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Commodity Money and Government Money

What to look for in this chapter:

Could an economy manage without money?

What specific roles are served by money?

What determines the kind of money a community uses?

Why is paper money worth anything?

Money is not, properly speaking, one of the subjects of commerce; but only the instrument which men have agreed upon to facilitate the exchange of one commodity for another. It is none of the wheels of trade: it is the oil which renders the motion of the wheels more smooth and easy.

David Hume¹

Money is such a familiar and pervasive part of our lives that we seldom stop to think about its nature and importance. As children, we quickly learned that dollar bills were not merely pretty green pieces of paper to be painted, shredded, eaten, or left out in the mud. Instead, dollar bills were special. Dollars were important and valuable because dollars were “money.”

This green paper *is* special because it can be used to buy things. Stores will trade food, clothing, and toys for dollars. With this understanding, we, too, are quite willing to work or sell things for dollars, because we know that we can then use this green paper to buy “real” things.

It has not always been this way. Not too long ago, real things were used as money. In the United States, tobacco, rice, cattle, and whiskey were money. In other times and in other places, people made do without money of any sort. In this chapter, you will learn why societies have found money, real and paper, to be a most useful contrivance.

BARTER

A logical place to begin is by imagining an economy without money of any sort. This would most likely be a primitive economy in which little economic trading takes place. Perhaps the citizens are self-sufficient and a bit isolated from or suspicious of one another. When their paths do cross and they make trades, it is a simple exchange of goods — corn for potatoes, wood for leather, knives for bows and arrows. This kind of economic activity is called **barter**, *the trading of goods and services for other goods and services*.

When people are basically self-sufficient, barter may be satisfactory for occasional trades. However, a vital element of economic progress has been the replacement of self-sufficiency with specialization. I teach, consult, do research, and write textbooks on economics. With the fruits of this labor I can acquire pizza, beer, transistor radios, and all of the other necessities of a good life. Other people specialize in making the pizzas that I enjoy. Still others sell the flour for the pizza dough, or turn wheat into flour, or grow the wheat. Through division of labor, each agent can become highly skilled at very specialized tasks. In the aggregate there will be much more produced and enjoyed than if all individuals were self-sufficient — growing their own wheat, making their own flour, concocting their own pizza, and teaching themselves economics.

A necessary accompaniment to specialization is the ability to easily trade one's specialized product for the products of other specialists. And it is here that barter becomes burdensome. In a barter economy, if there is not what W.S. Jevons called a "double coincidence" of wants,² then each person must make a multiplicity of trades before the desired bundle of goods can be obtained. Too much time and energy are spent swapping goods, and too little is spent producing and enjoying them.

Say I want a pizza for dinner, and my specialization is teaching a one-semester money-and-banking course. When I go to the pizza maker, hoping for a trade, I may find that he is interested in a transistor radio but not money-and-banking lectures. Perhaps, with my appetite, I have already given him four very interesting money-and-banking lectures. (For a double coincidence of wants to exist, I would want to trade lectures for pizza and he would want to trade pizza for lectures.) So I trudge off, looking for someone with a transistor radio who would rather listen to money-and-banking lectures. With considerable effort, I locate a woman with 100 very nice radios; she wants a red boat and knows a man with a boat who is interested in studying money and banking. Unfortunately, the boat is yellow and worth more than a one-semester course in money and banking (it's a very nice boat). So I have to find someone who will trade a red boat for a yellow one, and I must then work out another series of deals to acquire something extra to throw in with my money-and-banking lectures. It will be a very late dinner by the time I have it all straightened out.

Money facilitates trade, but it is not absolutely necessary. Within a family, tasks may be highly specialized, yet monetary trades may be absent. Perhaps the father takes care of the yard and repairs the plumbing, the mother buys food and balances the checkbook, and the son repairs the car. Instead of monetary payments, such exchanges are usually based on either a communal or totalitarian organization of the family. Similarly, there have been feudal estates and even entire societies whose communal or totalitarian organization made money unnecessary.

On many Polynesian islands, goods are freely provided to poorer inhabitants and even to strangers. In addition, it is considered improper to refuse someone's request for goods. In some communities, even the request is unnecessary. It is customary simply to take whatever is desired. There is little need for money in such circumstances. Many small religious groups in North America have attempted to establish similar moneyless communal societies.

In the Inca empire, money was unnecessary because the citizens' economic lives were thoroughly regulated by a central administration. Each citizen was told what to produce and what fraction of his or her output to give to the central authorities, who then allocated it among all citizens. There was a limited amount of barter in food, but trades of clothing, housing, or land were forbidden. Money was unneeded and unknown before the Spanish conquest.

