Economics 422: Monetary Economics

Lecture Notes*

Winter 2010

Allen Head

Department of Economics
Queen's University

*These notes draw extensively from the book, *Modeling Monetary Economies*, 2nd ed., by Bruce Champ and Scott Freeman, Cambridge University Press, Cambridge, 2001.

1. Introduction

In this course, we will consider the *institution* of money, specifically *fiat* money. This means that we will consider (not necessarily or exclusively in this order):

1. The reasons for the existence of money in the economy.
2. The particular characteristics of fiat money
3. The implications of money and the conditions that give rise to it for certain concrete issues of policy relevance.

The Institution of Money

As mentioned above, money is an *institution.* By this I mean that money is a social invention that performs certain functions. Societies have used money for thousands of years; the vast majority of the "economies" that have existed have been "monetary economies", in that the institution of money plays a central role in exchange. In economics courses, however, we often study models that do not include money. In these models, money typically has no role–even if it existed, the agents populating the model would have no use for it. For money to have value (other than the intrinsic value from whatever use it may have as a *good* rather than as money) its use must help overcome a "friction".

The fact that frictions are necessary to account for the existence of money signals at the outset that a theoretical study of money is going to be relatively hard. Much of the time in economics we study frictionless economies, like the model of perfect competition and "complete markets". Essentially there is one model of market economics in the absence of frictions. It is unambiguous and analytically tractable. Of course, the drawback to the model of perfect competition and complete markets is that its relevance is always somewhat questionable. In many cases, however, it seems reasonable to assume that the actual economy functions in a way that is somehow approximated by this idealized theoretical model. When it comes to understanding the institution of money, however,

this is never the case–it is *because* of the departures from this ideal environment that money as an institution exists.

The Role(s) of Money

As mentioned above, money has been a central aspect of economic life for thousands of years. In this time, many objects have been used as money. Typically, a particular object is chosen as money because its characteristics suit the particular functions that money performs. You may have encountered these functions in an earlier economics course:

1. *Medium of Exchange:*

   Perhaps the most obvious function of money is to facilitate transactions. The main friction that is being overcome here is the difficulty of finding a "double coincidence of wants". A secondary instance may be one of portability and the elimination of record keeping for small transactions. Portable, divisible and easily recognizable goods make for good media of exchange.

2. *Store of Value:*

   This is a particularly interesting and subtle function of money. One of its functions is to transfer value from one point in time to another. This of course includes savings, but it is also closely related to money's use as a medium of exchange. A farmer may work all summer and sells his/her crop in one big transaction in the fall–money enables him/her to purchase food etc. year-round. Goods that are durable and in limited or controlled supply make good stores of value.

3. *Unit of Account:*

   Money provides a convenient unit for expressing prices. Clearly there are efficiency gains from having one price of apples, so many dollars or cents per apple, rather than a huge number, so many oranges per apple, so many pears, etc.

As noted above, many objects have filled these functions over time. Precious metals (principally gold and silver) have characteristics that may make them naturally suited for

these functions, and thus it makes sense that they have been widely used. In this course, however, will will focus almost exclusively on what we call *fiat* money.

Fiat Money:

Fiat money has two distinguishing characteristics:

1. Fiat money is **intrinsically worthless**. It has no use other than as money. Note that this rules out gold and silver and just about any ordinary "good".
2. Fiat money is **inconvertible**. Fiat money does not carry with it a promise to convert it into any good which is not intrinsically worthless. Note that this rules out bank notes that are redeemable in gold.

The currencies we use in the world today are fiat currencies–they satisfy the two conditions above. While money is an old institution, fiat money is a new one. It is certainly a post-second world war phenomenon, and more realistically dates from around 1973. Moreover the current *monetary system* in which we operate really dates back only to about 1980. Fiat money turns out to be very good at performing the first and third functions listed above, but has potential problems with the second. We will spend the rest of this course developing a theoretical model of fiat money and investigating its role in the economy.

Models of Money:

Simply put, there is no agreed upon model of money. Macro-economists have struggled with the question of how best to model money in the economy for years. While our ability to construct theoretical models has moved ahead substantially, on the question of which is the best model of money for analysis of actual economic policies, little progress has been made in the last thirty years.

Disagreement over how to "model" the institution of money is the topic of Neil Wallace's article, "Whither Monetary Economics", in the *International Economic Review*. In that

article, Wallace distinguishes between the approach taken by many economists, both academic and non-academic who employ models in which the demand for money is effectively assumed and those in which the source of this demand is directly modeled. A common example of the former approach is to assume that only money can be used to make transactions. Personally, I view both approaches as worthwhile, depending on the issue being studied. For *macroeconomics* in general, it may be useful to assume a role for money and then analyze the effects of, say, fiscal policy, taking this role as given. For the issues studied in this course, however, this approach is unsatisfactory. In models of this type money is not an institution formed to overcome a friction, rather it *is* a friction that needs to be overcome in itself. Here we are studying *monetary economics*—and we want to begin by constructing an environment in which money may or may not have value, and consider the circumstances under which it will.

The model we will use is called the "overlapping generations" (OLG) model of fiat money. We will begin with a theoretical exposition of the basic model, and then will tailor it so that we can use it for various applications. As we will see, in the OLG model it is money's function as a store of value that gets most of the attention. The policy issues that we focus on will also center primarily on the problems associated with using fiat money as a store of value. Note, however, that there is no hard and fast distinction between the various roles of money. In an OLG model of the type we will study, money *is* the medium of exchange. In addition to providing a vehicle for saving (*i.e.* storing value in one way), money also "stores value" from the time of one transaction, to the next.