Stepwise Regression Report

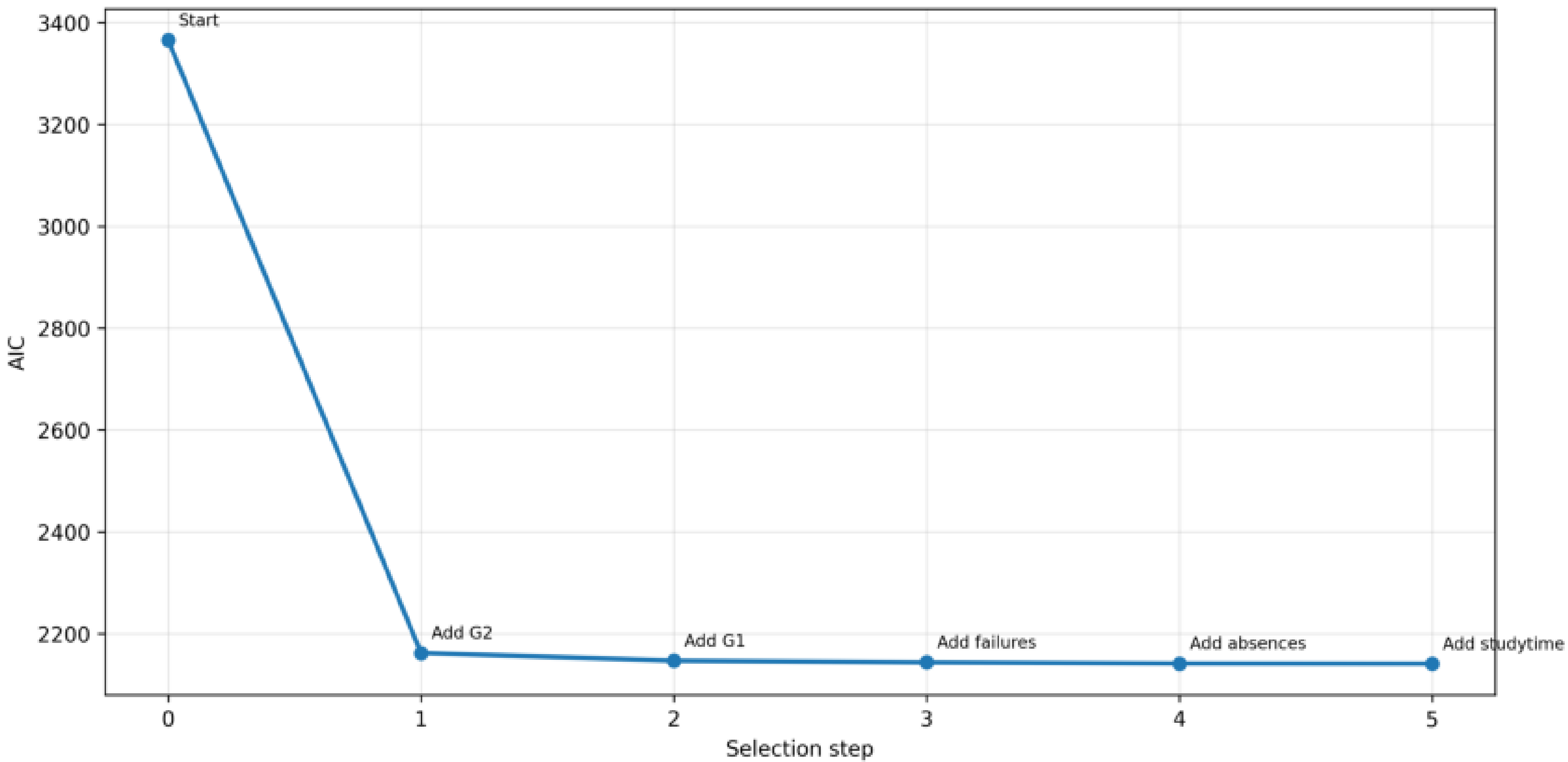
Selection method: both-direction AIC
Selected predictors: G2, G1, failures, absences, studytime

