-sum taxes to income taxes, the government spending multiplier will be larger.

It will be smaller. Consider the last question, with  $T = 0.2 GDP$

$$GDP = .75(GDP - .2 GDP) + I + G$$

$$GDP = .75(0.8 GDP) + I + G$$

$$GDP = .6 GDP + I + G$$

$$GDP - 0.6 GDP = I + G$$

$$.4 GDP = I + G, \text{ multiply through by } 10 / 4 \text{ or } 2.5 \text{ to get}$$

$$GDP = 2.5 I + 2.5 G$$

The multiplier for government spending has fallen from 4 to 2.5

TRUE 12. If the marginal propensity to import increases, the multiplier will decrease.

Imports, like income taxes, are automatic stabilizers.

TRUE 13. If everyone increases their marginal propensity to save, the Keynesian model predicts that total saving will not increase, and may decline.

This is the "paradox of thrift"

FALSE 14. In the equation  $C = C_o + C_y (Y - T)$ , we label the term " $C_y$ " as "induced consumption"

The term  $C_y$  is the marginal propensity to consume. The entire term,  $C_y (Y - T)$  is induced consumption.

TRUE 15. In the equation  $C = C_o + C_y (Y - T)$  we label the  $C_o$  term as "autonomous consumption"

FALSE 16. In a simple Keynesian economy with the above consumption equation, with  $C_o = 0.5$  and  $C_y = 0.8$  and no foreign trade, a rise in investment of 200 billion would lead to a rise in GDP of 400 billion.

The multiplier depends on the marginal propensity to consume of 0.8, not on autonomous consumption.

TRUE 17. In the simple Keynesian economy of the last question, a rise in investment of 200 billion and a simultaneous increase in taxes of 200 billion would lead to no change at all in GDP.

The balanced budget multiplier is one. Using question 10 as an example,

Since  $GDP = .75 GDP - 0.75 T + I + G$ , we have if  $T = G$  (balance budget)

$$.25 GDP = - 0.75 G + I + G, \text{ or}$$

$$.25 GDP = I + .25 G, \text{ and multiplying through by 4,}$$

$$GDP = 4 I + G$$

### Self-Test -- Chapter 8 - 3

FALSE 18. A “Keynesian cross” representation of the consumption function of question 16 would have the consumption function, and hence also the “planned aggregate expenditure” line more steeply sloped than the 45 degree line.

The MPC is always less than one, so the PAE line will be  $PAE = MPC * (GDP - T) + I + G + NX$ .  
The slope of the PAE line is the MPC.

The 45 degree line represents the Keynesian equilibrium condition, so it has the equation  $PAE = GDP$   
The slope of the 45 degree line is 1.

FALSE 19. The “Keynesian cross” representation of the consumption function was not the work of John Maynard Keynes, but of his father, John Neville Keynes.

The Keynesian cross diagram is due to Keynes' student Joan Robinson.

FALSE 20. The phrase “Savings equals investment” is a bit misleading, since savings must also finance the government budget deficit and any trade deficit.

Savings finances a country's trade surplus. If we have a trade deficit, it will be financed by borrowing from other countries.

FALSE 21. If consumers spend 80 cents out of each dollar of disposable income, we can conclude that the government spending multiplier in a simple Keynesian model is 20.

Since the consumption function will be  $C = 0.8 (GDP - T)$ , the multiplier will be  $1 / (1 - MPC)$  or  
 $1 / MPS = 1 / 0.2 = 5$ .

## Chapter 9 -- The Government and Fiscal Policy

TRUE 1. Disposable personal income is personal income minus taxes plus transfer payments.

TRUE 2. When actual investment is greater than planned investment, the economy is in danger of falling into a recession.

Note that firms will cut their future orders in order to work off the unplanned inventory accumulation.

TRUE 3. When  $G - T$  is positive, the government budget is in deficit.

Translate this back into words : If  $G - T$  is positive, government spending is greater than taxes.

TRUE 4. If investment increases, the planned aggregate expenditure line on the Keynesian cross diagram shifts upward

FALSE 5. If the MPC increases, the planned aggregate expenditure line on the Keynesian cross diagram becomes flatter.

The slope of the PAE line is the MPC, if the MPC increases, the slope of the PAE line also increases.

FALSE 6. In a simple Keynesian model (with lump-sum taxes and a MPC of 0.8), if the government increases spending by \$400 billion and increases taxes by \$400 billion, output will increase by \$2000 billion.

While the increase in government spending alone would have increased output by 5 times, the balanced budget multiplier is always one. See the self-test, chapter 8, question 17 for a fuller explanation.

