

## Objectives for Chapter 23: The Basic Theory of Monetarism

At the end of Chapter 23, you will be able to answer the following:

1. What is "*monetarism*"?
2. What is the *demand for money*?
3. What is the **relation between velocity and the demand for money**? Why?
4. How does the demand for money change as **Real GDP** changes? as the **price level (GDP Deflator)** changes? as **real interest rates** change? as **expectations of inflation** change?
5. Draw **the demand for money curve**. What will cause a **movement along** it? What will cause a **shift** in it?
6. What are the effects of **an increase in the money supply**? Show on a graph how interest rates are determined by the demand for and supply of money.
7. What is the relation between the market **price of a security and the interest rate**? Why?
8. Describe the debate over **the stability of velocity**. What does the **evidence** show about velocity?
9. Given their assumption about velocity, what are the monetarist conclusions about the causes of changes in aggregate demand (i.e., describe *the "transmission mechanism"*)?
10. Describe the debate between the Monetarists and the Keynesians over **the effectiveness of fiscal policy**.
11. Describe the **job search model**.
12. What is meant by "*adaptive expectations*"? by "*rational expectations*"?
13. What is the "*natural rate of unemployment*"?
14. What is the argument of the monetarist economists in favor of a **constant growth rule** for the money supply?
15. What are the "*time lags*"?

## Chapter 23: The Basic Theory of Monetarism (latest revision October 2004)

Chapters 13 through 18 involved the Keynesian approach to economic policy-making. The Keynesian approach, with its emphasis on fiscal policy, was particularly dominant in the 1960s and 1970s. This chapter and the next will consider a contrasting approach, known as *Monetarism*. As you can guess from the name, Monetarism devotes much of its attention to money. Monetarism arose in the middle of the 1950s as a revival of the classical approach to Economic thinking. Before proceeding on, **you need to review the classical approach, especially Say's Law and the Quantity Theory of Money** --- discussed in Chapter 11. For about ten years, Monetarism was considered a minor view in contrast to the dominant Keynesian view. But beginning in the middle of the 1960s, Monetarism began to be taken much more seriously. This view shifted the focus of policy making from the government (and fiscal policy) to the Federal Reserve (and monetary policy). During the 1960s, 1970s, and 1980s, there was an important debate between the Monetarist economists and the Keynesian economists. But in the last ten to fifteen years, much of this debate has been resolved. This resolution has seemed to favor the views of the Monetarist economists, giving the Monetarist viewpoint considerable

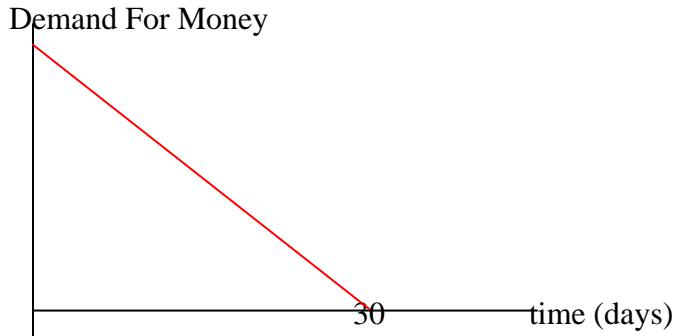
importance. In this chapter and the next, we will explain the theory and the policy recommendations of the Monetarist economists, contrast them with those of the Keynesian economists, use the ideas of the Monetarist economists to explain the economic events of the past thirty years, and discuss the resolution of the debate between Monetarist and Keynesian economists. The monetarist view begins with an old idea --- the demand for money.

## 1. The Demand for Money

When we discussed money, we considered the **three functions** that money serves. Until now, we have considered only the medium of exchange function. But *money is also a store of value. This means that money is one way of holding wealth. Wealth is the value of everything one owns.* Consider your wealth. You own your car, your home, your winter home, your summer home, your boat, your private plane, and so forth. (OK, maybe not all of this just yet). But you also own money --- your currency plus whatever is in your checking account. *The part of your total wealth that is comprised of money is called your demand for money.* Even though we use the word “demand”, this demand is different from other demands. The demand for cars is your desire to **buy** cars. But the demand for money is your desire to **hold** money as part of your wealth.

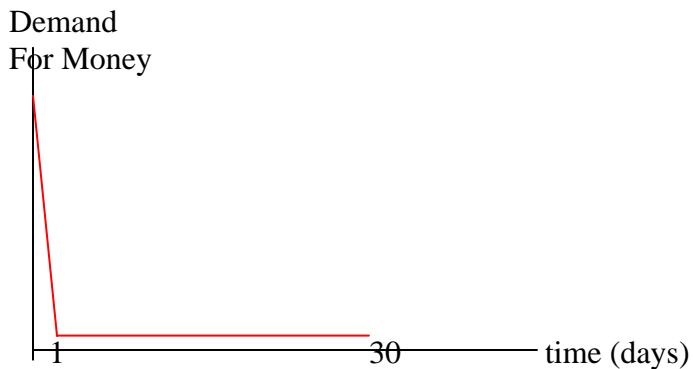
The demand for money is related to a concept we first saw in Chapter 11 – velocity. *Velocity involved the number of times the average dollar is spent in a year.* If velocity is rising, what must be happening to the demand for money? That is, if people are **spending** dollars more times in a year, what must be happening to the amount of money they are **holding** as part of their wealth? The answer is that it must be falling. If people are spending the money, they cannot be holding it. And if they are holding the money, they cannot be spending it. So we say that velocity and the demand for money are **inversely related**. *If the velocity is rising, the demand for money must be falling and if velocity is falling, the demand for money must be rising.*

What determines the demand for money? That is, **what determines the quantity of money that people choose to hold as part of wealth?** Until the 1930s, the only answer was that people hold money to make daily transactions. This is called the *Transactions Demand for Money*. You could keep your wealth in an account that earns higher interest than money pays. But then, if you want to buy something, you would have to withdraw the amount from this account. That could become very inconvenient. **So you sacrifice the extra interest you could have earned in order to have the ease of making daily transactions.** The amount of money you need to hold as part of your wealth depends on the amount of your daily transactions. This is closely related to your income. Assume that you are paid once a month and that you earn \$1,000,000 per month. To make our calculation easier, let us assume that you spend the \$1,000,000 evenly over the month, spending the same amount every day. On the last day of the month, you have spent your entire \$1,000,000 and your balance is zero. Then, you are paid again. Your balance over time looks as follows:



On average, what was your balance over the month? The answer is \$500,000 (you started with \$1,000,000 and ended with zero). This is  $\frac{1}{2}$  of your \$1,000,000 income. So we would say that your **demand for money equals  $\frac{1}{2}$  of your income**.