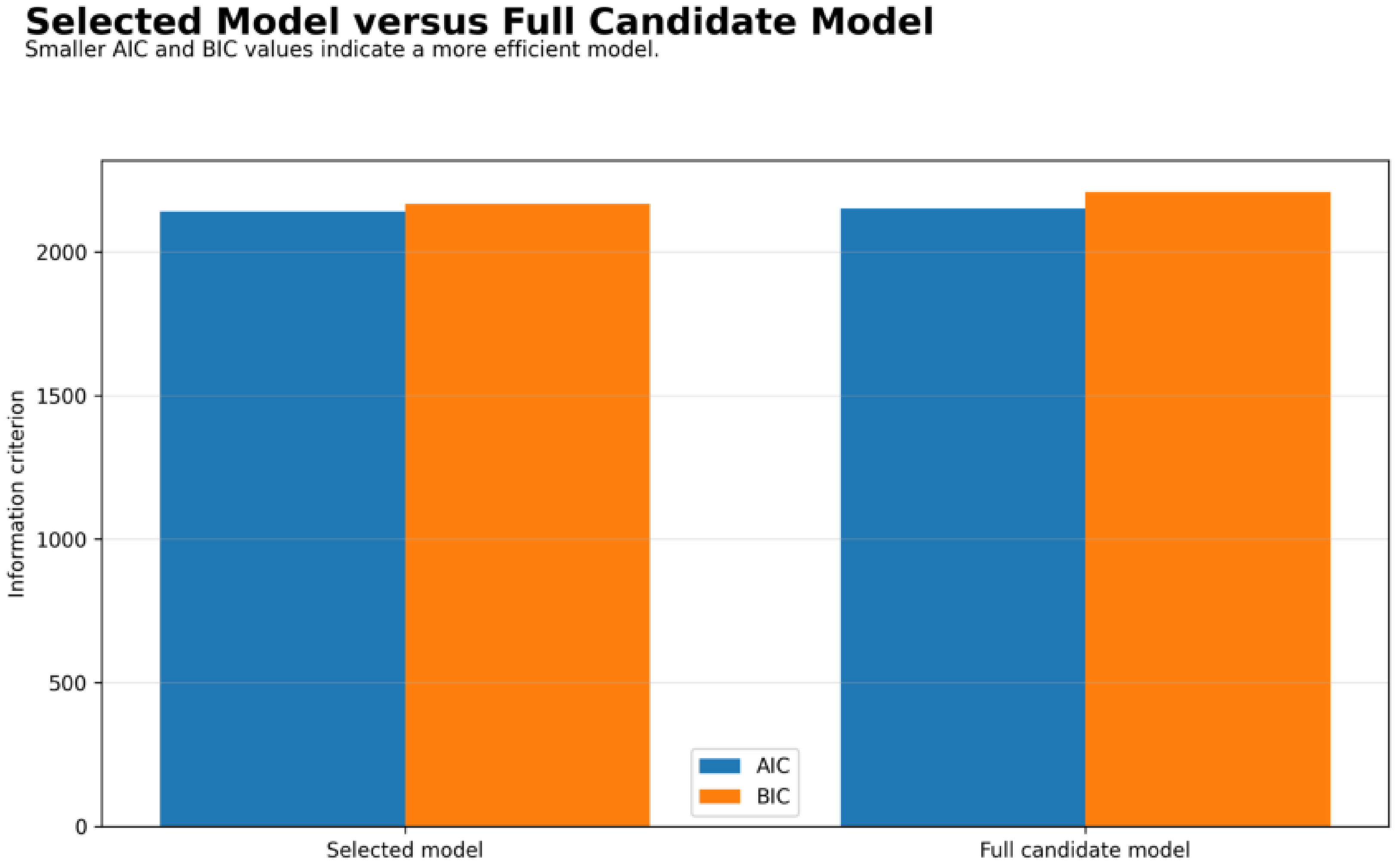
N: 649
R-squared: 0.850563
Adjusted R-squared: 0.849401
F statistic: 731.965860
Model p-value: 1.3257355596e-262
RMSE: 1.247913
AIC: 2141.253662
BIC: 2168.106259

Interpretation:
The selected predictor set minimized AIC among the evaluated stepwise moves.
Review diagnostics and validate the model before final reporting.