After the conquest, the Jesuit Republic of Paraguay was a moneyless totalitarian state established and run by the Jesuits with the intention of protecting the Indians from exploitation. Even after the Jesuits lost their absolute authority, barter continued as the predominant form of exchange in Paraguay. As late as the end of the eighteenth century, taxes and the salaries of religious and government leaders were paid in goods. Although of smaller scale, European monasteries and feudal estates during the Middle Ages were also internally authoritarian and moneyless.

Moneyless societies generally have little trading (usually because the citizens are self-sufficient), or they have either a communal or totalitarian organization. *With an extensive division of labor, private ownership, and voluntary exchange, barter is unworkably cumbersome and inefficient. In most modern societies, specialization and the use of money are so tightly linked that, like the chicken or the egg, it is impossible to say which came first.*

Some barter is admittedly useful and even enjoyable. Throughout history, the swapping of goods for goods has gone on even where money existed. In a simple economy some of the difficulties of barter can be lessened or may not be considered burdensome. With lots of time, large inventories of tradeable goods, intimate knowledge of the possessions and desires of others, and some zest for the sport, people have muddled through with barter. Often barter is simplified by the use of customary price ratios (one fish for two bananas), which are fixed for years or even generations. In addition, the common use of delayed payments lubricates barter by making it unnecessary

to find just the right combination of goods at a specific moment.* But in a large, complex, highly specialized society that is neither entirely communal nor entirely totalitarian, the existence of some form of money is a virtual necessity.

Commodity Money

Effective barter is easier if everyone maintains an inventory of easily traded goods. If I, the money-and-banking lecturer, had accumulated a collection of desirable trinkets, I could have then just given some of these to the pizza maker, and he could have directly traded them for a radio. In a pure-barter economy, trades are made solely for direct consumption. In a mixed-barter economy, some items are accepted in trade not for consumption but so that they can later be readily traded for consumables. These traded items that pass from hand to hand will typically be those goods that are the most widely recognized and used. Those who accept them will then be very confident that they can trade them to someone else. It will also be helpful if these items are portable, divisible, and durable — spices, metals, and wood, for example.

This process is self-reinforcing. The more a certain item is used for trades, the more confidence people will have in accepting it. The more confidence people have in accepting it, the more it will be used for trade. At some vaguely defined point we can say that this intermediate item has become so popular that it has assumed the status of a **medium of exchange** — *something that is commonly exchanged, which the recipients intend to trade for other items. A commodity that becomes a common medium of exchange is called a commodity money.*

There are several characteristics that a desirable commodity money should possess:

1. It should be *easily verifiable*. It is helpful if the commodity money can be readily verified. Conversely, it is inefficient to use a commodity money that must be continually inspected for its size, weight, or purity. One of the subtle inefficiencies of barter is that both of the items traded must be closely evaluated.
2. It should be *intrinsically useful*. There is something to be said for using a commodity money that can always be consumed if worst comes to worst. A citizenry's readiness to accept an item as a medium of exchange is enhanced somewhat by a perception that the item is intrinsically useful.

*For example, I could eat my pizza now and pay for it later when I come across a transistor radio.

3. It should be *conveniently transportable*. If trades take place over a wide geographic area, it is helpful to have a commodity money that can be easily and safely carried about.
4. It should be *divisible*. Exchange is easiest when the medium of exchange can be freely divided to purchase exactly the desired amount. Commodity moneys that are difficult to divide or that lose their value when split are cumbersome, though the provision for delayed payment does ease this problem.
5. It should be *durable*. If you are going to stay prepared for trades by keeping an inventory of some medium of exchange, it is best if the medium does not spoil or rot while you are holding it.

In practice, over the past 4000 years, the predominant commodity moneys have been precious metals: mostly silver, to a lesser extent gold, and even less frequently copper. However, in generally small, rural communities, the peoples of the world have also used an enormous variety of other commodity moneys.

