

Due no later than Thursday, September 26 for extra credit

This assignment is worth 15 extra credit points if turned in by **Thursday, September 26**. If not turned in by **September 26**, the problem set will become part of the research prospectus assignment and will count for 30 percent of the grade on the prospectus. The purpose of this assignment is to familiarize students with the computer and analytical methods to be used for the term research paper: (1) select an econometrics program or a spreadsheet program; (2) read in and save your data, create the log variables, run the regressions and print out a hard copy of the results; and (3) conduct basic analysis of the results.

Use the data provided in the file **e481dat.txt** to estimate four specifications of the supply function for Australian wine. Estimate the following models by Ordinary Least Squares (*OLS*) for  $t = 1956, \dots, 1975$  and calculate the supply price elasticities for Australian wine ( $\frac{\partial Q}{\partial P} \frac{P}{Q}$ ). 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.

Linear form:	$Q_t = \beta_0 + \beta_1 P_t + \beta_2 C_t + u_t$
Double-log form:	$\ln(Q_t) = b_0 + b_1 \ln(P_t) + b_2 \ln(C_t) + u_t$
Semi-log form:	$\ln(Q_t) = a_0 + a_1 P_t + a_2 C_t + u_t$
Reciprocal form:	$Q_t = c_0 + c_1 \frac{1}{P_t} + c_2 C_t + u_t$

where  $Q$  is real per capita consumption of wine,  $P$  is the price of wine in real terms, and  $C$  is an index of storage costs (source: G.S. Maddala, Introduction to Econometrics 2nd ed., Table 9.2, p. 370, 1992).

1. Assume  $P = 102.34$ ,  $Q = 2.903$ . Estimate the price elasticity of supply for the **linear form**, and use this to determine the percentage effect on supply of a 10% **rise** in the price.
2. Assume  $P = 102.34$ ,  $Q = 2.578$ . Estimate the price elasticity of supply for the **double-log form**, and use this to determine the percentage effect on supply of a 10% **fall** in the price.
3. Assume  $P = 102.34$ ,  $Q = 2.393$ . Estimate the price elasticity of supply for the **semi-log form**, and use this to determine the percentage effect on supply of a 20% **fall** in the price.
4. Assume  $P = 102.34$ ,  $Q = 3.034$ . Estimate the price elasticity of supply for the **reciprocal form**, and use this to determine the percentage effect on supply of a 20% **rise** in the price.