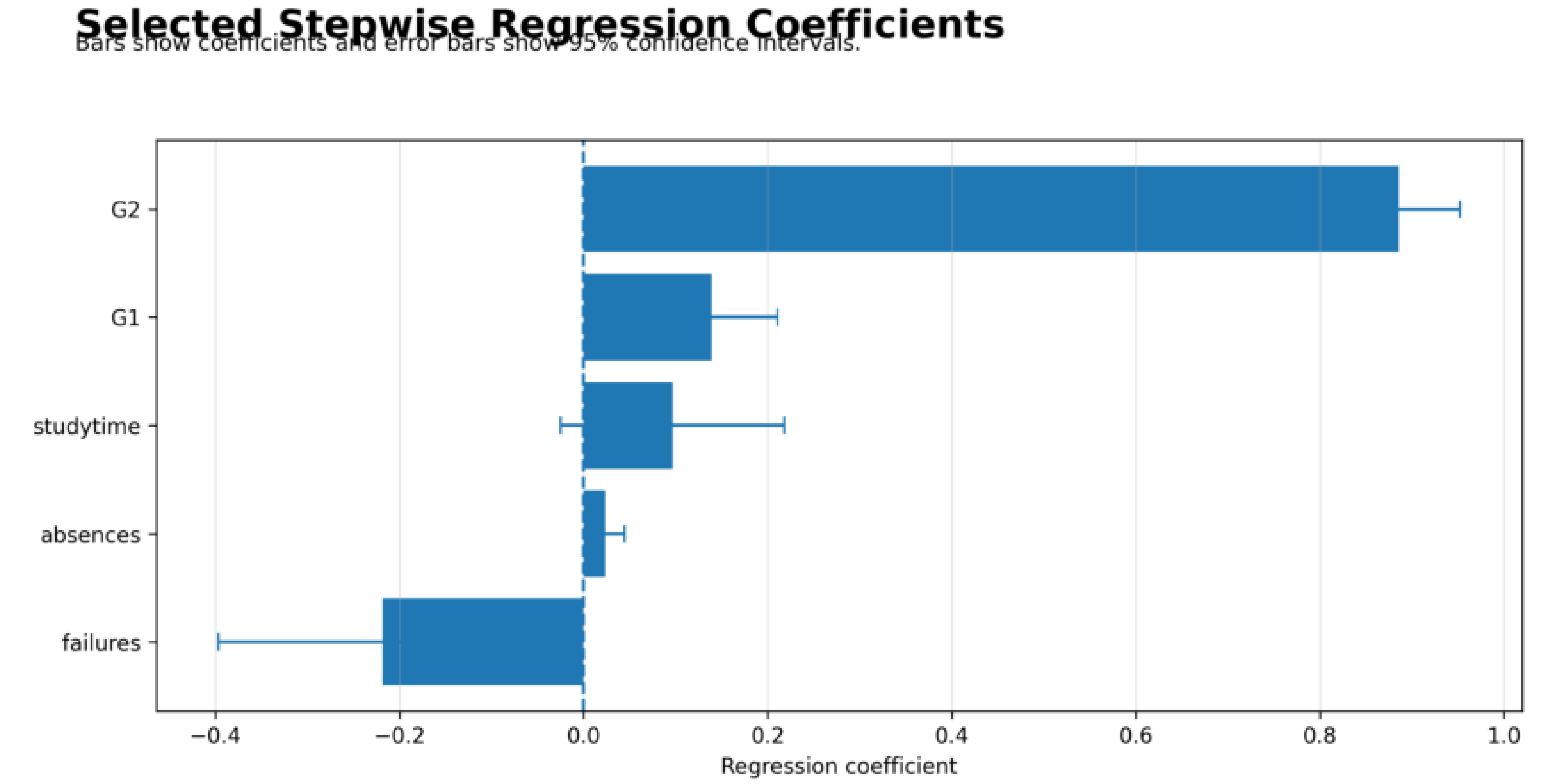
Stepwise Selection Path

Lower AIC indicates a better balance between model fit and model complexity.