Now, let us make this more realistic. I do get paid once per month. Certainly, it is not \$1,000,000. And my spending looks as follows:



In this case, I do not hold half of my income as money. I spend most of my income shortly after being paid and then hold on for the rest of the month. But I do hold an amount of money equal to a certain percent of my income. Call that percent **k**. It is widely believed that **this percent, k, does not change greatly from month to month or from year to year**. I still get paid once a month. I spend my money in about the same way. That k does not vary greatly will be quite important, as we will see below. (The letter k is from the German word for constant.)

**So the demand for money is some percent (k) of income.** For the nation, income means national income. As we saw with the quantity theory of money, **national income equals Nominal GDP. This is the product of the price level (GDP Deflator) times the quantity produced (Real GDP)**. (With simple numbers, if 100 items are produced at a price of \$10 each, then the Nominal GDP is equal to \$1,000 (\$10 times 100). If \$1,000 worth of goods and services are produced, then \$1,000 is earned as National Income.) So the transactions demand for money uncovers two factors that affect the amount of money people choose to hold as part of wealth. **First, as prices (measured by the GDP Deflator) rise, the demand for money rises and vice versa.** People need to have more money to pay the higher prices. **Second, as the quantity of goods and services produced (measured by the Real GDP) rises, the demand for money rises and vice versa.** People need to have more money to be able to buy the greater quantity of goods and services.

The more people will spend on daily transactions, the greater is the demand for money and vice versa. **The demand for money = k times P times Q.**

In addition to the transactions demand for money, there is also *an asset demand for money*. There are two aspects of this asset demand for money. The **first** aspect is that, in addition to the price level and the Real GDP, *the demand for money also depends on real interest rates*. Money pays less interest than any other form of saving. Assume that there are only two forms of holding wealth: checking accounts and Treasury Bills. Checking accounts pay 1% interest. If Treasury Bills pay 10% interest, where do you wish to hold your wealth? Of course, the answer is in Treasury Bills. You would hold only as much money in your checking account as you need for daily transactions and no more. Now suppose that Treasury Bills pay only 1 1/2 % interest. In this situation, it would not matter much if you hold an extra part of your wealth in the form of money in your checking account. And if interest rates are unusually low, you might expect them to rise soon. As you saw in Chapter 7, **if interest rates do indeed rise, the prices of securities will fall**. Therefore, you might be afraid that if you buy a Treasury Bill and later need to sell it, the price might fall and you might not get all of your money back. It might be wiser to hold onto the money in your checking account. So, *one aspect of the asset demand for money is that if interest rates rise, the demand for money is falls and if interest rates fall, the demand for money rises*. Remember that this demand for money is **in addition to** the demand for money that occurs in order to make daily transactions. Subsequent research has verified that this statement is indeed true. (The interest rate referred to here is the **real interest rate**, not the nominal interest rate. Again, since most interest rates move up or down together, we are simplifying by assuming there is just one real interest rate.)

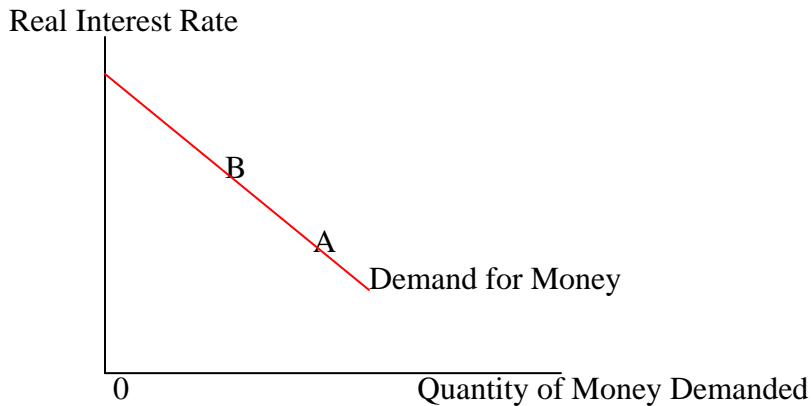
The **second aspect of the asset demand for money** reviews some material we learned in Chapter 4. This aspect is that **the demand for money depends on the expected rate of inflation**. If one expects very high rates of inflation in the near future, what happens to the demand for money? Remember that **money is not desirable to hold in times of inflation because it loses its value**. When you have money, you are a creditor (either the Federal Reserve owes you or a financial institution owes you). Creditors lose in times of inflation. **If you expect high rates of inflation soon, you would want most of your wealth in the form of real estate, gold or silver, and collectibles**. You would only hold as much money as you need to make daily transactions. But if you expect low rates of inflation, you are more willing to hold money. *So, as people expect higher rates of inflation, the demand for money falls and if people expect lower rates of inflation, the demand for money rises*. Again, this demand for money is in addition to the demand for money for everyday transactions. (Do not confuse expected inflation with the change in the GDP Deflator. If the GDP Deflator changes, prices actually do change. But with expected inflation, the prices have not changed yet. We only think they will change.)

