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Adjusted R-Square and Mallows' Cp

As you build and compare models using PROC GLMSELECT, you can choose from several selection criteria. In addition to significance levels and information criteria, you can use the adjusted R-square and Mallows' Cp.

The R-square always increases or stays the same as you include more terms in the model. Therefore, choosing the "best" model is not as simple as just making the R-square as large as possible. The adjusted R-square is a measure that's similar to R-square, but it takes into account the number of terms in the model. It can be thought of as a penalized version of R-square. The penalty increases with each parameter that's added to the model.

$$R^2_{ADJ} = 1 - \frac{(n-i)(1-R^2)}{n-p}$$

In the equation, i=1 if there is an intercept, and 0 otherwise. The number of observations that are used to fit the model is n and the number of parameters in the model is p. More information about Mallow's Cp can be found in the self-study section of this lesson.

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