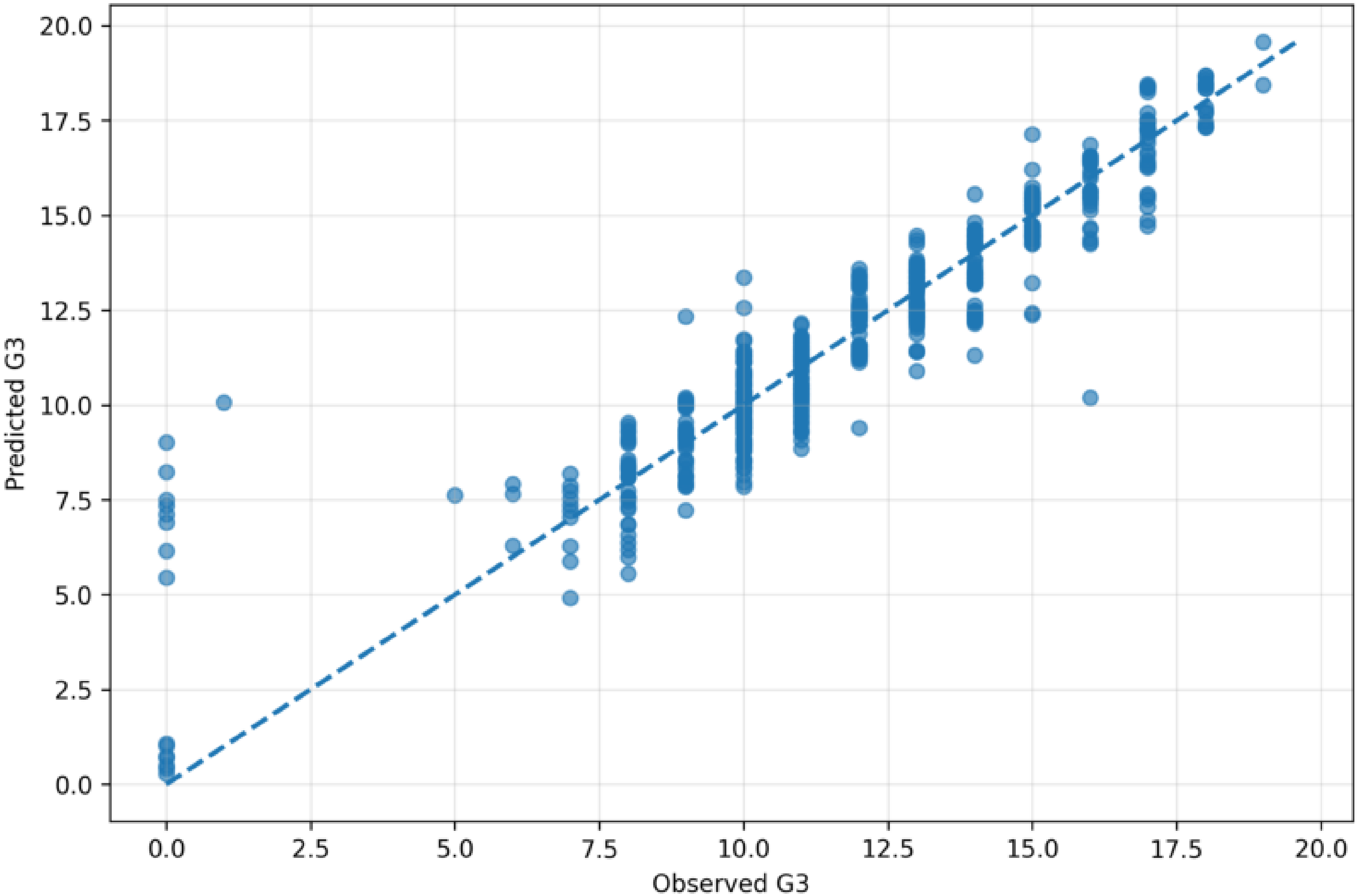


Selected Model versus Full Candidate Model
Smaller AIC and BIC values indicate a more efficient model.
Information criterion
0
500
1000
1500
2000
AIC
BIC
Selected model
Full candidate model


Selected Stepwise Regression Coefficients
Bars show coefficients and error bars show 95% confidence intervals.
G2
G1
studytime
absences
failures
−0.4
−0.2
0.0
0.2
0.4
0.6
0.8
1.0
Regression coefficient

