

HW 6

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*6.1

a. $\vec{X} = \begin{bmatrix} 1 & X_{11} & X_{11}X_{12} \\ 1 & X_{21} & X_{21}X_{22} \\ 1 & X_{31} & X_{31}X_{32} \\ 1 & X_{41} & X_{41}X_{42} \end{bmatrix}$

$$\vec{\beta} = \begin{bmatrix} \beta_0 \\ \beta_1 \\ \beta_2 \end{bmatrix}$$

b. $\vec{X} = \begin{bmatrix} 1 & X_{11} & X_{12} \\ 1 & X_{21} & X_{22} \\ 1 & X_{31} & X_{32} \\ 1 & X_{41} & X_{42} \end{bmatrix}$

$$\vec{\beta} = \begin{bmatrix} \beta_0 \\ \beta_1 \\ \beta_2 \end{bmatrix}$$

* 6.2

a.

$$\vec{X} = \begin{bmatrix} X_{11} & X_{12} & X_{11}^2 \\ X_{21} & X_{22} & X_{21}^2 \\ X_{31} & X_{32} & X_{31}^2 \\ X_{41} & X_{42} & X_{41}^2 \\ X_{51} & X_{52} & X_{51}^2 \end{bmatrix}$$

$$\vec{\beta} = \begin{bmatrix} \beta_1 \\ \beta_2 \\ \beta_3 \end{bmatrix}$$

b.

$$\vec{X} = \begin{bmatrix} 1 & X_{11} & \log X_{12} \\ 1 & X_{21} & \log X_{22} \\ 1 & X_{31} & \log X_{32} \\ 1 & X_{41} & \log X_{42} \\ 1 & X_{51} & \log X_{52} \end{bmatrix}$$

$$\vec{\beta} = \begin{bmatrix} \beta_0 \\ \beta_1 \\ \beta_2 \end{bmatrix}$$