Stat763

## **HW07**

1. File Table94.txt contains variables  $y, x_1, x_2, x_3, x_4, x_5, x_6$ . Consider model

 $y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \epsilon, \ \epsilon \sim N(0, \ \sigma^2)$ 

and null hypothesis  $H_0$ :  $\begin{pmatrix} 1 & 2 & -1 & 0 \\ 0 & 0 & 1 & -1 \end{pmatrix} \beta = \begin{pmatrix} 0 \\ 0 \end{pmatrix}$ .

- (1) Find SSE, DF of SSE, MSE, SSII<sub>0</sub> and SSII<sub>3</sub>. (Use SAS)
- (2) Find the model reduced by  $H_0$ .
- (3) For the reduced model find  $SSE_r$ , (DF of  $SSE_r$ ) (Use SAS).
- 2. Consider the model in 1.
  - (1) Let  $F_0$  and  $F_3$  be the test statistics for testing on  $H_0$ :  $\beta_0 = 0$  and  $H_0$ :  $\beta_3 = 0$  respectively. Based on the results in (1) of 1, calculate the values of  $F_0$  and  $F_3$ .
  - (2) Let F be the test statistic for testing on  $H_0$  in 1. Based on the results in (1) and (3) of 1, calculate the value of F.
  - (3) Find the table by SAS for testing  $H_0$  in 1 to verify your calculation in (2) of 2.