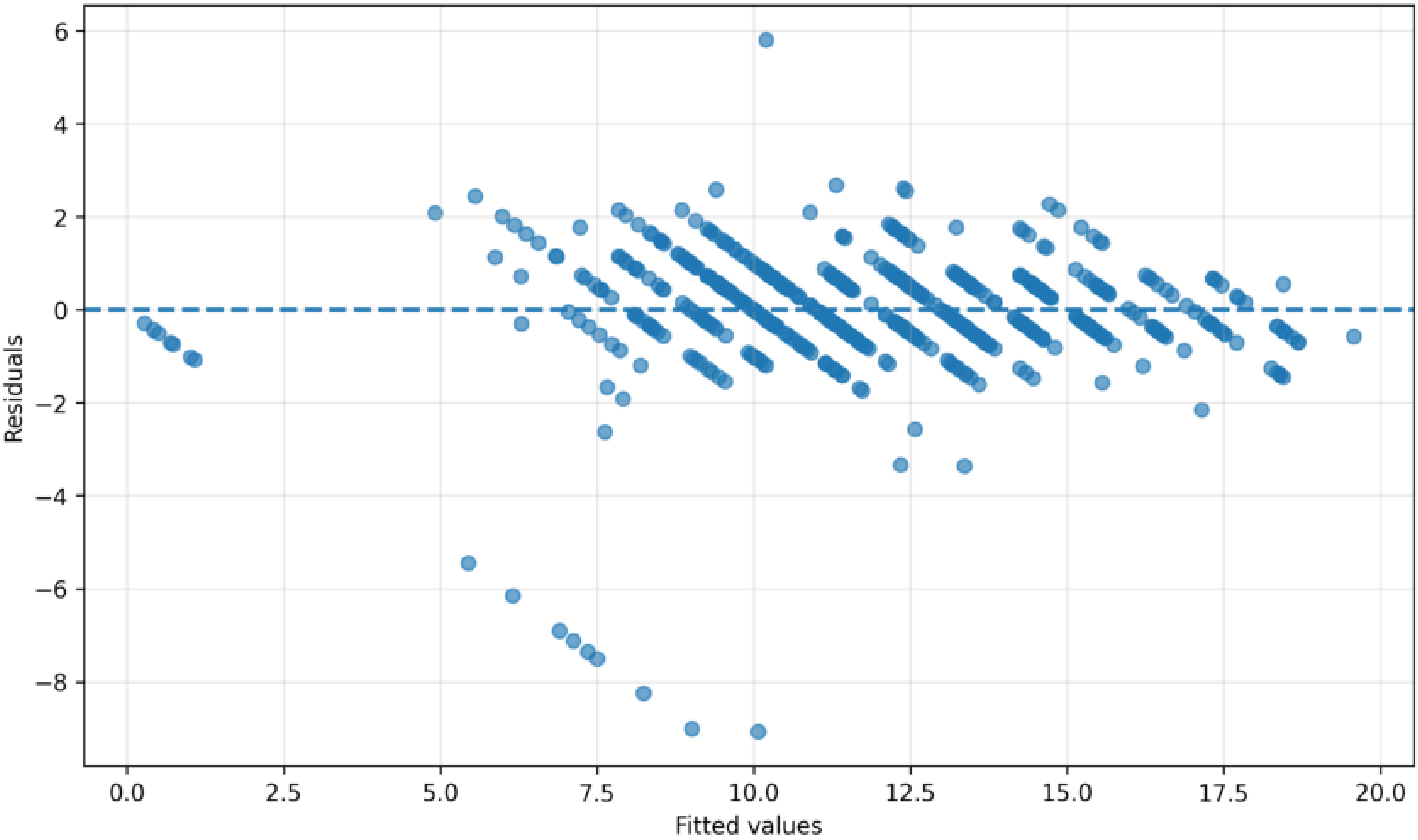
Observed versus Predicted Values

Points closer to the diagonal line indicate better prediction.



