

Regression Evaluation: Residuals & Diagnostics

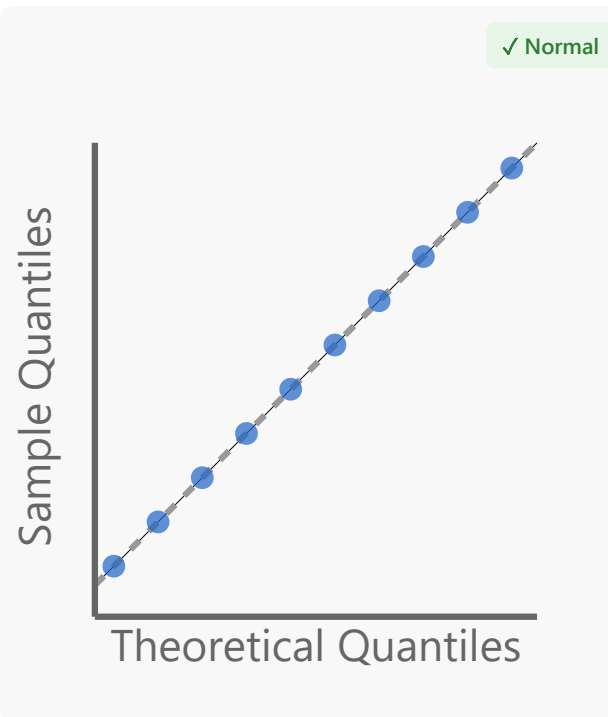
Checking Model Assumptions and Fit Quality

Residuals vs Fitted



Random scatter = good fit

Q-Q Plot (Residuals)



Points on line = normality

✓ Good Signs

Residuals

- Random scatter
- Zero mean

Q-Q Plot

- Points on diagonal

Scale-Location

- Horizontal band

Pred vs Actual

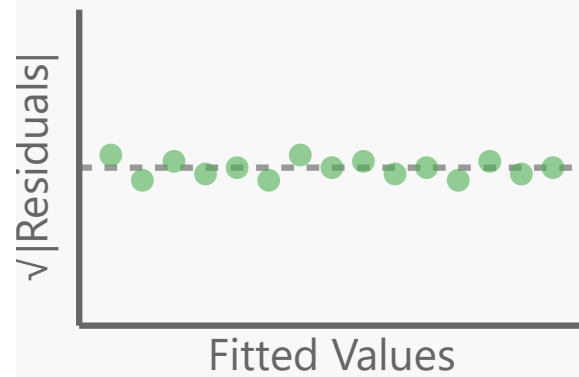
- Points near diagonal

Scale-Location

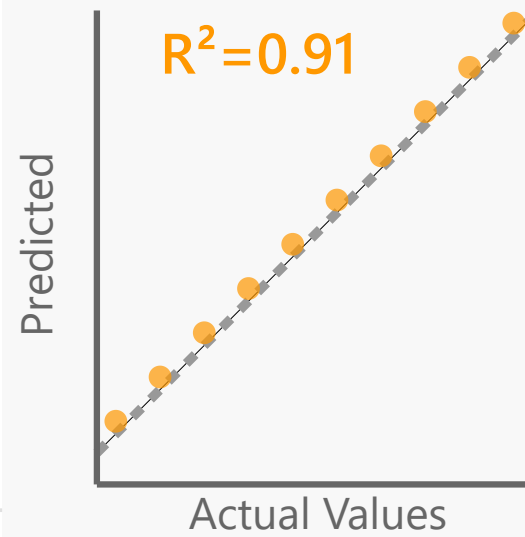
Predicted vs Actual

⚠ Warning Signs

- ▶ Patterns → model issues
- ▶ Funnel → heteroscedasticity



Constant variance



Close to diagonal = good

- ▶ Curved → non-linearity
- ▶ Q-Q deviates → non-normal

✓ Best Practices

- ✓ Check all 4 plots
- ✓ Look for patterns
- ✓ Identify influential points
- ✓ Transform if needed