FALSE 7. In a simple Keynesian model (with lump-sum taxes and a MPC of 0.8), a tax cut of \$ 10 billion will have more of an impact on GDP than an increase in government spending of \$ 10 billion.

Although the government spending multiplier is 5, the tax multiplier will be 4:

Since  $GDP = C + I + G$  and  $C = 0.8 (GDP - T)$ , we have:

$$GDP = .8 GDP - .8 T + I + G$$

$$.2 GDP = -.8 T + I + G$$

$$GDP = -4 + 5 I + 5 G$$

TRUE 8. When taxes are given as a percentage of income, a higher tax rate implies a smaller government spending multiplier.

FALSE 9. In an open economy, the government spending multiplier will be higher than in an economy without international trade.

Suppose the marginal propensity to import is .2, so  $IM = .2 GDP$  and the MPC is .8.

In a closed economy, the multiplier would be 5 (see problem 7 above)

In an open economy, we would have

$$GDP = .8(GDP - T) + I + G + EX - M$$

$$GDP = .8GDP - .8 T + I + G + EX - .2 GDP$$

$$GDP = .6 GDP - .8 T + I + G + EX$$

$$.4 GDP = -.8 T + I + G + EX; \text{ hence the new multiplier is 2.5 for } I, G \text{ and } EX, \text{ and } -2.0 \text{ for taxes}$$

$$GDP = -2.0 T + 2.5 I + 2.5 G + 2.5 EX$$

## Self-Test -- Chapter 9 - 2

FALSE 10. If an economy has a marginal propensity to consume of 0.8 and an income tax of 50 percent of income, the multiplier will be only half of what it would be with lump-sum taxes.

This sounds plausible, but you must work through the numbers to see that it is incorrect.

Suppose a closed economy with  $MPC = 0.8$ , so  $C = .8 (GDP - T) = .8 (GDP - .5 GDP) = .4 GDP$

The marginal propensity to consume is half what it would be with lump sum taxes, but this does not translate into a multiplier of half.

With lump sum taxes, the multiplier would be 5, but here the multiplier is 2:

$$GDP = .5 GDP + I + G$$

$$.5 GDP = I + G$$

$$GDP = 2 I + 2 G$$

FALSE 11. Income taxes, unemployment insurance, and a lower marginal propensity to import will all reduce the multiplier, and hence insulate the economy against the shock of a drop in planned investment.

A **higher** marginal propensity to consume would reduce the multiplier.

TRUE 12. The “structural deficit” is the deficit that would remain even if the economy were at full employment.

FALSE 13. All expenditures which are part of the Federal Budget are counted as “government expenditure” in the National Income and Product Accounts.

**Transfer payments** such as Social Security and Medicare are in the budget, but not the NIPAs -- which include only government consumption expenditure and gross investment, not transfers spent by other people.

TRUE 14. A government can increase GDP if it increases its spending and taxes by exactly the same amount.

TRUE 15. The multiplier will be lower than the simple Keynesian model predicts if government borrowing raises interest rates and therefore “crowds out” private investment.

FALSE 16. Fiscal policy is usually used during recessions because it takes less time to implement than monetary policy. (Since fiscal policy requires Congressional action, it takes longer to implement than a decision by the Federal Reserve to change monetary policy.)

TRUE 17. The last two consecutive years that the Federal government budget was in surplus for the entire year were 1999 and 2000.

TRUE 18. Social Security, Medicare, and Defense are each about 20 percent of the Federal Budget, so that together they make up about 60 percent of the Federal Budget.

FALSE 19. Only Medicare and Defense count as Government Expenditure in the NIPA. Defense expenditures count, Medicare expenses are transfer payments -- in the budget, but not the NIPA.

FALSE 20. The “paradox of thrift” implies that savings is good in the short run, but may harm economic growth in the long run. FALSE as it implies that savings may reduce GDP in the short run, but Keynes knew that economic growth depended on investment, which in turn required savings.

FALSE 21. Automatic stabilizers ensure that government revenues and expenditures both decrease in a recession, so that the government budget will automatically be balanced.

Revenues decrease in a recession (less income to tax) but expenditures for unemployment insurance increase. It is the economy, not the government budget, that is automatically stabilized.

FALSE 22. A lower income tax rate means a lower government spending multiplier.

## Chapter 10. The Money Supply and the Federal Reserve System

\_\_FALSE\_\_ 1. The most important role of money is to serve as a store of value.

Money is a poor store of value; the most important roles are as a means of exchange and a unit of account.

\_\_FALSE\_\_ 2. Only items defined by the government as legal tender count as M1.

Bank created checking accounts are generally acceptable even though not defined as legal tender.

\_\_TRUE\_\_ 3. The major problem of barter is the need for a double coincidence of wants.