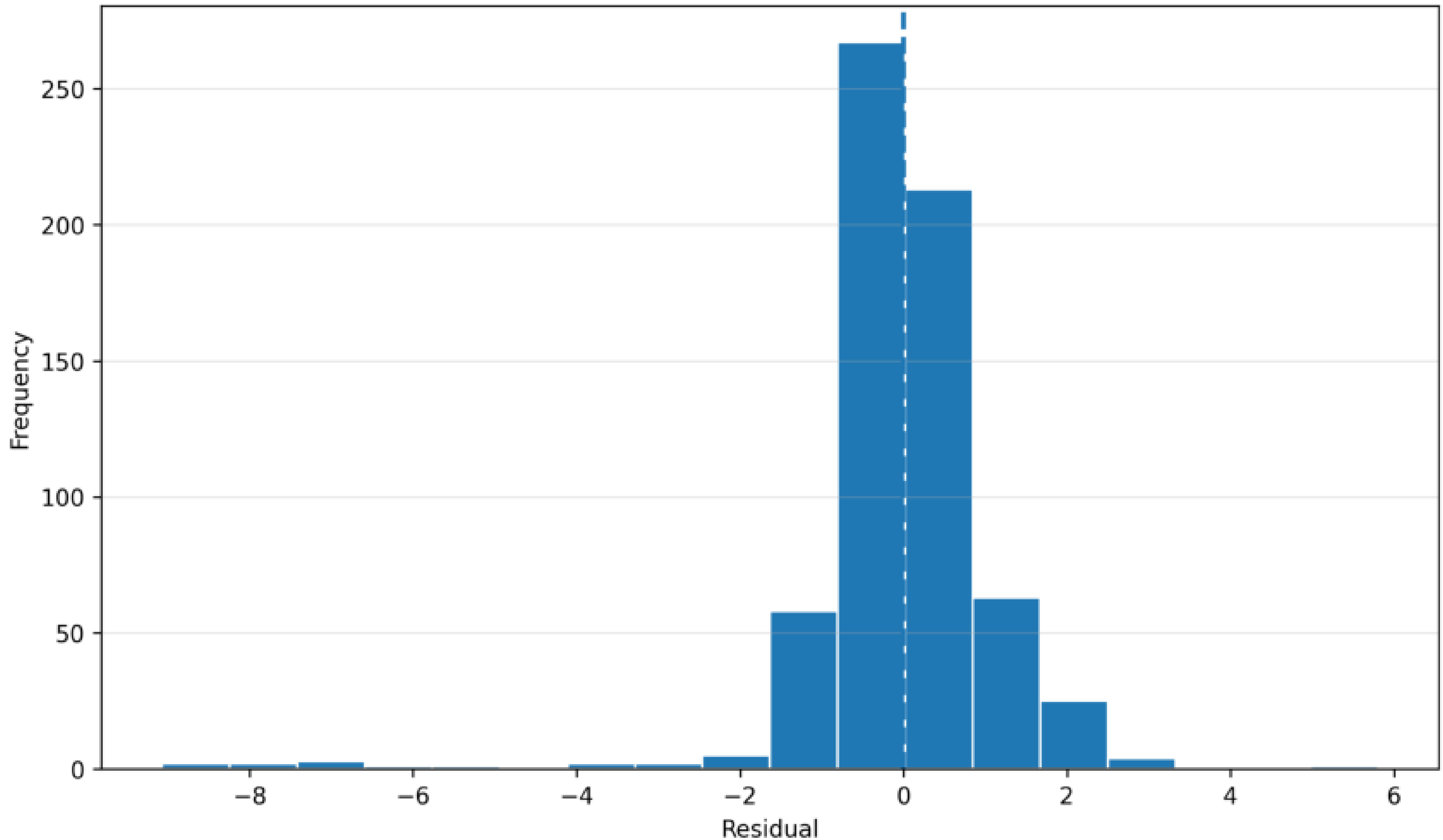
Residuals versus Fitted Values

A random band around zero supports linearity and constant variance.