***We can summarize here. The demand for money will rise if:***

- 1. Prices (as measured by the GDP Deflator) rise***
- 2. Quantity produced (as measured by Real GDP) rises***
- 3. Real interest rates fall***
- 4. People expect lower rates of inflation***

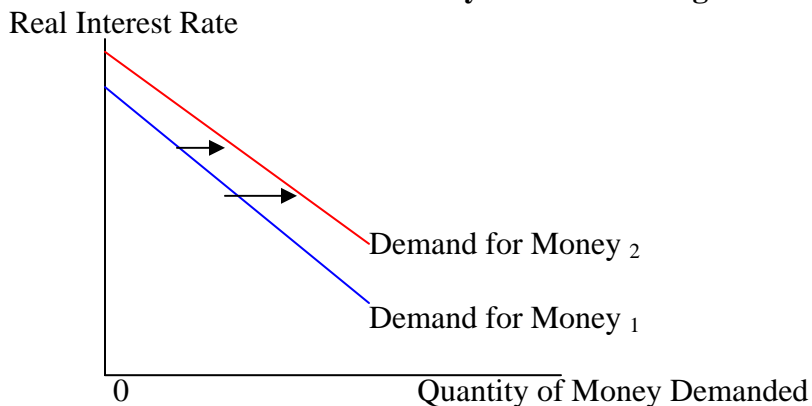
*The demand for money will fall if the opposite occurs.*

We can **graph** this demand for money. One of the four factors is chosen. That one is the real interest rate. **We know that as real interest rates rise, the demand for money falls and vice versa.** When we draw this, it looks as follows:



Notice that this looks like any other demand curve. But it is not the same as any other demand curve. We hold money; we do not buy it. And the reason for the downward slope of the demand for money curve is different from the reason for the downward slope of the demand curve for a product or of the Aggregate Demand curve. But it is very nice that this graph looks the same and operates in the same manner as graphs we have previously used. **We move along the line from one point to another point on the same line (such as from point A to point B) if the real interest rate changes. We shift the line if anything else changes. An increase in the demand for money is a shift to the right. (See the graph below.) A decrease in the demand for money is a shift to the left.** We know that these “anything else” include the GDP Deflator, the Real GDP, and expected inflation.

#### **The Demand for Money Shifts to the Right**



#### **Test Your Understanding**

On the demand for money curve, state whether there is a movement along the line, a shift to the right, or a shift to the left for each of the following cases:

1. prices, as measured by the GDP Deflator, rise (inflation)
2. quantity produced, as measured by the Real GDP falls (a recession)

3. real interest rise from 4% to 5%
4. people expect lower rates of inflation in the near future

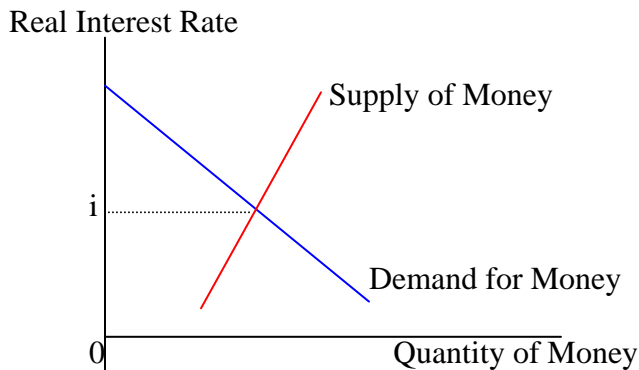
## 2. The Determination of Interest Rates

The demand for money is a very important concept in explaining why interest rates rise or fall. Indeed, *interest rates are determined by the demand for money and the supply of money*. As we saw in the previous chapter, the supply of money is determined by the Federal Reserve. However, **the supply of money does rise if interest rates rise**.

### Test Your Understanding

Explain why the supply of money rises as interest rates rise. There are two reasons. If you have forgotten this, go back to the previous chapter. This point was explained there.

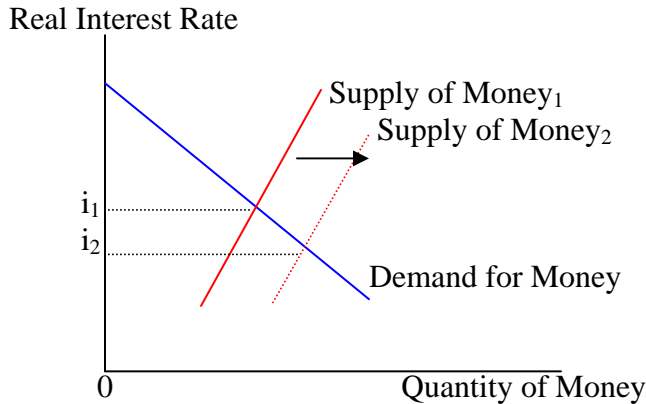
So let us put the demand for money and the supply of money together.



As you can see, *interest rates are determined at the equilibrium point where the demand for money and the supply of money are equal*. It is important to note that interest rates are not determined solely by the actions of the Federal Reserve Board. You and I, in determining our demand for money, also affect interest rates.

## 3. Monetarism I: The Transmission Mechanism

The Federal Reserve Bank in New York chooses to buy Treasury securities from a government securities dealer. As a result, you here in California choose to buy a new car. What is the link between what they do and what you do? This link is known as *the transmission mechanism (the mechanism by which a change in the money supply is transmitted into a change in aggregate demand)*. The main transmission mechanism we will focus on here involves **interest rates**. Let us redo the graph and now increase the supply of money.



The graph shows us that **when the Federal Reserve increases the supply of money, interest rates fall.** We saw in the previous chapter that there are two reasons why this is so. First, the Federal Reserve increases the supply of money by buying Treasury securities. It simply creates the reserves to pay for them. These reserves are deposited in a commercial bank. Because of these new reserves, that bank would like to make a new loan. To make a new loan, the bank needs to attract borrowers. To attract borrowers, the bank lowers the interest rate it charges. Second, when the Fed buys Treasury securities, the price of the Treasury securities rises. As we saw in Chapter 22, a rise in the price of securities is the same as a decrease in the interest rate on them.

So, **when the Federal Reserve increases the supply of money, interest rates fall.** That is the link from the Fed to you. When interest rates fall, your monthly payment on a new car falls. You can now afford that new car. So you buy it. Consumer spending rises. Interest rates are also the link to businesses. As interest rates fall, businesses can now afford to borrow to buy new capital goods. Finally, when interest rates fall, what happens to the value of the American dollar? The answer is that it depreciates. When the dollar depreciates, what happens to American exports? The answer is that they increase. What happens to the value of American imports? The answer is that they decrease. Instead of importing, American consumers and businesses buy more goods and services produced in the United States. The result of all of this is that aggregate demand (total spending) rises.