\_\_TRUE\_\_ 4. When you take \$ 100 from your savings account and deposit it in your checking account, M1 increases. (Note that savings accounts are part of M2 only)

\_\_TRUE\_\_ 5. When you take \$ 100 from your savings account and deposit it in your checking account, M2 stays the same. (Note that M2 includes M1 + savings accounts )

\_\_TRUE\_\_ 6. If a bank sells a \$ 10,000 Treasury bill to the Federal Reserve, and receives a credit in its account with the Fed, the money supply will increase by more than \$ 10,000.

The addition to bank reserves will permit a multiple expansion of deposits.

\_\_FALSE\_\_ 7. If a bank sells a \$ 10,000 Treasury bill to the Federal Reserve, and receives a credit in its account with the Fed, the money supply will decrease by exactly \$ 10,000.

If a bank bought the T-Bill from the Fed, the money supply would decrease by more than \$ 10,000, since money multiplier effects work in reverse as well.

\_\_TRUE\_\_ 8. If a bank has liabilities of \$ 3 million and a net worth of \$ 1 million, its assets will be \$ 4 million. (Since Assets = Liabilities + Net Worth)

\_\_TRUE\_\_ 9. A bank will list the mortgage loans it makes as assets. (They are liabilities for those who receive the loans, but assets to the bank)

\_\_FALSE\_\_ 10. A bank is said to have a "liquidity problem" when its capital is too low to cover likely losses on bad loans.

The bank has a **solvency problem** in this case -- a liquidity problem would result from not having the reserves to cover desired withdrawals.

\_\_TRUE\_\_ 11. The Federal Reserve will act as a "lender of last resort" if a bank runs into liquidity problems.

## Self-Test -- Chapter 10 - 2

FALSE 12. The required reserve ratio is 0.25 (twenty-five percent) and a bank has \$ 800 in deposits. Its actual reserves are \$ 300, so it will have excess reserves of \$ 500.

The required reserves are  $0.25 * 800 = \$ 200$ ; hence excess reserves are  $\text{actual} - \text{required} = \$ 100$

FALSE 13. The policy making body of the Federal Reserve System is known as the Board of Governors.

The **Federal Open Market Committee** decides on monetary policy; it includes five representatives of the regional Federal Reserve Banks as well as the members of the Board of Governors.

FALSE 14. The one Federal Reserve Bank that is automatically a member of the policy making body of the Fed is the Washington, DC bank.

Although the Board of Governors is headquartered in the Eccles Building in Washington, DC, there is no regional bank in DC (the nearest one is Richmond, VA). The New York Fed is the bank that is automatically a member of the FOMC.

FALSE 15. Most \$ 100 dollar bills issued in the US are issued by the Federal Reserve Bank of Chicago. Atlanta issues the most \$ 100 dollar bills, to the displeasure of the Treasury (concerned about the use of the bills in illegal transactions in the Florida drug trade).

FALSE 16. The Federal Reserve is headed by the Secretary of the Treasury.

The Secretary of the Treasury (Tim Geithner) does not have a seat at the Fed, though he meets regularly with the Chairman of the Fed (Ben Bernanke) .

TRUE 17. A decrease in the required reserve ratio will normally increase the money supply.

If banks do not have to hold as much in reserve, they can make more loans and create more deposits.

FALSE 18. The most commonly used tool of monetary policy by the Federal Reserve system is to change the required reserve ratio.

Changes in the required reserve ratio are rare -- and big ones are likely to be very disruptive of the banking system.

FALSE 19. An open market purchase of government securities (such as Treasury Bills) by the Fed will increase the money supply and raise the interest rate.

If the Fed buys T-Bills, bank reserves increase, and the money supply will normally increase as well. But this will **lower** the interest rate rather than increasing the interest rate.

TRUE 20. The most commonly used tool of monetary policy by the Fed is open market operations..

FALSE 21. M1 includes currency in circulation, currency in bank vaults, checking accounts, and credit card accounts.

Vault cash and credit cards are not part of M1.

FALSE 22. M2 is an alternative measure of money which counts only bank money: it includes vault cash, checking and savings accounts, and bank certificates of deposit.

M2 is a measure that includes M1 and hence includes currency as well as checking accounts. It also includes savings accounts and certificates of deposit, but it does not include vault cash.

## Chapter 11. The Demand for Money

TRUE 1. The rate of interest is the opportunity cost of holding money  
(If you did not hold the money in your wallet or checking account, you could take the opportunity to turn money into a bond)

FALSE 2. More frequent switching from bonds to money will result in a higher opportunity cost of holding money and lower money management costs.