Wampum (strings of shells) was used by American Indians and for a while by American colonists from New England to Virginia. In 1641, wampum was made legal tender in Massachusetts (at the rate of six shells to the penny). In Virginia, tobacco was made legal tender in 1642, while contracts payable in gold and silver were outlawed. Tobacco was widely used as a commodity money in Virginia for almost 200 years, in Maryland for about 150 years, and in neighboring states for lesser periods. Tobacco farmers particularly appreciated having their mortgages and other debts written in terms of tobacco leaves. In various other parts of the United States, rice, cattle, and whiskey have been declared legal tender. Although they lacked legal sanction, musket balls, peas, hemp, furs, and woodpecker scalps were also used as commodity money. Some other selected moneys from around the world are listed below to give you some flavor of the great variety:

- Whale teeth – Fiji
- Sandalwood – Hawaii
- Fish hooks – Gilbert Islands
- Tortoise shells – Marianas
- Red parrot feathers – Santa Cruz Islands as late as 1961
- Rice – Philippines
- Salt – many places
- Pepper – Sumatra
- Sugar – Barbados
- Tea bricks – many places in inner Asia

Slaves – Equatorial Africa, Nigeria, and Ireland
Reindeer – parts of Russia
Copper – Egypt
Silk – China
Butter – Norway
Leather – France and Italy
Rum – Australia

These examples come from an interesting book, *Primitive Money*, written by P. Einzig. In 1966, he wrote that there were still “many communities, especially in the Pacific area but also in some parts of Africa and to a less extent in Asia, in which primitive monetary systems are still in operation.”³

THE STONE MONEY OF YAP

The island of Yap in Micronesia is renowned among economists for its stone money, which is round like a wheel with a hole in the center. Coins as tall as a person are common. Some, like the one shown in Fig. 2.1, are twice this size. When a large coin changes ownership, a tree is put through its hole and up to a hundred men push the stone from its old owner to its new one.

The legend is that one of the more wicked gods gave stone money to the peaceful people of Yap so that they would have something to fight about. Ever since, peace has been replaced by greed and quarreling. The stones themselves were obtained by treacherous expeditions to Palau or, for finer and rarer stones, to Guam some 400 miles away through frequently stormy seas. It was said that often only one of twenty canoes bound for Guam returned.

In the early twentieth century, an Irishman with a good boat brought enormous stones into Yap in exchange for coconuts, fish, women, and whatever else he wanted. The largest stone he brought in, said to be 20 feet wide, is at the bottom of the Yap harbor, where it fell while being unloaded from his schooner to a raft. Even though the stone disappeared from view, it was still considered to be part of the possessions of the original owners and then of generation after generation of heirs.

The stones themselves have absolutely no value other than the fact that they are accepted as a medium of exchange. Simple direct barter is used for most everyday transactions, such as trading nuts for tobacco leaves. The Yap stones are mainly a store of value used to pay large debts. In 1944, Willard Price⁴ reported that a waist-high stone was valued at 4000 coconuts, that a five-foot stone was worth many villages, and that the very largest stones were considered priceless. These great stones are owned by entire communities and proudly displayed outside community buildings. The smaller, two- to



Fig. 2.1 One of Yap's largest coins.

Source: W. H. Furness, 3rd, *The Island of Stone Money* (New York: J. B. Lippincott, 1910).

five-foot stones are owned by individuals and displayed outside their homes. The even smaller stones are not displayed. Typically, debts are allowed to accumulate until payment can be made with a large stone that is suitable for display. These stones are seldom stolen since they are too well known. Most display stones are so familiar that they even have names. The people pass on, but the stones remain.

FIAT MONEY

The stone money of Yap is superficially a commodity money. And yet it has no real value as a commodity. A Yap stone is eagerly accepted in exchange for useful goods and services solely because its recipients are confident that they will also be able to exchange the stone for goods and services. Its acceptability as a medium of exchange rests on simple faith, nothing more. This is an example of fiat money, *something that has little value as a commodity but, because of law or tradition, is accepted as a medium of exchange.*

If you have any dollar bills in your purse or wallet, these, too, are fiat money. The paper they are printed on has almost no value. But our government says that these dollars are legal tender, suitable for paying its bills and our taxes. And you and I greedily accept any that are offered, confident that they have value because we can exchange them for useful goods and services.

To each individual, fiat money has value solely because of laws or simple faith, conditioned by many years of successful exchanges. To a society, fiat money has value because it does successfully serve as a medium of exchange, thereby allowing the society to avoid the inefficiencies of barter. For thousands of years, commodity money was preeminent. Today fiat money reigns. Let's take a quick look at this gradual but now thorough upheaval.

From Hard Money to Soft Money

Precious metals have many of the desired characteristics of a good commodity money: useful, conveniently transportable, divisible, and durable. The one drawback is that they are not always easily verifiable. To be confident that they are getting their money's worth, both buyers and sellers will have to be careful. Every trade will require trusted scales and a reliable assessment of the purity of the precious metal.

