Class Outlines
October 2 and October 4, 2001

October 2, 2001

I. Fractional Banking System

a. In the United States, we use a system that is also known as a *fractional banking system*. This means that a bank does not have to hold every deposit in their vaults or as a deposit at the Federal Reserve. They only need to hold a fractional of total deposits. Banks make profits by loaning deposits to borrowers. Since banks take deposits from one party and lend it to another, banks are often called *financial intermediaries*.
    i. What fraction of deposits do banks hold?
        1. By law banks must hold a certain percentage (currently 10%) of all deposits made. This percentage is known as *the required reserve ratio.*
        2. Every day, banks must meet their legal requirements for reserves. To avoid being short (and for other reasons) banks may to choose to hold reserves in excess of those required by law. These reserves are known as excess reserves.

b. Money creation and the fractional banking system.
    i. The Fed can alter the amount of money in the economy without ever altering the amount of currency and coin in circulation. Money is more complex than our notion of it. Specifically one definition of money *M1* consists of the following components.
        1. Currency and coin
        2. Other Checkable Deposits
        3. Demand deposits (what we typically think of as checking accounts).
        4. Traveler's checks
    ii. If the Fed can alter the amount of money people have in their checking account, then they can alter the amount of money in the economy. The Federal Reserve can do this by altering the amount of money banks desire to lend.
        1. Example. Suppose I deposit $1000 into my checking account. This is part of the money supply. The bank will keep a certain percentage of my deposit in their vaults. Let's assume this is 10%. The banks will lend the rest out. Suppose the bank lends $900 to you, and you go out and buy a car from a friend. Your friend is likely to take the $900 and put it into his or her

checking account. Now, your friend has $900 and I have $1000. The initial deposit I made has created $1900 in the second stage. The bank will take the $900 deposit loan $810, and so on and so forth.

a. The deposit expansion multiplier. Any deposit will create more money than the initial deposit. The final number depends on how much banks hold as reserves. If banks do not hold ANY excess reserves (and only hold required reserves) the total amount of money created is given by the following formula:
    i. Money=(Initial Deposit)*[1/(Required Reserve Ratio)]. In our example, the required reserve ratio is 10%. Thus, the initial deposit of $1000 ends up creating a total of $10,000 in money.

II. The Federal Funds Market

a. Above, we have seen that some banks may choose to hold excess reserves to avoid the penalties of falling short of reserve requirements by the end of the day. Some banks may hold reserves until the end of the day, so that they are able to lend money to banks who are short of their reserve requirements. Banks lend money to other banks in the *Federal Funds Market.*
    i. We know that the Federal Reserve targets the Fed Funds rate. Why?
    ii. When the Federal Funds rate is high, banks have less incentive to borrow in this market. Because this market is used to meet reserve requirements, banks may choose not to be in a situation where they are short of reserves by the end of the day. Thus, banks may choose to lend less money. At each stage, the amount of money being lent decreases. This decreases the money supply.
    iii. Conversely, when rates are low, banks will lend a large amount throughout the course of the day. If they are short by the end of the day, so what? They can borrow at a low interest rate in the Fed Funds market. The effect is more liquidity and thus more money in the economy.

III. Test handed back.

October 4, 2001

I. Tests of theory

a. An acceptable theory, such as the theory of IS/LM must meet two criteria
    i. The assumptions must be reasonable. For example, the assumption that the United States' economy is closed is not a bad assumption, since the total volume of exports and imports for the United States is small relative to GDP.
    ii. The major implications of the model must be consistent with what is observed in the real world.
        1. What are the major assumptions of the IS/LM model?
            a. Production is determined completely by demand.
            b. Prices are constant.
            c. We live in a closed economy.
        2. What are the major implications of the IS/LM model?
            a. Fiscal policy
                i. Expansionary fiscal policy causes output and interest rates to rise.
                ii. Contractionary fiscal policy causes output and interest rates to fall.
            b. Monetary policy
                i. Expansionary monetary policy causes interest rates to fall. In response, output increases.
                ii. Contractionary monetary policy causes interest rates to rise. In response, output falls.

b. The evidence on the IS/LM curve.
    i. In general, we can say that the assumptions and implications are reasonable and consistent with what is observed in the real world.
        1. Example. One study the textbook mentions (Christiano, Eichenbaum, and Evans (1996), *Review of Economics and Statistics*) looks at the impact of an increase in the Federal Funds rate. We observe the following:
            a. After an increase in the Fed Fund's rate, retail sales fall. They are at their lowest point after about 5 quarters.
            b. Output falls (although at a somewhat smoother rate than retail sales fall).
            c. Price remain relatively constant for about 6 quarters.
            d. Unemployment rises substantially as output falls.

2. The above implies that with respect to monetary policy, the IS/LM curve analysis is consistent with the real world.

c. Limitations of the IS/LM model.
   i. We saw above that prices are not always constant.
   ii. Production is not necessarily determined by demand. The evidence of the 1970's showed us that oil prices can impact supply and thus production.
   iii. We also saw that unemployment rises in relation to a fall in output. Our model says NOTHING about unemployment.

II. The Medium Run

a. Again the major implications of the IS/LM model are relatively consistent with the real world over a short horizon. Over longer periods, however, prices are not constant, and some of the other assumptions begin to break down. Thus, we will now consider output over the "medium run".

b. The Labor Market. We now consider several aspects of the labor market in the United States of America.
   i. At any given point in time, a worker falls under one of three categories.
      1. He or she is employed.
      2. He or she is unemployed.
      3. He or she is not even in the labor market.
   ii. In class, we looked at the graphic depicted on page 107 in your textbook. This graphic describes the flow of workers between the given categories above during any given month. We can draw the following conclusions from this visual.
      1. The number of workers that flow into and out of employment is very high. Roughly 2.9 million workers a month leave employment, while 3.1 million a month enter employment.
      2. During any month, the number of workers who leave unemployment status (by becoming either employed or leaving the labor market) is nearly 1/3 the total number of unemployed workers. This implies that the duration of unemployment for a given worker is fairly short. In general most workers who become unemployed are unemployed for less than two months.
      3. There is a very large component of workers who are not even in the labor market. This may be due to the fact that some workers are getting schooling or are caring for a family. It is unlikely however, that this accounts

for all the workers who are not in the labor force. Thus, it is likely that some workers are *discouraged workers* leaving the labor market because of their inability to find a job.

4. The above three are general to all members of the economy. However, some workers are disproportionally affected by unemployment. These groups include:
    a. Minorities, in general, and especially African-Americans (the unemployment rate among African Americans is roughly 8.9%).
    b. The young (typically thought of as workers between 16 and 19 years of age).
    c. Unskilled workers.

iii. Aspects of the unemployment rate over time
    1. Between 1950 and 1990, there appeared to be an upward trend in unemployment. This trend appears to have reversed itself.
    2. Although there was a steady increase in unemployment between 1950 and the 1990, there was quite a bit of fluctuation about this trend.

iv. Affects of unemployment on workers.
    1. Logically, there are at least two ways in which workers are directly affected by growing unemployment. Each of these affects will allow us to say something about unemployment and wages.
        a. Probability of being layed off (or becoming unemployed) for an employed worker increases when unemployment is high.
        b. Unemployed workers struggle to find jobs, as the number of vacancies declines.