

Due no later than Thursday, February 2 in class

This assignment is worth 15 extra credit points if turned in no later than **Thursday, February 2** in class. The assignment will not be accepted for credit after this date. The purpose of this assignment is to familiarize students with the computer and analytical methods to be used for the research reports. This entails (1) selecting an econometrics program or a spreadsheet program, (2) creating new variables, running regressions and printing out a hard copy of the results, and (3) conducting basic analysis of the empirical results. Students may work together in groups of 3 or less on this assignment, i.e. no more than 3 names may appear on the completed assignment.

Use the data provided in the Excel file **e482XtraCredit_data.xls**, the txt file **e482XtraCredit_data.txt**, or the STATA file **e482XtraCredit_data.dta** to estimate four specifications of the demand for money function for the U.S. Estimate the following models by Ordinary Least Squares (*OLS*) over the period 1959 to 1989:

Linear form:	$m_{1t} = \beta_0 + \beta_1 r_t + \beta_2 p_t + \beta_3 q_t + u_t$
Double-log form:	$\ln(m_{1t}) = b_0 + b_1 \ln(r_t) + b_2 \ln(p_t) + b_3 \ln(q_t) + u_t$
Semi-log form:	$\ln(m_{1t}) = a_0 + a_1 r_t + a_2 p_t + a_3 q_t + u_t$
Reciprocal form:	$m_{1t} = c_0 + c_1 \frac{1}{r_t} + c_2 p_t + c_3 q_t + u_t$

where m_1 is a measure of the money stock (billions of \$'s), r is the 6 month Treasury bill rate, p is the GNP implicit price deflator, q is real GNP (billions of constant 1982 \$'s), and u is the (unobserved) error term (source: Tables B-2, B-3, B-67 and B-71, Economic Report of the President, 1991).

1. Calculate and report the sample means of the independent variables, i.e. \bar{r} , \bar{p} , and \bar{q} .
2. Calculate and report the interest rate slopes $\left(\frac{\partial m_1}{\partial r}\right)$ and interest rate elasticities $\left(\frac{\partial m_1}{\partial r} \frac{r}{m_1}\right)$ of the demand for money at the sample means of the variables for each of the above functional forms/models. Your calculations will require that you use \bar{r} , \bar{p} , and \bar{q} and the estimated coefficients for each model to predict m_1 .
3. Using the estimated elasticities, calculate and report the following percentage effects of the interest rate on the demand for money, i.e. $\frac{\Delta m_1}{m_1}$:
 - a. The percentage effect of a 10% **rise** in the interest rate using the estimated **linear form**.
 - b. The percentage effect of a 10% **fall** in the interest rate using the estimated **double-log form**. (Questions 3c and 3d continued on the next page)

- c. The percentage effect of a 20% **fall** in the interest rate using the estimated **semi-log form**.
- d. The percentage effect of a 20% **rise** in the interest rate using the estimated **reciprocal form**.