University of California, Davis   Date: September 15, 2003
Department of Economics   Time: Three Hours
Monetary Theory   Reading Time: 20 minutes

PRELIMINARY EXAMINATION FOR THE Ph. D. DEGREE

Instructions: Answer all 4 questions, each question on a different sheet of paper.

1. Consider the following cash-in-advance economy: Households consists of laborers and shoppers. Shoppers use cash holdings available at the beginning of the period to finance consumption purchases. These nominal balances consist of the wage income from labor supplied in the previous period and a lump-sum monetary transfer, T_t. Hence, labor, h_t, supplied at time t produces output via the production function $f(h_t) = y_t$; sales of output generates cash which can be used for consumption purchases in the following period. The money supply evolves as $M_t = M_{t-1} + T_t = M_{t-1}(1 + g)$. That is, the lump sum money transfer is proportional to the beginning of period money stock. Given this environment, do the following:

    (i) Express the household's maximization problem as a dynamic programming problem and derive the necessary conditions.
    (ii) Define a steady-state monetary equilibrium.
    (iii) What is the "optimal quantity of money" in this economy? Is your result consistent with that of Friedman and Brock?
    (iv) Suppose one period interest rates where introduced in this economy (these are traded at the beginning of the period and pay out at the beginning of the following period). What interest rate would be associated with the optimal quantity of money? Again, is this consistent with Friedman's analysis?

2. The monetary transmission mechanism, by which movements in nominal interest rates affect economic activity, has been expanded recently by models that include an explicit role for financial intermediaries. Provide a discussion of these "credit channel" models; this should include the following elements:
    a. The role of financial intermediaries.
    b. Identify both impulse and propagation mechanisms in this literature.
    c. The empirical support for these models.

3.
    Conventional wisdom holds that an expansionary monetary policy shock generates a persistent decrease in nominal interest rates and a persistent increase in the levels of employment and output. However, the traditional literature contains very little econometric evidence to support this view. Christiano and Eichembaum (1992).

We typically think of the monetary transmission mechanism as operating via the liquidity effect and the term structure into the real economy. Discuss the modeling elements that are commonly used to imbue these features into monetary models and the common arguments that justify the apparent empirical failures stated by Christiano and Eichenbaum.

4. In response to serially uncorrelated monetary policy shocks (measured either by money growth rates or interest rate movements), the response of inflation appears to follow a highly serially correlated pattern. Discuss three different models of price adjustment that generate persistence. Make sure that in your discussion you address the following issues:

   a) Describe the mechanics of the model.
   b) Describe the mechanism that generates the persistence.
   c) Is the persistence generated in the price level, in the inflation rate, or both?
   d) Does the model violate the natural-rate hypothesis?

Discuss why these models are important in monetary economics. Provide examples to illustrate your point.