INTRODUCTION TO MONEY

This chapter introduces money into the discussion. We are concerned here with some basic questions about money and not how changes in the money supply change macroeconomic variables. The questions in this chapter are: what is the role of money in a society and how may money have come about? Discussions of money are often organized around the functions that it performs. We follow this tradition, and emphasize how these functions reduce the cost of making trades and so improve welfare.

The Medium of Exchange

Trading goods and services uses up resources. Trading partners must be located and prices agreed upon. Either of these problems may be enough to stop trade. It may take so long to find a trade that it is just not worthwhile trying. Frontier households were often in this situation and had to provide for themselves. Still today negotiations break down between bargainors. Unions and management fail to find agreement, at least temporarily, and a strike or lock out occurs. An athlete's agent breaks off negotiations with the team's general manager and threatens that his client will sit out a year or play in another league or country. Making trades is costly, and we call these costs trading costs. It is the job of money to reduce these costs.

To begin, let's think about a frontier household. They grow or raise most of their food, and live in a cabin they built. They heat the cabin and cook their food with wood; a nearby stream and well furnish water. Now, suppose the family decides that the children need a new set of clothes. They will be sewed at home, but the seamstress needs cloth. The family knows that there are several taverns within a day or two ride and traveling salesmen often spend several days trading at these rest stops.
The question is: what should the family take to trade? It takes several days to ride to the taverns, and they may have to visit several to find cloth. This makes firewood or the roses that grow near the cabin, unlikely candidates. The firewood is too bulky and heavy, and the roses are likely to wilt before a trade can be made. Whatever the family decides to bring, it should be easy to carry and durable.

When someone with cloth is found, a trade is still not certain. A bargain must be struck. Whoever has the cloth must be convinced that the family has something of value to exchange and so our frontier household would be well advised to take something that is generally recognizable. It bodes ill for the trade if a lot of time must be spent to verify the value of an item. This rules out the family's set of antique wood carvings that it just inherited. Though these carvings have considerable value for expert dealers in New York City, it is very unlikely that one of the traders passing by a tavern would appreciate them, or know how to place a value on them.

Something that is clearly recognizable may still fail to complete the trade. When the bargaining begins not any price will do. For instance, the family will not trade its milk cow for the cloth; and there is no way to divide the cow into smaller pieces and still have it give milk. This rules out taking the cow. Bargaining will be easier if the good that they bring to trade is divisible. Divisibility allows for greater flexibility in coming to an agreement on a price.

Even with all of these things in mind, the family still has several choices. Salted ham, tobacco leaves, and corn meal all satisfy the requirements. In the amounts that they expect to need, all are relatively light and will not spoil on the trip. The quality of tobacco and ham vary, but small samples can be provided quickly and easily. All of the choices divide easily so "making change" won't be a problem.

Though we have not settled the question for the frontier family, we have narrowed the choices. Let's gather up our insights. Making trades uses up resources. In our example time, wear and tear on the wagon, lodging at the tavern, and so on are the costs. The goods used to
trade affect the amount of trading costs and to minimize these costs the good should be:

1) durable
2) portable
3) recognizable
4) divisible

A wise choice of a trading good raises the gains from trade. Further gains can be made if all of us agree to pick the same good to trade. For example, suppose our pioneer family knows that most everybody will accept tobacco in trade for cloth, farm tools, animals, furs, or anything else. Then, tobacco is the obvious choice. Moreover, suppose a traveler passes by the pioneer cabin sometime during the year and wants some salted meat to feed himself on the rest of his trip. Our family will likely accept tobacco in exchange for the food, even if none of them smokes. They accept the tobacco because they know they can pass it along later in exchange for something they do use.

Something that is generally accepted in exchange for goods and services is called a medium of exchange. The most familiar example for those in the U.S. is the dollar. An accepted medium of exchange reduces trading costs by eliminating some of the search time and uncertainty involved in making trades. If tobacco were the medium of exchange, the pioneers wouldn't run the risk of being unable to find someone who wants tobacco. Everyone knows they can pass it along in the next trade, so everyone is willing to accept tobacco in the current trade.