Since you will be holding less money on average, your opportunity costs will go down; since you are making more transactions, your money management costs will increase.

TRUE 3. The optimal money balance desired will be lower if the CPI is higher.  
With a higher price level, you will have to hold more money to pay for goods.

TRUE 4. The optimal money balance desired will be lower if the inflation rate is higher.  
The inflation rate will reduce the value of money -- so you won't want to hold more than needed.

TRUE 5. The optimal money balance desired will be lower if the interest rate is higher.

FALSE 6. The optimal money balance desired will be lower if the level of real income is higher.  
Higher levels of real income mean that people will want to spend more -- and will increase their demand for money.

For questions 3-6, it may be helpful to remember the money demand equation  $M_d = k P Y / i$   
where  $k$  is the fraction of income you want to hold as money,  $P$  the price level,  $Y$  real income, and  $i$  is the nominal interest rate. If the Fisher relation holds the nominal rate reflects the real rate + inflation.

TRUE 7. If people think that interest rates are above normal levels, they will want to hold bonds in anticipation of a rise in bond prices.  
(As interest rates fall, bond prices will go up)

FALSE 8. Investors will probably wish to hold bonds when interest rates are low in the hope of selling them at higher prices when interest rates increase.  
As interest rates increase, bond prices will fall.

TRUE 9. If the money supply increases, and the price level is unchanged, interest rates will fall.

TRUE 10. If the money supply and the price level both increase by 10 percent, interest rates will not change. An increase in the price level by 10 percent will cause an increase of money demand by 10 percent as well. There will be no reason for the interest rate to change.

TRUE 11. The Fed has more control over short-term interest rates than long-term interest rates.

FALSE 12. "Federal funds" are the interest rates charged by the Fed on its loans to commercial banks.

Federal Funds are so-called because they are the interest rate that is used by the Fed as a target. They are the overnight lending rates in the interbank market -- the rate charged when one bank lends money to another.

## Self-Test -- Chapter 11 - 2

TRUE 13. The demand for money will increase when the price level increases.

FALSE 14. The demand for money will increase when inflation increases.  
The demand for money will decline when inflation increases.

FALSE 15. The demand for money will increase when the interest rate increases.  
The **quantity of money demanded** will decrease when the interest rate increases -- the interest rate is the “price” of money, and the demand curve for money has this price on the vertical axis, so the demand curve will not shift, and there would not be a decrease in demand when the interest rate increases.

FALSE 16. The simple quantity theory of money holds that the velocity of money often changes.  
The simple quantity theory assumes that the velocity of money is constant.

TRUE 17. The simple quantity theory of money holds that the growth rate of the money supply will be the same as the inflation rate minus the growth rate of real GDP.

Since the simple quantity theory is embodied in the **quantity equation  $MV = PY$**  and this implies that the

$$\text{percent change in } M + \text{percent change in } V = \text{percent change in } P + \text{percent change in } Y,$$

it will follow from the assumption that velocity does not change that

$$\text{percent change in } P = \text{percent change in } M - \text{percent change in } Y$$

FALSE 18. Monetarists such as Milton Friedman think that the Federal Reserve should actively use monetary policy to keep the economy from falling into recession.

Friedman preferred a constant growth rate rule, and regarded Fed mistakes as more likely than using monetary policy effectively.

TRUE 19. Monetarists such as Milton Friedman favor a constant growth rate of the money supply.

FALSE 20. Milton Friedman attributed the Great Depression to the excessively inflationary policy of the Federal Reserve.

Friedman thought the mistake was an insufficient increase in the money supply. The Fed did increase open market purchases, but banks failed to make new loans or create new deposits, so the actual money supply did not increase very much.

FALSE 21. Milton Friedman was a very conservative economist who advocated a return to the gold standard.

Friedman was a very conservative economist, but realized that returns to the gold standard would mean a serious contraction in the money supply. He pointed out that the countries which maintained the gold standard suffered a longer and more serious depression in the 1930s than those which abandoned it. The gold standard implies fixed exchange rates, Friedman pointed out that this would make monetary policy impossible on the (few but important) occasions when it was needed, and was a strong defender of floating exchange rates.

FALSE 22. Milton Friedman is a very conservative economist who is opposed to the Federal Reserve policy of “quantitative easing” in response to the Great Recession of 2007-2009.

Friedman died in 2006, but in response to the very similar crisis in Japan in the 1990s, when the Bank of Japan had driven their target interest rate down to zero, suggested that targeting longer-range interest rates by buying longer-term government bonds was still an option. Ben Bernanke, the current Fed chairman, clearly regards himself as greatly influenced by Friedman, and Bernanke's speech on Friedman's 90th birthday is a good summary of Friedman's views.