In answering the first two questions below, you are to use the data set and the model specifications you employed in Assignment 2.

1. Consider the specification

\[
    c_i = \beta_0 + \beta_1 (y_{hi} + y_{wi}) + \beta_2 (y_{hi} + y_{wi})^2 + \beta_3 e_{hi} + \beta_4 e_{wi} \\
    + \beta_5 f s_i + \beta_6 u a_i + \beta_7 s m s a_i + \varepsilon_i,
\]

where \( \varepsilon_i \sim (0, \sigma^2_i) \), \( \forall i \), and where \( \varepsilon_i \) and \( \varepsilon_j \) are independently distributed for all \( i \neq j \). Answer questions 1-3 from Assignment 2 under this specification of the distribution of the disturbances.

2. Once again, consider specification [0.1]. Assume that the variances of the disturbances are given by

\[
\sigma^2_i = \sigma^2 \times f s_i^2.
\]

Obtain GLS estimates of \( \beta \) in [0.1] under this assumption on the error variances [denote your estimator by \( \hat{\beta} \)]. Also compute the estimated standard errors of \( \hat{\beta} \). Compare \( \hat{\beta} \) and \( \tilde{\beta} \). If there are any notable differences, which estimator do you prefer? Why?

3. Amemiya 6.7