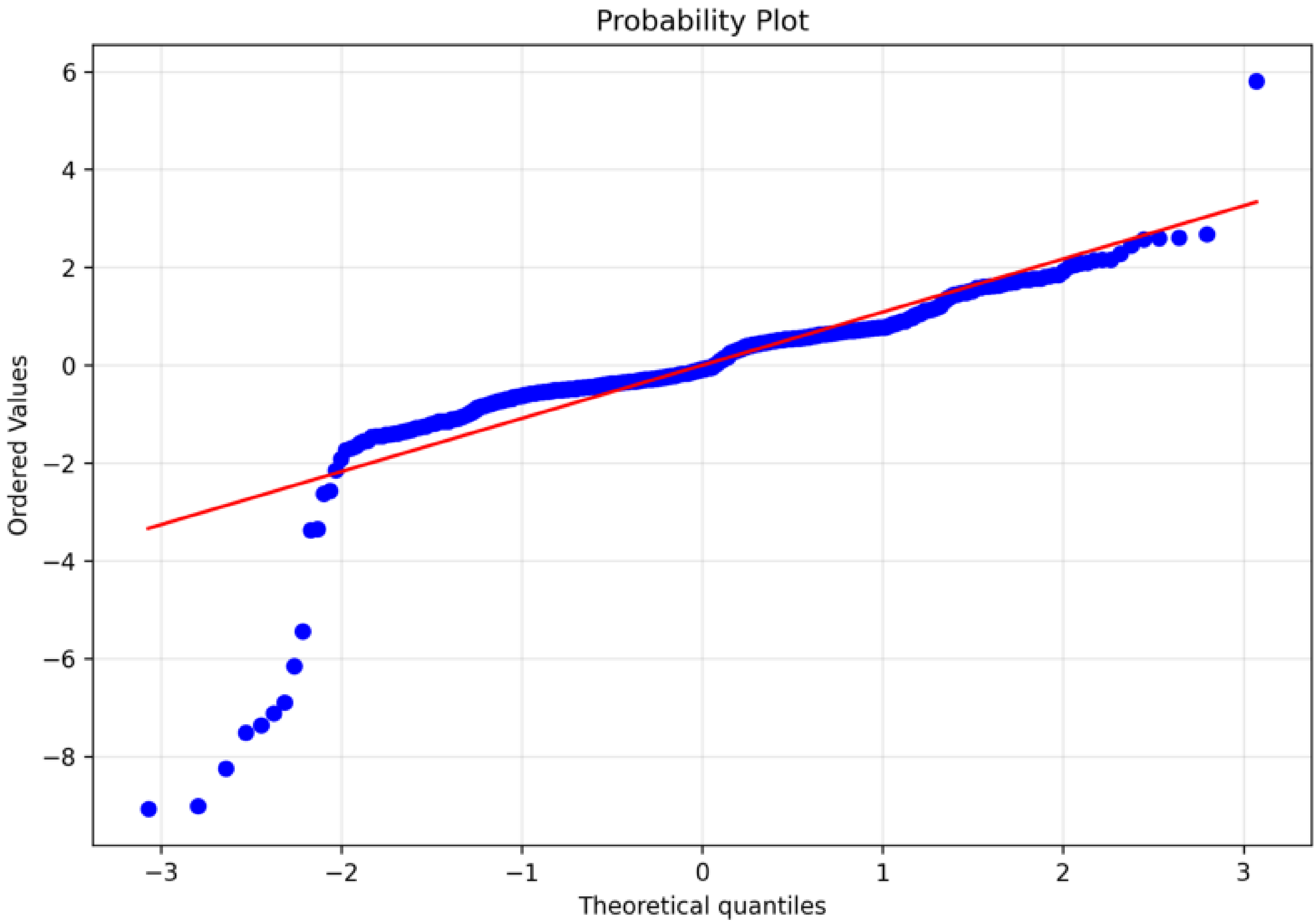
Residual Distribution

A roughly centered and symmetric distribution supports approximate normality.



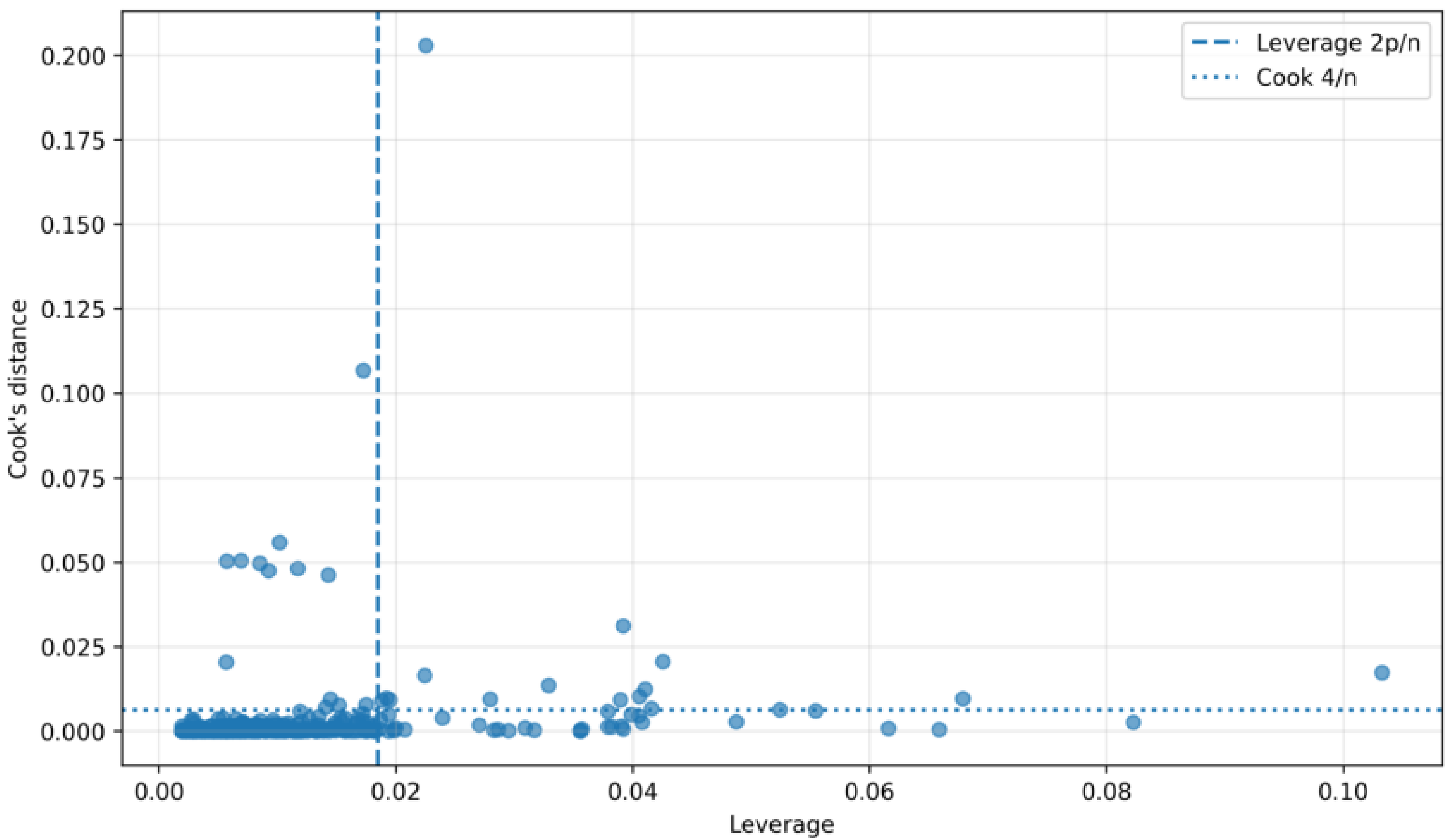
Q-Q Plot of Residuals

Points close to the reference line support approximate residual normality.