Sometimes people summarize these ideas by saying that a medium of exchange makes it easier to satisfy the double coincidence of wants. What is a double coincidence of wants? For any trade to take place two conditions must be satisfied:

1. you must find someone who wants what you have
2. this person must have what you want

These two events are the double coincidence of wants. A medium of exchange makes it easier; that is, less costly to satisfy the first condition. We may note that a modern economy devotes resources to
reducing the costs of satisfying the second condition. What helps you find people who have what you want? Word of mouth is one way, and another way is advertising. Advertising provides information designed, at least in part, to reduce the cost of satisfying the second condition.

A medium of exchange has further benefits for a society. Without a medium of exchange, you would be inclined to produce a wide variety of goods and services to reduce your dependence on trade and, at the same time, to increase the chance of satisfying the first coincidence. Diversification of production leads to inefficiencies. Land may be suited for particular crops and to produce others in the hope of using them to trade wastes a resource. Also, if people concentrate on a relatively narrow task, they become proficient at it and more likely to devise productive innovations. These gains from specialization are lost or diminished in the absence of a medium of exchange.

Finally, a medium of exchange makes some beneficial but indirect trades possible that would otherwise go unexploited. Consider the following example. Suppose that there are three people, Zack, Jake, and Susan. Zack produces spinach, Jake produces broccoli, and Susan grows corn. Furthermore suppose the preferences of the three are given by:

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<th>Zack</th>
<th>Jake</th>
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<tr>
<td>best</td>
<td>broccoli</td>
<td>corn</td>
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<td>second</td>
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All three could be made better off if Zack could get Jake's broccoli, Jake could get Susan's corn, and if Susan could get Zack's spinach. But, can direct trade produce this outcome? With these preferences the double coincidence of wants cannot occur when any two of them meet. For example, if Zack meets Jake, Zack will want Jake's broccoli, but Jake will not be willing to trade for Zack's spinach; and no exchange will take place. Without a medium of exchange, no trade will take place. The existence of a medium of exchange breaks this roadblock to trade.

To sum up, the existence of a medium of exchange improves a society's welfare in several directions. First, it reduces trading costs. The time, energy, and other resources that are saved can be used to increase production, leisure, or both. Second, a medium of exchange promotes specialization in
production and this leads to an increase in production and growth. A medium of exchange allows some trades to take place that would not occur without it. Finally, for the medium of exchange to carry out its duties in full, it should be durable, portable, recognizable, and divisible.

**The Origins of a Medium of Exchange**

Once a medium of exchange arises, it takes on a life of its own. For example, if everyone believes that everyone else will accept, say, tobacco in exchange for other goods, then everyone will indeed accept tobacco. This is a type of self-fulfilling prophecy. If everyone believes it, it turns out to be true. This is so even if the medium of exchange has no intrinsic value.

How does a society come to agree on a common medium of exchange? It's a fair question, but hard to answer since no one stopped to record how it came into being. As a result, explanations of the origin of a medium of exchange contain a good deal of speculation. However, economists have come up with a couple of plausible scenarios.

Economists speculate that a good would have to be universally demanded to grow into a medium of exchange; everyone must want to have it. What could generate such a demand? Common religious practices that involved ornaments or icons might do the trick. Suppose that four times a year members of several villages gather for ceremonies. During this time, they dress ornately with special attention given to beads made of a fairly rare shell. Status in the villages is determined in part by how many beads you wear. If this were so, these shells and beads would be in universal demand. Since everyone in the area knows about the ceremonies, when they go "shopping," it would be reasonable for them to carry beads along to trade.

A universal demand may also arise from a government mandate. Tribute may be demanded, say, twice a year, and the chief wants the tribute paid in gold. An individual villager has little use for the yellow metal. Feeding and housing themselves and their families keeps them busy; they have no time for a frivolous metal. Nevertheless, when tribute time comes around you must have some gold. Since all villagers are subject to this tax, gold is always in demand. Modern economies do very much the same thing. When a new country emerges, from a revolution or decolonialization, it usually issues a new
currency. It generates a demand for the currency by levying taxes and accepting the currency in payment of the taxes. The currency is the chief’s gold.

