S4-2"

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a) (i) H_0**:** $\beta_1 = 0$**;** $\beta_2 = 0$**;** $\beta_3 = 0$

$$\mathbf{C} = \begin{pmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{pmatrix}; \mathbf{t} = \begin{pmatrix} 0 \\ 0 \\ 0 \end{pmatrix}; \boldsymbol{\beta} = \begin{pmatrix} \beta_0 \\ \beta_1 \\ \beta_2 \\ \beta_3 \end{pmatrix}$$

b)

Hypothesis i, Test of overall regression $\rightarrow$ The F-Test.

c)

The estimator under H_0:

$$\hat{\beta}_c = \hat{\beta} - (X'X)^{-1}C'[C(X'X)^{-1}C']^{-1}(C\hat{\beta} - t)$$

Solution via R. See markdown file on LiMo homepage.