*We can summarize the transmission mechanism as follows:*

- (1) the Fed increases the supply of money by buying Treasury securities*
- (2) as a result, interest rates fall*
- (3) when interest rates fall, consumer spending rises, business investment spending rises, and net exports rise (exports rise and imports fall because the dollar depreciates)*
- (4) the increase in consumer spending, business investment spending, and net exports cause aggregate demand to rise by the amount of this increase times the expenditures multiplier. The expenditures multiplier is given by the formula  $1/1-MPC$ . (It results because when you respond to the lower interest rates and buy a new car, the car companies have more income. Their greater income will increase their consumer spending, which will give yet others more income, and so forth.)*

*The opposite results when the Federal Reserve decreases the money supply.*

### Test Your Understanding

Assume that every time the Federal Reserve increases the supply of money by \$20 billion, interest rates will fall by 2 percentage points (for example, from 8% to 6%). Also assume that every time interest rates fall by 2 percentage points, business investment spending rises by \$10 billion. Equilibrium Real GDP is equal to \$400 billion. Potential Real GDP is equal to \$500 billion. The marginal propensity to consume (MPC) is equal to 9/10 (0.9). The interest rate is 8%. Business investment spending is \$20 billion. And the supply of money is \$120 billion. In order to eliminate the recessionary gap, by how much and in what direction should the Federal Reserve change the supply of money?

There might be a problem with this transmission mechanism. In normal times, it would operate as described. But what happens in a severe recession? The Federal Reserve increases the money supply and interest rates fall. ***But if people are worried about losing their jobs and if businesses do not believe that they can sell products, the new money may not be borrowed. It may just sit in the bank.*** The bank would like to lend the money out. So it continues lowering interest rates to try to attract borrowers. But because of these “pessimistic expectations”, there are no borrowers. ***In this case, the increase in the supply of money may not cause aggregate demand to rise. The severe recession may continue, with the Federal Reserve powerless to cure it.*** People have metaphorically referred to this as “pushing on a string”. Something like this may have occurred during the Great Depression of the 1930s. This was a major point of Keynes. It is also a point that monetarist economists disagree with.

### Test Your Understanding

As we said, interest rates are determined by both the demand for money and the supply of money. Our analysis thus far has focused only on changes in the supply of money. But changes in the demand for money will also affect interest rates. Draw the demand for money and the supply of money as they are shown above. Show the equilibrium interest rate. Then, for each of the following occurrences, shift the demand for money curve and explain what will happen to interest rates.

1. there is an expansion (Real GDP rises)
2. there is inflation (prices, measured by the GDP Deflator, rise)

## 4. Monetarism II: The Ineffectiveness of Fiscal Policy

One major area of debate involved the effectiveness of fiscal policy. As we saw earlier, Keynesian economists placed much faith in fiscal policy to improve economic conditions. Monetarist economists disagreed. To examine this debate, let us consider one specific fiscal policy --- **an increase in government spending**. We will assume that taxes are not also increased, as this would be a second fiscal policy. We will also assume no change in the money supply, as this would be a monetary policy. If the government increases its spending with no change in taxes or in the money supply, where does it get the money to spend? The answer is that **it borrows**. When the government borrows, what happens to interest rates? The answer is that **interest rates increase**. When interest rates increase, what happens to consumer spending and to business investment spending? The answer is that **consumer spending and business investment spending decrease**. When interest rates increase, the dollar also appreciates reducing net exports (**exports decrease and imports increase**). We have seen this phenomenon before. It is called

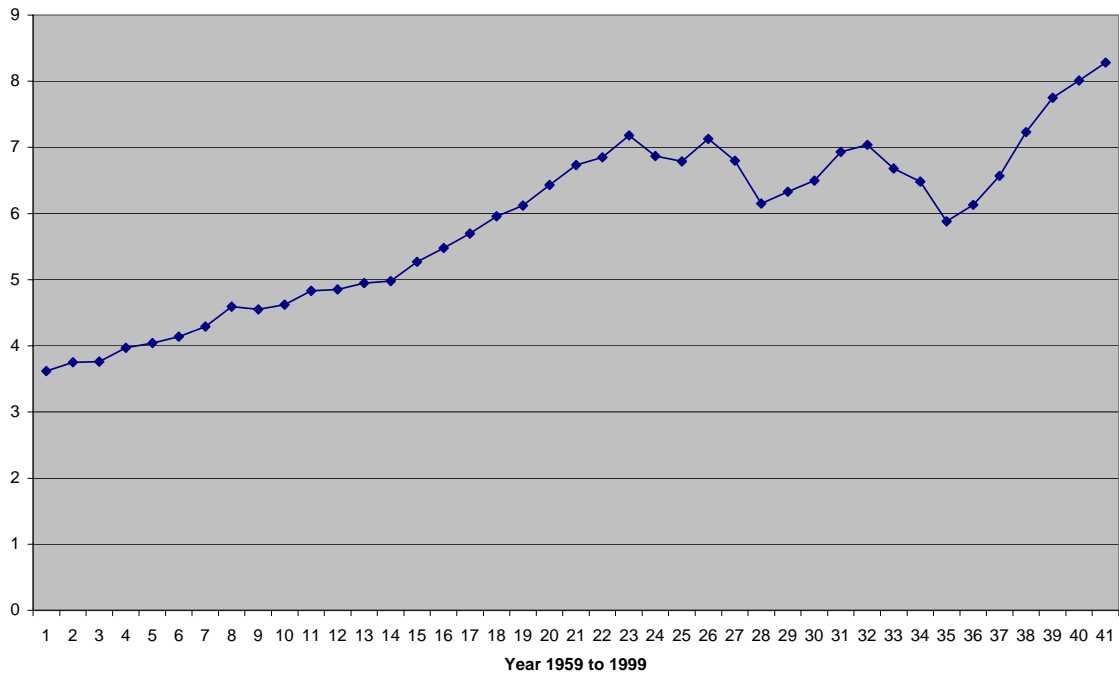
**“crowding out”**. According to monetarist economists, **crowding out is complete**. This means that if government spending increases by \$100, consumer spending, business investment spending, and net exports will decrease by the same \$100. As a result, **aggregate demand (total spending), which is the sum of consumer spending plus business investment spending plus government spending plus net exports, will stay the same. Fiscal policy has had no effect at all on aggregate demand (total spending)**. All that has been accomplished is to change the composition of aggregate demand toward the goods and services that government buys (aircraft for example) and away from the goods and services that everyone else buys (cars and trucks for example). By itself, fiscal policy is powerless in this view. **All of the power to change aggregate demand must reside with the Federal Reserve**. This was a very important assertion.