**Unit of Account**

There is no guarantee that a medium of exchange will be unique. There are countries today where the U.S. dollar circulates as a medium of exchange next to local currencies that do the same. U.S. history provides other examples. Before the Civil War, banks issued their own currency and, since there were many banks, many currencies circulated side by side.

If there are many mediums of exchange, prices may be quoted in different units at different places. For example, if both tobacco and corn meal were mediums of exchange, some stores may quote prices in tobacco while others quote prices in corn meal. The unit in which prices are quoted is called the *unit of account*. Today when you ask a store clerk how much a pair of pants costs, you expect him to quote you a price in dollars (if you are in the U.S.). You would be pretty surprised if he said 20 Milky Way candy bars. The dollar is the unit of account in the U.S.

It turns out to be efficient to quote prices in a common unit. To see why, suppose you were shopping for a new car. First you stop by the local Ford dealer. You take the car in your price range for a test drive, kick its tires, and honk its horn. Finally, you ask the salesperson for the price of the car. She, much to your surprise, says 15 tons of oranges. Shocked, you leave the car lot and drive to the local Honda dealer. After testing the Honda model in your price range, you ask for the price of the car. You are told that the Honda costs 7 tons of apples.

After recovering from the shock of having prices expressed in terms of fruit, you realize that you are indifferent between the two cars. Which car should you buy? The one that costs the least of course, but which one is the least expensive? To find out, you must first discover the price of oranges relative to apples. Suppose that after some searching you find out that you can exchange 1 pound of apples for 3 pounds of oranges. This means that the Ford costs 5 tons of apples and is therefore the cheaper of the two.
It is important to note that in order to make an informed decision, you had to find out the price of apples in terms of oranges. The search and discovery of relative prices is a costly activity. It takes time, energy, gasoline, and so forth to obtain such information. If we did not have a unit of account, we would have to devote more of our resources to the search for relative prices. The existence of a unit of account therefore releases resources that may be used for other purposes.

In most countries most of the time, the unit of account and the medium of exchange are the same. In the U.S., dollars serve both functions. It is not, however, necessary for both functions to be performed by the same item. There are examples where the two functions are separated. This separation usually occurs during very rapid inflations. In a rapid inflation prices may be rising so fast that a merchant or store manager may have to change prices several times a week or day. We usually don't think that price changes are costly and in normal times they are not. However, in a rapid inflation these costs, which are often referred to as menu costs, are amplified. It may pay for a firm to post its price in a stable currency or commodity and let the exchange rates between these and the inflating currency change.

The idea of a unit of account extends to intertemporal trade; that is, borrowing and lending. The unit of account on loans is called the **standard for deferred payment**. It is the unit in which the principal and interest of a loan are quoted. A common unit of account on loans benefits society in the same way and for the same reasons as a common unit of account on current trades benefits society. To see this equivalence, imagine our earlier car shopping example, except instead of shopping for a car suppose that you were shopping for a home improvement loan.

**Summary of the Functions of Money**

Money is often described as serving four functions. These function are:

1) medium of exchange
2) unit of account
3) store of value
4) standard for deferred payment
We have not explicitly discussed the store of value function of money. A store of value holds purchasing power or provides direct services over time. A savings account is a store of value and so is a house. This is exactly what we meant when we said that a medium of exchange should be durable. So, although we did not bring up the term at the time, we have already implied that money will be a store of value. However, we should recognize that money is not the only store of value and may not be a very good one. For example, dollars store value poorly. They do not pay interest and do not provide any direct services. Since the dollar is sterile, most households, businesses, and other enterprises do not hold money solely for its store of value feature.

In a sense, the functions of money define what money is. If you observe an economy and identify its medium of exchange, you have also defined its money. Usually there is just one medium of exchange. The same object, be it dollars in the twentieth century U.S. or tobacco in the Colonial South, usually serves as the unit of account and standard for deferred payment as well. When this happens no ambiguities arise. Sometimes, however, the lines blur. There may be more than one object serving as a medium of exchange, or the unit of account and medium of exchange functions may be separated. In these cases no clear-cut definition may be available. This typically will not cause a problem so long as everyone can come to some agreement on what the word "money" means in the particular situation.

