**EE 325 Section 2 HW 5 ANSWERS**

Gujarati, D.N. (2009) Basic Econometrics. 5th ed. Singapore, McGraw-Hill.

Chapter 9

9.2
(a) As per economic theory, the coefficients of X2, X5 are expected to be positive and that of X3, X8, and X9 are expected to be negative. The coefficient of X4 could be positive or negative, depending on wife's age and the number of children. Perhaps an interactive dummy of age and children under 6 or between 6 and 13 might shed more light on the relationship between age and desired hours of work.

(b) Holding all other factors constant, one would expect that desired hours of work would be higher than the (common) intercept value of 1286 hours. This coefficient, however, has a negative sign. However, since it is not statistically significant, we can say little about the impact of X6 on (average) Y. As for X7, its coefficient is expected to be positive, which it is. Not only that, it is statistically significant, as the t value is quite high.

(c) Perhaps, this is due to collinearity between age and education, as well as collinearity of these variables with number of children. Also, notice that the model does not include years of schooling completed by husband.

9.3
(a) The relationship between the two variables is expected to be negative, for if the unemployment rate is high, indicating slackness in the labor market, employers are less likely to advertise job vacancies.

(b) It is 3.8998 (=2.7491+1.1507). Since the dummy coefficient is statistically significant, the unemployment rate post 1966 4th quarter is statistically higher than it was in the pre-1964 4th quarter period.

(c) Since the differential dummy coefficient is just about significant at the 5% level, we could say that the slopes of the regression function in the two periods are different.

(d) Most probably yes. By making unemployment benefits more generous, the government reduces the opportunity cost of remaining unemployed.

9.8
(a) Neglecting the dummies for the moment, since this is a double log regression, each estimated slope coefficient represents an elasticity. Thus, if X2 (the total number of offices or branches in a bank), increase by 1%, on average, the FDIC examiner hours go up by about 0.22 percent, perhaps reflecting some economies of scale. Other coefficient of the logged X variables are to be interpreted similarly. A priori, all the logged X coefficients are expected to be positive, which they are.

(b) & (c): Take the antilog of each estimated coefficients attached to a dummy variable and subtract 1 from it. Multiply the difference by 100, which will then give the percentage change in the regressand when a dummy variable goes from state 0 to state 1. For example, consider the coefficient of D4, which is-0.2572. Taking the antilog of this number, we get 0.7732. Subtracting 1 from this, and multiplying by 100, we get -22.68%. Thus, when the examination is conducted jointly with the state, FDIC examination hours go down by about 23 percent. Other dummy coefficients are to be interpreted similarly.

9.16
(a) 2.4%.
(b) Since both the differential intercept and slope coefficients are highly significant, the levels as well the growth rates of population in the two periods are different. The growth rate for the period before 1978 is 1.5% and that after 1978 it is 2.6% (= 1.5% + 1.1%).