Estimating the Money Demand Equation

In this exercise you are going to estimate a demand for money function. To put this exercise in historical and theoretical perspective, the Keynesians insisted that this function include interest rates, while the Monetarists claimed that interest rates had no impact on the demand for money. We are therefore going to use econometric tests to see whether or not interest rates belong in the model of money demand.

1) Construct the following data set from the DRI Database:

- \( M = \) U.S. M1 money supply (FZM1),
- \( P = \) Prices, GDP Deflator (GDPD),
- \( Y = \) Real GDP (GDPQ),
- \( r_{6m} = \) Short term interest rates—6-month Treasury bills (FYGN6),
- \( r_{5y} = \) Long term interest rates—5-year Treasury notes (FYGT5),
- \( r_{10y} = \) Longer term interest rates—10-year Treasury notes (FYGT10)

The data begin in 1959, 1st quarter, through 1997, 2nd quarter (as GDP is only available on a quarterly basis, and money supply is only available starting in 1959).

2) Using EViews, estimate the following general equation. This is the unrestricted model:

\[
\frac{M_t}{P_t} = \beta_1 + \beta_2 \frac{M_{t-1}}{P_{t-1}} + \beta_3 Y_t + \beta_4 r_{6m_t} + \beta_5 r_{5y_t} + \beta_6 r_{10y_t}
\]

Explain how the t-tests for coefficients allow you to test whether or not interest rates belong in the model.

3) Again using EViews, estimate the following restricted models. Note that these models are subsets of the unrestricted model, that is, the restricted models are nested in the unrestricted model:

\[
\frac{M_t}{P_t} = \beta_1 + \beta_2 \frac{M_{t-1}}{P_{t-1}} + \beta_3 Y_t + \beta_4 r_{6m_t} + \beta_5 r_{5y_t}
\]

Explain how the R-squared statistics help you think about the importance of the restrictions. Which model do you think is best? Do interest rates belong in the model of money demand? Print a graph of the fit and residuals for the model you think is best and comment on what it shows.