

Predicting Student Math Grades

Sample Analysis: Measuring the Predictors of Student Math Grades

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I- Executive Summary

This analysis uses public data from two Portuguese secondary schools (357 observations) to investigate which factors predict students' final math grades. The predictors examined are (1) number of absences, (2) number of past course failures, (3) mother's level of education, (4) how often the student goes out with friends (self-rated on a scale from 1 to 5), and (5) weekly study time.

Past course failures and absences were the strongest predictors of final grades. Higher levels of mother's education were linked to higher grades, and going out with friends more often was linked to lower grades. Weekly study time showed no clear link once the other factors were considered. Together, these predictors explain about 15% of the differences in grades.

II- Methodology

A multiple linear regression was deployed to examine how well each predictor explains students' final math grades, and to compare the predictors by their relative predictive power.

III- Result and Interpretation

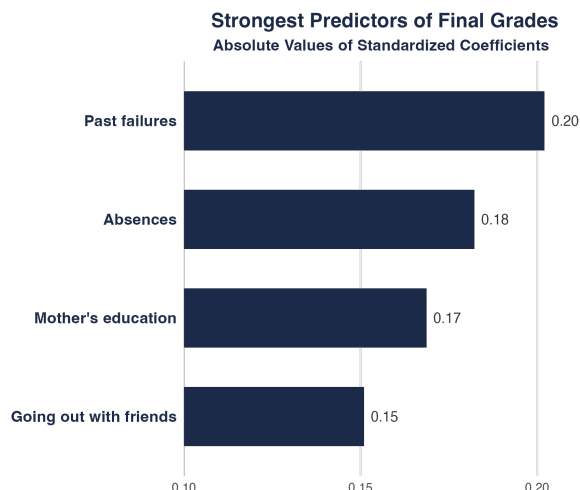
Grades are scored from 0 to 20. Each result below shows how a predictor relates to the final grade when the other predictors are held constant.

Past course failures: each additional failure was associated with a final grade about 1 point lower.

Absences: every 10 additional absences were associated with a final grade about 0.7 points lower.

Mother's education: each step up the education scale was associated with a final grade about half a point higher.

Going out with friends: each step up the self-rated scale was associated with a final grade about 0.45 points lower.



IV- Recommendation

Prioritize support for students with past course failures or frequent absences and use these predictors alongside other relevant information when deciding how to intervene.