One major event seemed to provide support for this assertion. In the early 1980s, government spending rose quite substantially, mainly for defense. Under President Reagan, as we will saw in Chapter 19, taxes were also lowered. Budget deficits grew to be extremely large. **Fiscal policy was very expansionary**. At the same time, the Federal Reserve was decreasing the money supply. Interest rates were exceptionally high. **Monetary policy was very contractionary**. The two policies were pulling the economy in opposite directions. Which way did the economy go? In this period, the American economy experienced the most **severe recession** since 1940. It also experienced surprising **disinflation**. In 1980, prices had risen 13.5%. By 1983, the rate of inflation had fallen to 3.5%. No one had predicted a decline in the rate of inflation this much this fast. Who has the power over aggregate demand? **The economy clearly went in the direction that the Federal Reserve took it and not in the direction that the government’s policies took it**. Since that time, the Federal Reserve has received much more attention than it used to receive.

Since the early 1990s, there has been a significant attempt to have the government and the Federal Reserve moving the American economy in the same direction. (Remember that the Federal Reserve is independent of the government.) So, in 2001, when the American economy entered a recession, the government proposed to reduce taxes while the Federal Reserve increased the money supply and lowered interest rates.

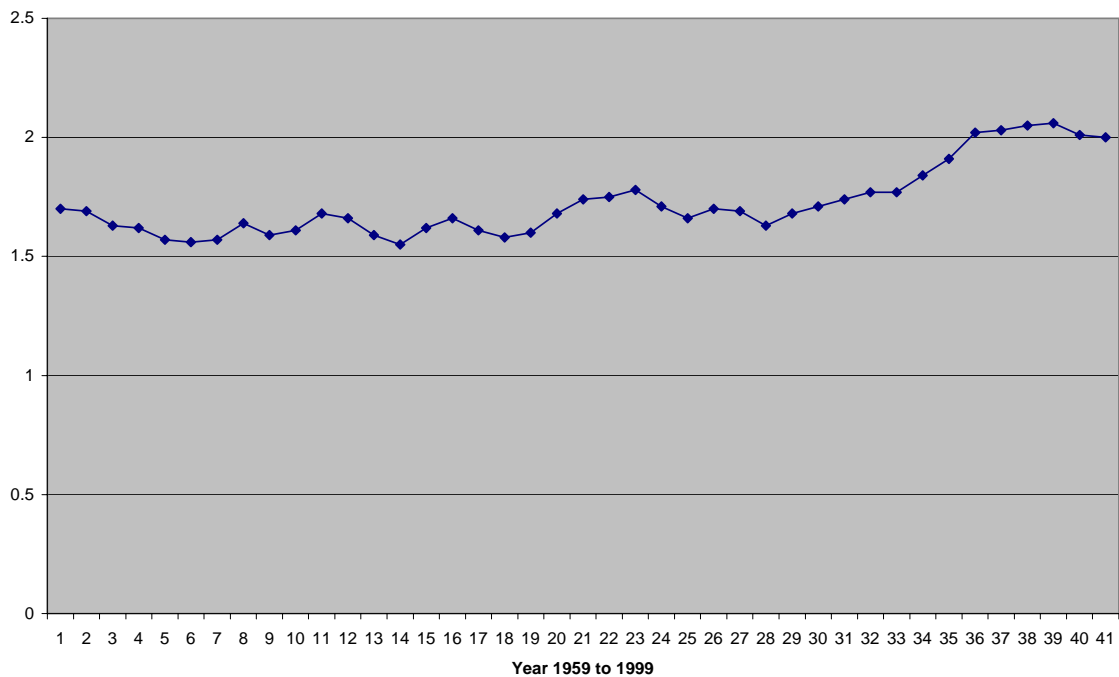
**The monetarist view is derived from the classical view**. Recall from the quantity theory of money that **aggregate demand is viewed as the money supply times the velocity ( $M \times V$ )**. The velocity is defined as the number of times the average dollar is spent. In the classical view, and also in the monetarist view, **velocity is assumed to be constant. So aggregate demand can change if and only if there is a change in the money supply. Without a corresponding change in the money supply, fiscal policy is powerless to change aggregate demand**. But if velocity is not constant, fiscal policy can indeed affect aggregate demand by itself. Now we need to ask whether or not velocity is indeed constant. Remember that  $M \times V$  equals  $P \times Q$ .  $P \times Q$  is equal to the Nominal GDP. **So we calculate velocity by taking the Nominal GDP and dividing by the Money Supply**. If we use M1 as our measure of the money supply, we get the following for the years 1959 to 1999:

Velocity of M1



It is apparent from this chart that Velocity has not been constant. It has generally been rising, although with some ups and downs after 1980. If we use M2 as our measure of the money supply, we get the following:

Velocity of M2



Here velocity was close to being constant for many years. But in the last ten years, this measure of velocity has risen as well. And there are clearly some ups and downs over time. **So we can conclude that velocity has not been stable enough to assert that aggregate demand can change only if there is a change in the money supply.** Other factors have affected aggregate demand through their effect on changing velocity. **Today, relatively few economists would hold a position as extreme as that of the monetarist economists that fiscal policy is absolutely powerless to affect aggregate demand. But most economists would agree that monetary policy is the more powerful tool.** Those economists who once put great faith in fiscal policy have adjusted their views and now believe that fiscal policy by itself is less significant than they once thought it to be.