Types of Money

Up to now we have considered only commodity money. A commodity money has uses other than its monetary use. In our frontier example, tobacco could be smoked, the salted ham eaten, and the corn meal made into mush. For a commodity money its value in use is the same as its monetary value. For example, suppose the price of gold is $20 per ounce, then a $5 gold piece would have 1/4 of an ounce of gold in it. A gold coin is a full-bodied commodity money because the coin embodies the gold. Sometimes a commodity money comes in the form of warehouse certificates. The certificate is just a piece of paper that entitles the holder to a specified amount of gold that is stored elsewhere.

Modern monies are not commodity money. They are so-called fiat money. The monetary value of fiat money exceeds its value in use. For example, although the paper is very high quality and the ink
used has anti-bacterial agents to reduce the chance of passing diseases, the scrap value of a one dollar bill is far less than $1.

Why does anyone want to hold a fiat money? After all, if people stop accepting them in exchange for goods and services, the holder is stuck with a worthless piece of paper. To find the answer, recall our discussion about self-fulfilling prophecies. You believe that the next store at which you shop will accept dollars in exchange for what you want. Because you believe, you are willing to accept dollars for the goods and services you sell. If others share your belief, the belief will be self-fulfilling.

How did we come to be so certain in our beliefs? A little statement on the front of the currency says "This note is legal tender for all debts, public and private." This means that creditors cannot refuse payment of a debt in the fiat money. So long as there are debtors in the economy who can use the fiat money to pay their debts, there will be a segment of the population willing to hold it. In addition, the government must also accept its own money in payment of taxes or other debts to it. Since most families have some tax liabilities, the fiat money could always be used for this purpose.

Sometimes inflation turns a fiat money into a commodity money and then causes it to disappear. This happened to silver dimes and quarters in the 1960s. Suppose a dime contained 1/10th of an ounce of silver and the price of silver was $.50 an ounce. The commodity value of the dime would be a nickel and this would make it a fiat money. Recall that inflation is the rate of growth in the general level of prices and one of the prices growing will be the price of silver. When the price of silver hits $1.00 an ounce, the dime becomes a commodity money; the value of its silver content equals ten cents. What happens when the price of silver passes $1.00 to say $1.25 an ounce? Then, the silver in the dime is worth $.125, and it pays to melt down the dime, extract the precious metal, and sell the silver. Silver dimes disappeared from circulation in the U.S. for this reason and silver quarters met the same fate. Now these coins are made out of a cheaper metal.

In general, when a commodity becomes more valuable in use than it is as money, it disappears from circulation. In a commodity money system, this often leads to low quality goods circulating as money. For example, the colonists smoked the good tobacco and let the inferior tobacco circulate as money. This is often referred to as Gresham's law and is summarized by the saying that "bad money drives out good."
Summary

Trading goods absorbs resources. Money reduces these transactions costs by serving as a medium of exchange and a unit of account. These functions reduce the resources devoted to making trades and release them for other uses such as the production of additional goods or leisure. Money also facilitates the specialization of labor and indirect trade. To realize the most from money, it should be durable, portable, recognizable, and divisible.

Review Questions

1) All of the following have been monies. Do they possess all the desirable traits? If not, which ones are missing?

1) salt --------------ancient Rome
2) cattle------------apparently in many ancient lands
3) cigarettes-------- prisoner of war camps in WWII
4) large boulders -- on the island of Yap
5) rats-------------on Easter Island
6) copper----------ancient Babylon

2) Suppose a quarter contains 1/5th of an ounce of silver. If the price of silver is $1.00/oz, is this quarter a commodity or fiat money? What will happen to these quarters, if the price of silver jumps to $2.00/oz. Explain.

3) There are many transactions that take place within a family, but most of them do not involve money. Why?

4) In what ways does the introduction of money into a society improve its welfare?