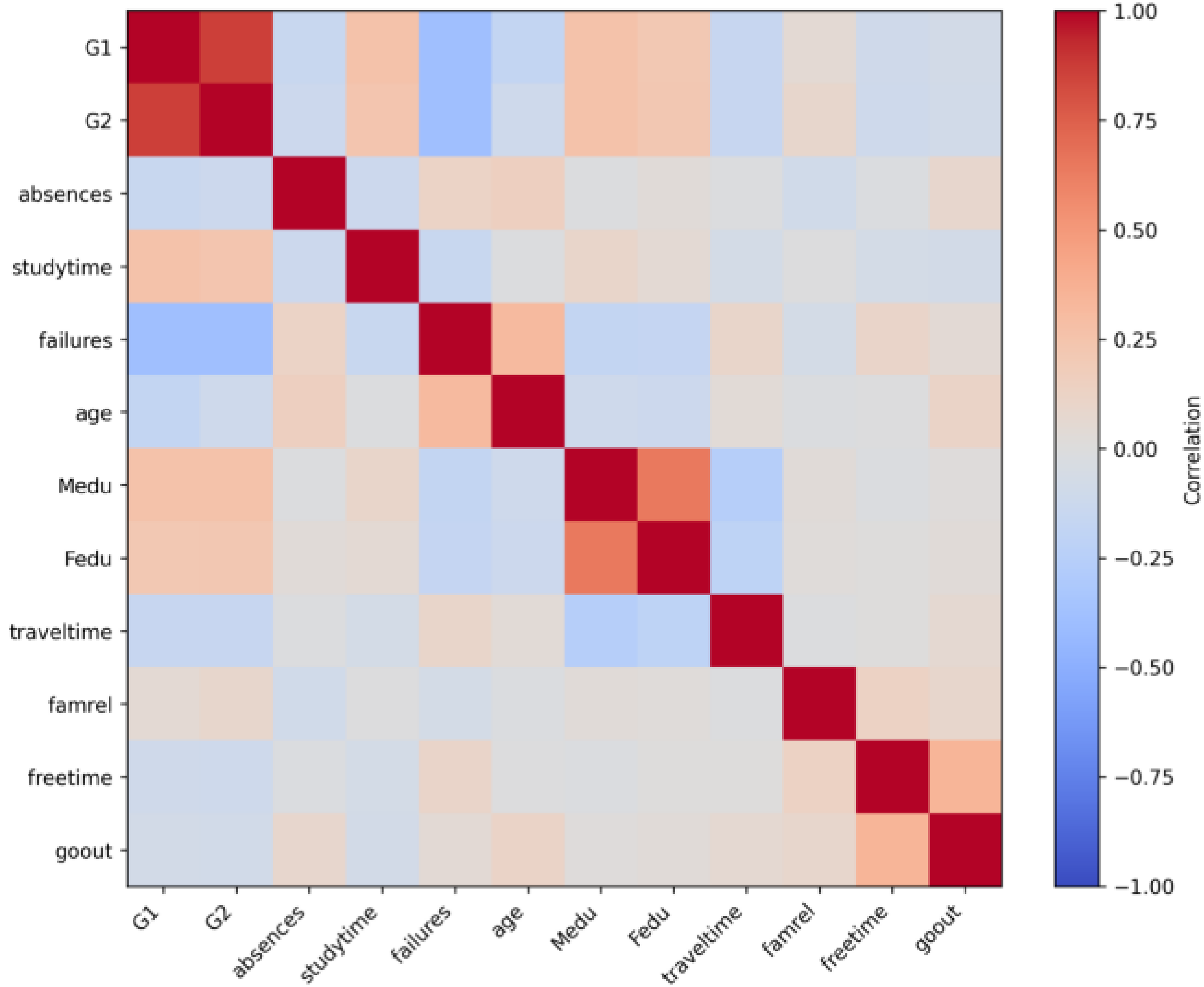
Leverage and Cook's Distance

Cases above the reference lines deserve investigation for influence.



Candidate Predictor Correlation Matrix

Strong predictor correlations can affect variable selection and coefficient stability.



Final Stepwise Regression Summary

The selected predictor set is the model retained by both-direction AIC selection.

Statistic	Value
Outcome	G3
Candidate predictors	G1, G2, absences, studytime, failures, age, Medu, Fedu, traveltime, famrel, freetime, goout
Selected predictors	G2, G1, failures, absences, studytime
N	649
R-squared	0.850563
Adjusted R-squared	0.849401
AIC	2141.253662
BIC	2168.106259
RMSE	1.247913