

Exercise: Using the Linear Regression Task to Perform Other Model Selection Techniques

Use the **bodyfat2** data set to identify a set of "best" models using other model selection techniques.

1. Use the Stepwise Selection Method with SBC as the criterion in the Linear Regression task to identify a set of candidate models that predict **PctBodyFat2** as a function of the interval variables **Age**, **Weight**, **Height**, **Neck**, **Chest**, **Abdomen**, **Hip**, **Thigh**, **Knee**, **Ankle**, **Biceps**, **Forearm**, and **Wrist**. Submit the task and view the results.

1. In the Navigation pane, select **Tasks and Utilities**.
2. Expand **Tasks**.
3. Expand **Statistics** and open the **Linear Regression** task.
4. Select the **stat1.bodyfat2** data set.
5. Assign **PctBodyFat2** as the Dependent variable, and the interval variables **Age**, **Weight**, **Height**, **Neck**, **Chest**, **Abdomen**, **Hip**, **Thigh**, **Knee**, **Ankle**, **Biceps**, **Forearm**, and **Wrist** to the Continuous variables role.
6. On the MODEL tab, click the **Edit this model** icon, select all variables, and click **Add**. Then click **OK**.
7. On the OPTIONS tab, suppress all diagnostic, residual, and scatter plots.
8. On the SELECTION tab, use the Selection method drop-down list to choose **Stepwise selection**.
9. For Add/remove effects with value, select **Schwarz Bayesian information criterion** as the criterion.
10. Expand the **SELECTION PLOTS** property and select both **Criteria plots** and **Coefficient plots**.
11. Run the task.

Here are the [results](#).

In the results, notice the following:

- The stepwise selection process, using SELECT=SBC, seems to select a five-effect model (including the intercept).
- The Coefficient panel shows that the standardized coefficients do not vary greatly when additional effects are added to the model.
- The Fit panel indicates that the best model, according to AIC, AICC, adjusted R-square, and SBC, is the final model viewed during the selection process. Remember that this statement compares only the models that were viewed in these steps of the selection process.
- The parameter estimates from the selected model are presented in the Parameter Estimates table.

2. Modify the task to specify AIC as the criterion. Submit the task and view the results.

1. On the SELECTION tab, choose **Akaike's information criterion** as the criterion to add/remove effects.
2. Run the task.

Here are the [results](#).

Using AIC, the selected model contains nine effects (including the intercept).