To avoid this considerable inconvenience, the metals can be made into coins of known weight and purity. Thus the British "pound" and "shilling" were originally units of weight, describing the amount of metal in British coins. Heroditus noted the use of coins in the ancient kingdom of Lydia around the seventh century B.C. Modern historians believe that coins were independently introduced in China at about the same time, in India a few hundred years earlier, and in Persia a few hundred years later. Coinage flourished in the Greek and Roman empires and then throughout Europe. John Kenneth Galbraith wrote that "after Alexander the Great the custom was established of depicting the head of the sovereign on the coin, less, it has been suggested, as a guarantee of the weight and fineness of the metal than as a thoughtful personal gesture by the ruler to himself."⁵

A recurring difficulty with coins has been the temptation to make a profit by reducing the precious-metal content. Private entrepreneurs have regularly clipped, shaved, or filed a bit of metal from the coins that pass through their hands. If the filed coins can still be used as full-weight coins,

then the shavings are a small but nice profit. For the governments that press the coins, the temptation is to use cheaper metals so that more coins can be made and spent on wars, monuments, and other royal delights. It is said that Roman silver coins were steadily debased until they became 98% copper and only 2% silver.

With coins of varying authenticity in existence, those who can tell the difference will keep the better coins and spend the lesser ones. This is Gresham's Law*: *Bad money drives out good*. That is, bad money will circulate while good money is hoarded. This does not mean that of two paper dollars, the one containing more or better paper will be hoarded. What Gresham's Law does mean is that money that is more valuable in some nonmonetary use will be withdrawn from circulation.

For example, in colonial Virginia debts payable in tobacco leaves were paid with the scruffiest and foulest tobacco. Fine tobacco was consumed. Similarly, the American Coinage Act of 1792 provided that the gold ten-dollar eagle would contain $247\frac{1}{2}$ grains of pure gold, and the silver dollar $371\frac{1}{4}$ grains of pure silver. This meant that as a medium of exchange ten silver dollars, containing $3712\frac{1}{2}$ grains of silver, were supposed to be as valuable as the $247\frac{1}{2}$ grains of gold in an eagle. Implicitly, then, the 1792 Coinage Act gave a grain of gold the same value as 15 grains of silver. However, as a commodity, the free-market price of gold was about $15\frac{1}{2}$ grains of silver. This provided an inducement to exchange ten silver dollars for a gold eagle whenever possible. The eagle could then be hoarded or melted down and traded as a commodity for $3836\frac{1}{4}$ grains of silver. In accordance with Gresham's Law, eagles did not circulate as a medium of exchange. In 1834, the mint ratio was changed so that a grain of gold had the same value in circulation as 16 ounces of silver. But, as a commodity the value was still about $15\frac{1}{2}$ to 1, so that gold eagles circulated while silver dollars were hoarded. More recently, in the 1960s, high silver prices drove silver dimes, quarters, half-dollars, and dollars out of circulation in the United States. In the 1970s copper prices soared and copper pennies were hoarded.† Rare coins are hoarded by collectors.

Thus it is often difficult to keep "full-bodied," or hard-money, coins in circulation. The threat of adulteration or hoarding is ever present. One way around this problem is to use a difficult-to-counterfeit piece of paper as a substitute for a full-bodied coin. For each $371\frac{1}{4}$ grains of silver, instead of coining a silver dollar that can be shaved or melted, a government can simply hold on to the silver and issue a distinctive piece of paper. This paper could

*Expressed by Sir Thomas Gresham in 1558, but discovered earlier by Copernicus and undoubtedly a good many others because of its universality. This is an example of Stigler's Law, which states that no economic law is named after its true discoverer. (So who really discovered Stigler's Law?)

†The U.S. Mint offered a carrot: an Exceptional Public Service Certificate to persons bringing \$25 in pennies to a bank. The Treasury Department tried a stick: a \$10,00 fine and five years in prison for melting or exporting copper pennies. Neither approach repealed Gresham's Law.

state that it is a "paper dollar," redeemable at any time for 371 $\frac{1}{4}$ grains of silver. This is just like a warehouse receipt and, except for the effort of redemption, just as valuable as a full-bodied silver dollar.

The early notes issued by banks and governments were warehouse receipts of this type and, except for the counterfeiting danger, alleviated some of the problems of full-bodied coins. In addition, paper is usually less expensive to mint than coins and often easier to transport. Convenience is especially important in the substitution of paper for less precious commodity moneys. This is why warehouse receipts for tobacco circulated in the American colonies.