### Test Your Understanding

1. Let us explore the **Keynesian view that velocity is not constant**. Remember that velocity and the demand for money are inversely related. When the government increases its spending and correspondingly increases its borrowing, interest rates rise. As we explored earlier, when interest rates rise, the demand for money \_\_\_\_\_(answer “rises” or “falls”). This change in the demand for money is the same as velocity \_\_\_\_\_(answer “rising” or “falling”). **The monetarist viewpoint seems more relevant at a time of full-employment. The government borrows money that otherwise you would borrow. It buys a plane in place of you buying a car. The Keynesian viewpoint seems more relevant at a time of recessionary gap. When there is a recessionary gap, the government borrows money that no one else wishes to borrow. The government spends this money. That provides income to someone. That someone spends part of the increased in income. The government has started the multiplier process into motion. The multiplier process (I spend, giving you income. You spend part of that income. And so on.) acts to increase the velocity.**
2. Notice in both charts that **velocity has been trending upward**, especially since the end of the recession of the early 1990s. If velocity is trending upward, then **the demand for money must have been trending downward**. This means that people have been holding less money as part of their wealth. Based on what you have learned about the demand for money, what reasons can you suggest for this change?

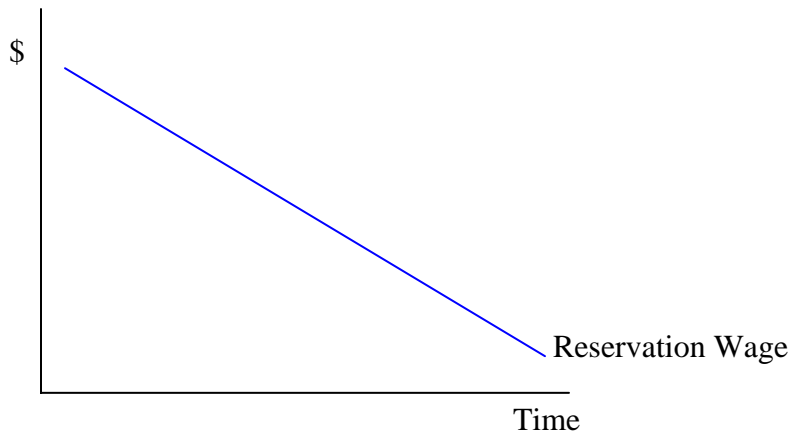
## 5. Monetarism III: The Job Search Model

As we said above, **the monetarist view was derived from the classical view**. We considered the assertion about velocity in the preceding section. Now it is time to consider the classical view’s assertion about Real GDP. Remember **Say’s Law**. In that view, it was asserted that **Real GDP would always be equal to Potential Real GDP**. There would be no recessionary gaps, except temporarily. If a recessionary gap existed, three forces would go into effect to eliminate it: prices, wages, and real interest rates would all decrease. This means that, except temporarily, cyclical unemployment would not exist. All unemployment was of the frictional, seasonal, or structural types.

The monetarist viewpoint also begins there with the assertion that recessionary gaps and cyclical unemployment will not exist, except temporarily. **All unemployment is of the frictional, seasonal, or structural type**. However, their explanation was more involved. In their view, **the problem of unemployment derives from imperfections in the job search process**. So let us begin a description of this part of the Monetarist view by examination the process of job search. Imagine you are talking to many other students

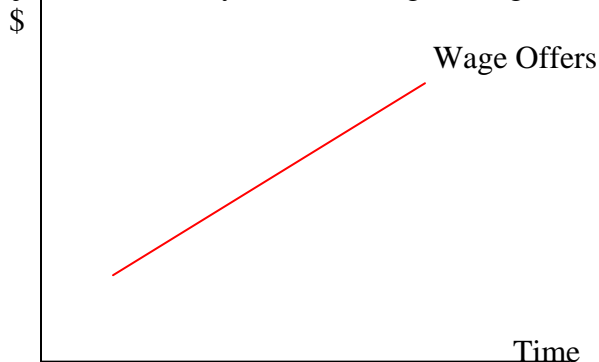
and you learn that all of them are working and that all of them are earning much more than you are. So now you know that there are jobs available that are better than yours. You want to get a better job. For most people, this means that you must quit your job. Searching for a job is a major activity. You will need more time than you would have if you kept your old job. So you decide to devote your time to job searching. You will be unemployed for a while. But then you hope to find a higher paying job. You expect the increase in your income will more than offset the time you lost from work.

You encounter two problems when you enter into a job search. **First, you have no idea what wage you can find.** What are you worth? You don't know. So a reasonable strategy is to aim high. You may aim too high. If you do, you will learn this because no one will offer you a job. If this happens, you can always lower your goal and accept less. But this strategy is better than one in which you take a job and then wonder if you could have found a better one if only you had continued looking. ***The lowest wage you are willing to accept is called your reservation wage.*** Over time, this reservation wage may decline for two reasons. **One is that you learn that you are aiming too high (no one offers you a job).** **The other is that with no current job, you start to run out of funds.** You might decide that you have to have a job within six weeks. If you wait longer than that, you will not have enough money to pay your rent, causing you to risk being evicted. A time chart of your reservation wage might look as follows:

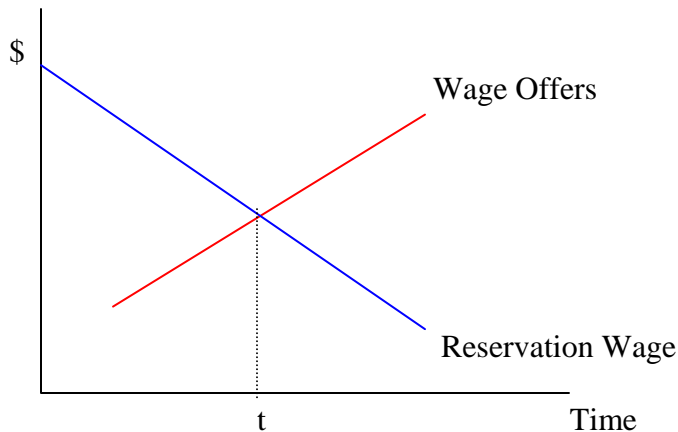


**The second problem you have is finding the jobs that are available.**

Approximately 80% of jobs that are available are never advertised. Your best chance to find a job involves family or friends. If these are of no help, then you go door to door. You keep going back to each company. Eventually, people help you; they tell you where a job like the one you are looking for might be found. Over time, the offers become better



**Over time, you become willing to take lower and lower wages (from your original high goal). Over time, you find jobs with higher and higher wages. Eventually, someone offers you a job that you are willing to accept.** Let us call this time  $t$ . At that time, you are no longer unemployed.



