Discrimination vs. Calibration (Article)

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There are several different ways to evaluate the success of your model(s). **Discrimination** is one aspect. **ROC/AUC** is one measure of discrimination. In the case of a binary response/outcome, the c-statistic is identical to the Area under the Curve. Accurate predictions discriminate between those with and those without the outcome. It is possible to discriminate quite well between the client that will get their Loan Approved (1) and the client who will NOT get their Loan Approved (0) but this does not ensure that you have captured an accurate estimation (of risk) for each client. (this would be the **Calibration**). **Calibration** refers to the agreement between observed outcomes and predictions. For example, your model may predict a probability > than 0.5 for someone who should in fact get a loan (Lo_Status=1), and a probability of < than 0.5 for someone who should not get a loan (Lo_Status-0) (great Discrimination) but it may considerably overestimate or underestimate that risk each time it makes the right call. A **Calibration graph**, comparing your Predicted Probability (X axis) and Observed Probability (Y), is one way to evaluate this metric.

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