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A Complementary Perspective on the Use of ROC Curve to Assess Logistic Regression Models

The Receiver Operating Characteristics (ROC) curve is commonly used to assess the power of a logistic regression model for predicting a binary outcome. In this presentation, we consider questions such as "how do the estimated model parameters affect the Area under the ROC Curve (AUC)" and "what is the maximum AUC that can empirically be observed". Based on the answers, we discuss the benefits of assessing the goodness-of-fit of a fitted model by comparing the model's AUC with the AUC for the saturated model. Examples from the analysis of non-response for the Canadian Forces ‘Your-Say’ Survey are discussed.