Take the total number of people who go through this job search process in a year. Multiply by the proportion of the year, on average, that people are unemployed and searching for a job (called the *average duration of unemployment*). The result tells you the annual number of unemployed people. So for example, if 40 million people go through this job search process in a given year and, on average, each is unemployed for three months (1/4 of a year), then this is the same as 10 million people (1/4 of 40 million) being unemployed for the entire year. Take this number and divide by the labor force to arrive at an unemployment rate. So, if the labor force is 250 million, the unemployment rate is 4% (10 million divided by 250 million). Monetarist economists called this unemployment rate the *natural rate of unemployment*. It is what we earlier called “*full employment*”. Everyone who is unemployed is searching for a better job. There is no cyclical unemployment (that is, there are enough jobs).

### Test Your Understanding

In November 2000, the unemployment rate in America was 4%. Therefore, we think that the actual unemployment was equal to the natural rate of unemployment. In this month, the average duration of unemployment was 12.4 weeks. The total labor force was equal to 140.9 million people. Assume that these numbers existed for the entire year. How many people went through the process of searching for a job in 2000?

The existence of **structural unemployment** does not change this characterization. Structural unemployment means that people are unemployed because of a mismatch between their characteristics and those of the vacant jobs. They have insufficient skills. Or they are over-qualified. Or they are in the wrong location. **Structurally unemployed people will simply take a longer time to find a new job than will frictionally unemployed people.** If there is a greater amount of structural unemployment, the average duration of unemployment will rise. Therefore, the natural rate of unemployment will be higher.

### Test Your Understanding

The natural rate of unemployment is estimated to be about 4% today. In the 1980s, it was estimated to be about 6%. By any estimation, it has fallen. Each of the following has been given as explanations for the decline. Explain why each of the following might have contributed to the decline in the natural rate of unemployment:

1. the rise in the use of temporary employment agencies
2. the decline in the number of people age 16 to 22
3. the fact that married women are more experienced workers now than they were in the 1980s

We will be using this description of the job search process in the next chapter to explain economic events. But there is one more aspect of it that we need to consider here. What determines one's reservation wage – the lowest wage offer that one will accept? Many answers to this question are specific to an individual --- one's education, experience, location of residence, size of family, and so forth. But one answer to this question seems to be general for all people. That answer is one's **expectations of inflation**. People are interested in the **real wage** they receive. If they believe that prices will be rising soon, they will desire higher wages now. *So the more inflation people expect, the higher is the reservation wage and vice versa*. If I am your employer and I offer you a raise of 6% today, you would probably be delighted. But if I offered you the same raise in 1981, following a year in which prices rose 13.5%, you would have considered my offer an insult.

This brings us to the question: just how do we form expectations of inflation? There are two major types of expectations of future inflation. The type we will focus on in the next chapter is called adaptive expectations. *With adaptive expectations, people expect the future to be similar to the present and recent past*. As of this time, inflation rates are low. Inflation rates have been low for several years. With adaptive expectations, people would then assume that the inflation rate will also be low next year. We will not come to expect higher rates of inflation until after they actually happen. The other type of expectations is called rational expectations. *With rational expectations, people think about the future. They understand the behavior of the economy and therefore they understand what causes inflation*. So, for example, if people saw that the Federal Reserve had increased the money supply, they would come to believe that inflation rates in the future will be higher. They would therefore raise their reservation wages today, even though inflation rates have not yet risen.

## 6. Monetarism IV: The Constant Money Growth Rule

The final aspect of the views of the monetarist economists that we will consider in this chapter is **their distrust of discretionary changes in the money supply by the Federal Reserve Board**. Monetarist economists believe that aggregate demand will change only if the money supply changes. But they believe that the Federal Reserve Board cannot be trusted to change the money supply in a manner that will always be helpful. The problem, according to the monetarist economists, is the **time lags**. We encountered the time lags in Chapter 18. Assume that a problem (such as a new recession) begins January 1. It will take several months of collecting information to be able to diagnose the problem accurately. So it will be perhaps April by the time the Federal Reserve Board is sure of the new problem and decides to act. (This is called the *“recognition lag”*.) Then, it

will take some time for the policy makers to undertake a policy. The proper policy in this case is to increase the money supply to increase aggregate demand. It will not take long for the Federal Reserve Board to decide to increase the money supply. (The FOMC meets every six weeks.) It will not take long to begin buying Treasury securities in the open market. This might happen by April or May. (This is called the “*policy lag*”.) But, according to the monetarist economists, **the new policy will take several months to begin to have an effect on aggregate demand**. Interest rates have to fall in response to the increase in the money supply. Consumers and businesses have to respond to the lower interest rates, change their buying decisions, and then begin spending. **Monetarist economists expect no response to the change in the money supply for at least six to nine months**. Therefore, we will see no response until at least October or November. Finally, once consumers and businesses begin responding to the increase in the money supply, their response will continue for perhaps another year, even if the money supply is no longer increased. So the increase in spending may continue until October or November of the following year. (This is called the “*effectiveness lag*”.) Will the economy still be in a recession between October of this year and October of next year? Who knows? If it is, then the increase in the money supply will be helpful in ending the recession. But if the recession were to be over anyway by that time, the effect of the increase in the money supply could be to cause inflation. Monetarist economists believe that this undesirable result has indeed happened many times. The effect is analogous to drinking alcohol. I have a drink and nothing happens. So I have another. Then a third, a fourth, and so on. All of a sudden the effects of the first and second hit me. The effects of the first few drinks will persist for the rest of the night. By that time, I will be very sorry that I had the fourth drink, the fifth drink, and so on.

