Chapter 6 Assignment - The steps involved in an analysis Yubing Li 00808366

* Summarizing data:

Check if the data is complete.

Determine the dependent variable and explanatory variables.

Describe the weaknesses of the definitions used, the theories concerning the relationships between variables.

* Preliminary analysis:

Posit the model Y = β0 + β1 X1 + β2 X2 + … + ε

Fit the regression model.

Compute the regression coefficients of each explanatory variables βi, the coefficient of determinations R2 and t-ratios.

(If t-ratio is less than 1 in absolute value, eliminate the variables because they have low impacts on Y.)

Compare the relationships between variables from the regression model to the theoretical relationships.

Draw the histogram of standardized residuals and leverages to find the outliers, high leverage points and the robustness of the model.

* Basic analysis:

Examining the relationships between pairs of variables.

Do the transformations to response variable and explanatory variables.

Draw the scatterplots to see the linearity, positive/negative, strong/weak relationship, skew of the distributions and see if there’re unusual features.

* New models:

Based on the work in previous steps, we fit a new model with new dependent variable and all explanatory variables.

Compute the regression results, histograms of residuals and leverages of the new model; see if we get a better model.

Compute the new regression coefficients of each explanatory variables βi, the coefficient of determinations R2 and t-ratios. Determine which variables are more important.

Run a stepwise regression and summarize the estimated relationships among the variables.