

Comparison of Modeling Approaches

Aspect	Linear Mixed Model	Beta Regression
Predictions bounded to [0,1]	No (requires post-hoc truncation)	Yes (inherently)
Handles heteroscedasticity	No (assumes constant variance)	Yes (automatic)
Captures non-linear patterns	Limited (without complex interactions)	Yes (with splines)
Interpretable parameters	Yes (change per unit time)	Yes (log-odds scale)
Software availability	Excellent (lme4, nlme)	Good (glmmTMB, brms)
Computational complexity	Low	Moderate