The solution, say the monetarist economists, is for there to be **a fixed rule** as to how much the money supply can be increased. The rule would be set by Congress and would seldom, if ever, be changed. The Federal Reserve Board would have no discretion as to how much money is to be created. Remember the equation of exchange:  $M \times V = P \times Q$ . Monetarist economists, as we saw, believe that  $V$  (velocity) is constant.  $Q$  (Real GDP) has been growing over the past half century at a rate that averages about  $2\frac{1}{2}\%$  per year. Therefore, a rule might be: **increase the money supply by  $2\frac{1}{2}\%$  each year**. That would keep prices relatively stable. Monetarist economists believe that, because of the time lags, the economy will perform better if there were such a rule than if the Federal Reserve Board has discretion over the creation of money.

This proposal has been debated for nearly 70 years. Very few economists, and certainly none of the members of the Board of Governors of the Federal Reserve, have supported it. As we will see in Chapter 27, the 1990s was a prosperous decade with high rates of economic growth and low rates of inflation. Much of the credit for this stellar performance has been given to the policies of the Federal Reserve and its Chair, Alan Greenspan. Although the Federal Reserve does make mistakes, most economists today believe that the American economy performs better if the Federal Reserve is able to change the money supply as it deems necessary.

## 7. Conclusion

In this chapter, we have examined the main ideas of the Monetarist economists, a very influential group of economists. We can summarize these ideas as follows:

- 1. A change in the money supply will cause a change in aggregate demand in the same direction. Velocity (and therefore the demand for money) is basically constant.*
- 2. A change in government spending or in taxes, with no corresponding change in the money supply, will not change aggregate demand at all.*
- 3. There is no cyclical unemployment. All observed unemployment is a result of imperfections in the job search process --- the fact that workers are likely to aim for wages that are higher than they are actually worth and the fact that it takes some time to find a job one is willing to accept. As we will see in the next chapter, observed unemployment also results because of adaptive expectations of inflation --- people believing that inflation in the near future will be the same as it is in the present and recent past.*
- 4. Because of the time lags, changes in the money supply are likely to have their effect after the situation they were intended to correct is over. As a result, these changes are likely to cause more problems than they will solve. The solution is a constant money growth rule.*

In the next chapter, we will continue our discussion of the views of the Monetarist economists. We will see how they explain the events of the 1970s and 1980s. As was said above, the debate between Monetarist and Keynesian economists has largely been resolved in the last ten to fifteen years. We will examine this resolution in the next chapter as well. And we will explain just what it is we know about the economy today and what we still need to learn.

### Test Your Understanding

1. It was said several times in this chapter that the views of the Monetarist economists are derived from those of the classical economists. Review the classical view in Chapter 11. Then, name as many ways as you can by which the views of the Monetarist economists are similar to those of the classical economists.
2. The Monetarist economists believe that all changes in aggregate demand result from changes in the money supply. Without a change in the money supply, they believe that there can be no inflation. Yet earlier, we argued that the inflation of the 1970s was caused by the rise in the price of oil. If you were a Monetarist economist, what do you believe would result if there were an increase in the price of oil with no change in the money supply?

### Practice Quiz for Chapter 23

1. Which of the following might cause an **increase in the demand for money**?
 

a. a higher real interest rate	c. a decrease in the GDP Deflator
b. a lower expected rate of inflation	d. a decrease in Real GDP
2. If the **velocity** is falling, the **demand for money** must be:
 

a. rising	b. falling	c. staying the same
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3. **Interest rates** are determined by
  - a. the demand for money only
  - b. the supply of money only
  - c. the demand for and the supply of money
  - d. government spending
  
4. Which of the following statements is true?
  - a. An increase in the money supply will raise interest rates which will depreciate the dollar, decreasing exports and increasing imports
  - b. An increase in the money supply will raise interest rates which will appreciate the dollar, decreasing exports and increasing imports
  - c. An increase in the money supply will lower interest rates which will depreciate the dollar, increasing exports and decreasing imports
  - d. An increase in the money supply will lower interest rates which will appreciate the dollar, increasing exports and decreasing imports
  
5. According to **the monetarists**, what is **the transmission mechanism** (that is., how does a change in the money supply cause a change in aggregate demand)?
  - a. an increase in the money supply causes an increase in velocity and thus increases aggregate demand
  - b. an increase in the money supply causes interest rates to fall which increases investment spending and thus increases aggregate demand
  - c. an increase in the money supply causes an increase in government purchases and thus increases aggregate demand
  - d. an increase in the money supply causes interest rates to rise which increases investment spending and thus increases aggregate demand
  
6. According to the **monetarists**, an increase in government purchases with no change in taxes nor in the money supply will cause interest rates to \_\_\_\_\_, consumption and investment spending to \_\_\_\_\_, and, as a result, aggregate demand to \_\_\_\_\_.
  - a. rise, rise, rise
  - b. fall, fall, fall
  - c. rise, fall, stay the same
  - d. fall, rise, stay the same
  - e. stay the same, fall, rise
  
7. Believing that the future will be similar to the present and recent past is called
  - a. adaptive expectations
  - b. rational expectations
  - c. past expectations
  - d. future expectations
  
8. The lowest wage that one will accept when searching for a job is called the
  - a. minimum wage
  - b. bottom wage
  - c. reservation wage
  - d. marginal wage
  
9. The rate of unemployment that exists when all unemployment is frictional, seasonal, or structural is called the
  - a. frictional rate of unemployment
  - b. natural rate of unemployment
  - c. minimum rate of unemployment
  - d. potential rate of unemployment
  
10. Which of the following would be considered a **time lag**?
  - a. it takes time to be able to recognize that an economic problem now exists
  - b. once an economic problem is recognized, it takes time to formulate a proper policy response
  - c. once a policy is formulated, it takes time for that policy to have its effect on aggregate demand
  - d. all of the above