

Regression P Value

Test name: Regression P Value

Dataset: D:/DATA ANALYSIS/H Regression Tests and Models/Regression P Value/dataset.csv

Rows in original dataset: 649

Rows used in model: 649

Outcome: G3

Predictors: G1, G2, studytime, failures, absences, age, Medu, Fedu

Formula: $G3 \sim G1 + G2 + \text{studytime} + \text{failures} + \text{absences} + \text{age} + \text{Medu} + \text{Fedu}$

R-squared: 0.850777

Adjusted R-squared: 0.848912

Overall F statistic: 456.111097

Overall model p-value: $1.454898041e-258$

RMSE: 1.255758

Strongest standardized predictor: G2 beta = 0.797983

Interpretation: unstandardized B is the expected outcome change for a one-unit predictor increase, controlling other predictors.

Standardized beta compares predictor strength on a common scale.

A 95% confidence interval excluding zero and $p < 0.05$ indicate stronger evidence for a coefficient effect.

Squared semi-partial correlation is the unique contribution to R-squared.

VIF values of 5 or more warrant closer multicollinearity review.

Charts generated: 8

Regression coefficients

term	coefficient_b	standard_error	t_value	p_value	ci95_lower	ci95_upper
(Intercept)	-0.50115470	0.77395037	-0.6475282	5.175223e-01	-2.020943673	1.01863427
G1	0.14339666	0.03667185	3.9102656	1.020384e-04	0.071384979	0.21540835
G2	0.88480738	0.03436950	25.7439712	7.355488e-101	0.817316763	0.95229799
studytime	0.09663180	0.06209078	1.5562987	1.201314e-01	-0.025294474	0.21855808
failures	-0.23536120	0.09523444	-2.4713874	1.371819e-02	-0.422370939	-0.04835147
absences	0.02276203	0.01091928	2.0845722	3.750404e-02	0.001320082	0.04420398
age	0.02268549	0.04366788	0.5195005	6.035914e-01	-0.063064155	0.10843513
Medu	-0.04495115	0.05793762	-0.7758543	4.381216e-01	-0.158721956	0.06881965
Fedu	0.02202534	0.05931553	0.3713250	7.105183e-01	-0.094451233	0.13850192
decision_alpha_0_05						
Not statistically significant						
Statistically significant						
Statistically significant						
Not statistically significant						
Statistically significant						
Statistically significant						
Not statistically significant						
Not statistically significant						
Not statistically significant						

Standardized coefficients

term	unstandardized_b	standardized_beta	absolute_standardized_beta
G2	0.88480738	0.797983068	0.797983068
G1	0.14339666	0.121851980	0.121851980
failures	-0.23536120	-0.043218630	0.043218630
absences	0.02276203	0.032697099	0.032697099
studytime	0.09663180	0.024811369	0.024811369
Medu	-0.04495115	-0.015786086	0.015786086
age	0.02268549	0.008553694	0.008553694
Fedu	0.02202534	0.007498896	0.007498896

Zero-order, partial, and part correlations

term	zero_order_correlation	partial_correlation	semi_partial_part_correlation	unique_r_squared_contribution
G1	0.82638712	0.15275289	0.059708184	3.565067e-03
G2	0.91854800	0.71325473	0.393100095	1.545277e-01
studytime	0.24978869	0.06140203	0.023764055	5.647303e-04
failures	-0.39331555	-0.09722733	-0.037737093	1.424088e-03
absences	-0.09137906	0.08212163	0.031830579	1.013186e-03
age	-0.10650539	0.02053073	0.007932564	6.292557e-05
Medu	0.24015076	-0.03065392	-0.011846983	1.403510e-04
Fedu	0.21179968	0.01467633	0.005669984	3.214872e-05

Multicollinearity statistics

term	vif	tolerance	decision
G1	4.164832	0.2401057	Acceptable
G2	4.120795	0.2426716	Acceptable
studytime	1.090085	0.9173597	Acceptable
failures	1.311611	0.7624211	Acceptable
absences	1.055187	0.9476995	Acceptable
age	1.162734	0.8600421	Acceptable
Medu	1.775552	0.5632051	Acceptable
Fedu	1.749166	0.5717012	Acceptable