The use of substitute notes presents another opportunity, or danger, that has been repeatedly exploited by both governments and banks: to issue notes for which there is only partial commodity backing or none at all. This was true of the first government paper money (China, starting in the eighth century) and of the first major public bank (the Bank of Amsterdam, established in 1609). It has also been true of governments and banks ever since.

Full-bodied coins and paper fully backed by metal are often called "hard money." "Soft money" refers to token coins and unbacked paper. One big advantage of soft money is that, by Gresham's Law, it is kept in circulation and fulfills its destiny as a medium of exchange.

"Token coins" are like subway tokens in that they can be used to purchase goods and services but have little value as a commodity. Yap stone money is an example of token coins. Since 1853, the U.S. Mint has been authorized to produce token coins, for which the metal in the coins is less expensive than the face value of the coins. Currently, all newly minted U.S. coins are inexpensive alloys made of copper, nickel, aluminum, and the like. Governments usually prefer token coins to full-bodied ones because they can be produced at a profit, called "seigniorage." In 1974 it was estimated that switching from copper to aluminum pennies in the United States would save \$40 million a year.

*"Unbacked paper," currency without commodity backing,** is even more profitable to produce. All paper currency currently issued in the United States has no metal backing. If you have a \$10 bill, the government will not redeem it for gold, silver, or tobacco. It can be exchanged for two \$5 bills, ten \$1 bills, or a pocketful of token coins. Nonetheless, like any ordinary commodity, it has a value that is roughly determined by demand and supply.

The value of a \$10 bill is measured by what can be obtained in exchange. As with all commodities, there is no absolute price, only innumerable relative prices. Say, for instance, that bread trades at \$1 a loaf, wine at \$5 a bottle, and steak at \$5 a pound. What is the value of a pound of steak?

*Sometimes paper currency is backed by token coins. Between 1878 and 1967, special U.S. Silver Certificates circulated. These were paper dollars redeemable in silver dollars which, until the 1960s, contained less than a dollar's worth of silver.

It is worth what can be obtained in exchange: five dollars, five loaves of bread, or one bottle of wine. Its value can also be gauged by a bundle; e.g., two pounds of steak is worth four loaves of bread, plus a bottle of wine, plus one dollar.

Similarly, what is the value of ten dollars? Ten dollars is worth ten loaves of bread, two bottles of wine, or two pounds of steak. In a monetary economy like the United States, prices of goods and services are usually expressed in dollars, and other relative prices must be implicitly calculated. Thus the price label on a bottle of wine will say "\$5," not "one pound of steak." This is because dollars are the medium of exchange. The relative values of a dollar are the inverses of these conventional prices. If the price of wine in dollars is $P_w = 5$ dollars/bottle, then the price of a dollar measured in wine is $1/P_w = 0.2$ bottles/dollar. (What is the price of a dollar measured in steak?)

Thus a dollar has many prices, all of which are relative prices (and all are the inverses of the usual price quotations seen in stores). In a market economy, these prices of a dollar (along with all relative prices) are simultaneously determined by the demands and supplies of all traded items including wine, steak, gold, Treasury bills, and dollars.

Dollars are accepted and held (demanded) by private citizens because of their usefulness as a medium of exchange. In later chapters, we will look at the nature of this demand in detail. Dollars are supplied by the government. As with other goods, we expect an increased demand for dollars to raise the price of a dollar, i.e., to reduce conventionally measured prices. Conversely, we would expect an increased supply of dollars to reduce the price of a dollar, i.e., to raise conventionally measured prices. If there were an unlimited supply of dollars, they (like clean air in the good old days) would be worthless, by which an economist means free. If the price of money is zero, then conventionally quoted prices are astronomical. In more familiar terminology, an unlimited expansion of the money supply creates hyperinflation. Conversely, *inexpensively produced paper money has value because it is useful as a medium of exchange and is in limited supply.*

Is Hard Money Better than Soft?

With hard money, denominations are units measuring the underlying commodity. For example, an early U.S. ten-dollar eagle contained $247\frac{1}{2}$ grains of gold. Quoted prices are, then, a relative commodity price, measured in gold. If the price of a bottle of wine was \$10, this means that the bottle of wine was worth $247\frac{1}{2}$ grains of gold. If gold became more expensive relative to other commodities, then deflation occurred – prices quoted in gold dollars declined.

Hard money serves two purposes, as a commodity and as a medium of exchange. It is sometimes believed that the relative value of hard money is determined solely by its value as a commodity. This belief is false. It is true

